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CISI
CAREER
INFORMATION
SYSTEM
OF
IOWA

**Occupational
Briefs**

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O33
1988

CISI

CAREER INFORMATION SYSTEM OF IOWA

Occupational Briefs

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OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CAREER
organizes, and conducts research to determine the real estate and the financial health of individuals and corporations.

1633
119.267-010
11.04
396
2-Business and Office (F)
2-Business and Office (S)
Business and Office (F)
Business and Office (S)

PERSONAL APTITUDES:

Abstracter must be able to learn how to collect and check the quality of information.

Ability to learn and understand technical information, present information to others, and write reports will be important in this occupation.

Abstracter will be able to use mathematics to keep records, read reports and record data.

Abstracter will be able to pay close attention to written details, instructions, avoid and correct errors.

Stooping, reaching, or lifting of 10 lbs. can be expected in this occupation.

Abstracter analyzes measurable facts of past and present records.

- An Abstracter must be able to develop error free statistics which meet a set standard.
- An interest in working with technical data will be helpful in this occupation.
- With employer assistance, some physical limitations may be overcome through changes in the work site or to equipment.

OCCUPATION PROFILE:

- An Abstracter searches public and private records such as mortgages, deeds, titles, and tax records for information needed for reports and abstracts.
- An Abstracter searches and compares tax documents, property legal descriptions and other official records to verify own legal property lines.
- An Abstracter documents the transfer history of land.
- An Abstracter searches for liens or other legal claims on property.
- An Abstracter works with a variety of legal forms such as mortgages, deeds, insurance papers, tax forms and real estate documents.
- An Abstracter compares property descriptions against legal descriptions.
- Abstracters work with documents, maps and drawings prepared by assessors and surveyors.



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Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

MS OF STUDY AND TRAINING:

for this occupation is usually done on the job.

S OF ADDITIONAL INFORMATION:

1 Land Title Association
Street. N. W
ton, D.C. 20036

ate Educators Association
h Michigan Ave. Suite 1200
IL 60601

National Marketing Institute
Michigan Ave.
IL 60611



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

TASKS

Accountant reviews and analyzes financial reports to provide business managers, government officials and individuals with up-to-date records.

1614

160.167-010

11.06

1412

2-Business & Office (F)

2-Business & Office (S)

Accounting & Bookkeeping (F)

Accounting & Bookkeeping (S)

B
S

PERSONAL APTITUDES:

Accountant will be able to learn, understand and use the math that apply to accounting.

Ability to interpret and explain technical information given in technical form will be important in this occupation.

Accountant will be able to work a wide range of math problems and easily.

Ability to pay close attention to detail in written information to correct errors will be important in this occupation.

Accountant will be able to sit most of the day and be able to lift weights under 10 pounds.

Accountant will be able to plan and direct the work of accounting and other workers.

- The ability to make decisions based on experience as well as on available fact will be important in this occupation.
- An Accountant will be able to complete tasks that meet a high standard.
- An interest in working alone with things that use technical skills will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Accountant will show a knowledge of accounting principles and methods, and be able to operate a variety of business machines.
- A knowledge of data processing procedures will be necessary.
- Three major accounting fields: public, management and government accounting will be possible areas for employment.
- A management or independent Accountant will handle the financial records of a business or industry which provides a product or service to the public.
- Public Accountants provide several important services to businesses of all types. The services are: financial statement preparation, auditing, audit opinions and compilation and review reports, taxation and management advisory services.
- A government Accountant handles the financial records of government agencies and audits businesses and private individuals subject to government regulation.



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KEY OCCUPATIONS:

Accountants and Auditors (16140) See Accountants and Auditors in
Primary Career 1988-89 page 247.

RELATED OCCUPATIONS:

Accounting Technician (1617)
Accounting Clerk (1616)
Accounting Officer (1636)

EDUCATION AND TRAINING:

Positions require a Baccalaureate degree in accounting or a
related field.

For entry-level positions, most colleges and universities require a Master's
degree or a Doctorate degree and the Certified Public Accountant
(CPA) Certificate.

To wish to become certificated as Certified Public
Accountants (CPA) usually prepare for this throughout their college
education.

As a Certified Public Accountant (CPA), you must hold a
certificate issued by the State Accountancy Board and have completed
at least 150 hours of work experience under the direct supervision of a licensed
Certified Public Accountant.

To be eligible to take the CPA examination, the applicant must be a final
college senior majoring in accounting, a college graduate
majoring in accounting or its equivalent, or have three years
of public accounting experience. To receive the CPA certifi-

cate, the applicant must be a college graduate with a major in
accounting or its equivalent or have three years of work
experience in public accounting.

- All applicants must be residents of Iowa, own a business or
be employed in Iowa.
- The examination is given twice per year (May and November). The
fee for the exam is \$90. The certificate is renewed biannually
upon application to the accountancy board for a \$20.00 fee.
- Forty hours of continuing professional education is required for
Certified Public Accountant.
- Continual upgrading of skills is essential to keep knowledge of
legal changes and business developments. Often large accounting
firms sponsor inservice seminars and workshops for their employees.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Basic Math Skills
 - Accounting
- Language Skills
- Office
 - Accounting
 - Data Processing

PROGRAMS OF STUDY AND TRAINING:

- 1802 - Accounting
- 1809 - Business Economics



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ACCOUNTING TECHNICIAN

working under direct supervision to check additions, adjustments and vouchers.

1617

216.482-010

07.02

4712

2-Business & Office (F)

2-Business & Office (S)

Accounting & Bookkeeping (F)

Accounting & Bookkeeping (S)

B
ES

PERSONAL APTITUDES:

An Accounting Technician will be able to learn the methods used in adjusting, balancing and preparing accounting reports.

The ability to use the technical information written in mathematical form will be important in this occupation.

An Accounting Technician will be able to compute and record numbers accurately.

An Accounting Technician will be able to read, copy and check large numbers of numbers without error.

The ability to use eyes, hands and fingers at the same time to enter forms or operate machines will be important in this occupation.

An Accounting Technician will be able to sit for long periods of time without any special reaching.

- The ability to do the same task, the same way, many times a day will be important in this occupation.
- An ability to complete tasks that meet a set standard will be important in this occupation.
- An interest in working with things in a familiar pattern will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Accounting Technician may use all kinds of bookkeeping equipment including accounting machines including data processing equipment.
- Making and keeping reports and journals that include profit and loss statements, cost studies, tax reports and budgets are some of the duties of an Accounting Technician.
- Accounting Technicians must be able to extend, post, prepare and correct their work.
- An Accounting Technician may work in auditing, taxes and bookkeeping.
- Keeping current with legal and business developments will be important in this occupation.
- An Accounting Technician may work for business and industry in budgeting and control, information processing or systems development.



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r Programming/Literacy

MS OF STUDY AND TRAINING:

ccounting
anking and Finance
ookkeeping
omputer Programming

S OF ADDITIONAL INFORMATION:

1 Institute of Certified Public Accountants
venue of Americas
k, NY 10036

onal Outlook Handbook
edition
(71-273)



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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

ACTRESS

ins and communicates with some people by re-
ing a character on stage, screen or television.

9866

150.047-010

01.03

324

5-Fine Arts & Humanities (F)

8-Hospitality & Recreation (S)

Theatre Arts (F)

Sports & Entertainment (S)

B
ES

AL APTITUDES:

/Actress will be able to follow directions and add original
hin the directions given using judgment and reasoning.

e to understand words and the ideas they present and use
d ideas to create an imitation of a character will be impor-

/Actress will be aware of and able to imagine how he/she
the space on stage.

e to control your physical movements to pretend emotion
portant in this occupation.

/Actress will be able to maintain good physical conditioning
rance.

ring and a good speaking voice will be important.

- An Actor/Actress will be able to adapt to and work well of people.
- Being able to handle stress resulting from criticism, strict and the employment uncertainty of the occupation will b
- An Actor/Actress will possess a great deal of determinat will be willing to take chances; and need to be assertive :
- An Actor/Actress will remember details easily.
- With employer assistance, some physical requirements n through changes to the work site or equipment.

OCCUPATION PROFILE:

- Actors/Actresses usually start in small 'bit' parts with o lines.
- Serving as an understudy for a principal performer in a may present an opportunity to demonstrate abilities if th misses a performance.
- An Actor/Actress may be cast in supporting roles or in le he or she has exceptional talent and appeal.
- An Actor/Actress must memorize lines, remember cues a ments and rehearse for many hours to perfect a role.
- Some Actors/Actresses serve as an 'extra' for large crow where there would be no individual speaking part.
- Teaching, acting, coaching drama or working outside the may be necessary to support yourself.



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Phone (515) 281-5

EL HIGH SCHOOL SUBJECTS:

English

Mathematics

COURSES OF STUDY AND TRAINING:

Communications, General
Speech, Debate Forensics
Dramatic Arts

SOURCE OF ADDITIONAL INFORMATION:

Information Office
1 Avenue
k, NY 10022

ional Outlook Handbook
edition
(26-228)



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

Y Knowledge of mathematics and statistics to calculate the probability of death, sickness, unemployment, and/or property loss.

1615
020.167-010
11.01
1732
2-Business & Office (F)
11-Marketing & Distribution (S)
Accounting & Bookkeeping (F)
Buying & Selling (S)

B
ES

PHYSICAL ABILITIES:

- The ability to learn to use advanced logic and scientific methods to solve a variety of complex problems.
- The ability to speak, write and understand technical terms, math and scientific language and complex graphs and charts will be important in this occupation.
- The ability to use advanced math and statistics.
- The ability to pay attention to fine detail in checking written work to be error free will be important in this occupation.
- The ability to sit in one place for long periods of time.
- The ability to plan and direct the completion of the work of others.

- The ability to make decisions based on known facts will be important in this occupation.
- An Actuary will be able to complete tasks that meet set standards.
- An interest in being involved in scientific and technical work will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Actuary will apply knowledge of math, probability, statistics, and principles of finance to specialize in life, health, and casualty insurance and pensions.
- Predicting the expected insurance loss and the rates to cover the insure payment of those losses will be part of the Actuary's job.
- An Actuary may determine accident, sickness and disability insurance rates. He or she may make probability tables based on the analysis of fitting distributions.
- Actuarial work for a private firm may be administering pension and loss insurance plans based on company statistics.
- An Actuary will be required to keep up to date on any legal changes affecting the work.

WAGES:

Hours per week	40
Average Wage (entry level)	not available
Average Wage (all experience levels)	\$22.60
Average Range	\$22.38-\$23.02



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Phone (515) 281-5

MS OF STUDY AND TRAINING:

Actuarial Science
Statistics

S OF ADDITIONAL INFORMATION:

1 Academy of Actuaries
treet, N.W 7th Floor
ton, D.C. 20006

Actuarial Society
1 Plaza
t 34th Street
k, NY 10119

e Information Institute
am Street
k, NY 10038

onal Outlook Handbook
edition
(1974)



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ADMINISTRATIVE ASSISTANT

Administrative Assistant will be able to plan the activities of the executive by coordinating office services and developing management methods; such as forms control, layout and personnel evaluation procedures.

1412

169.167-010

11.05

1490

2-Business & Office

2-Business & Office

Management (F)

Management (S)

B
ES

ADMINISTRATIVE APTITUDES:

Administrative Assistant will be able to learn and understand the procedures and problems of management and an area of responsibility such as accounting or personnel.

Administrative Assistant will be able to understand and communicate oral and written instructions or reports.

Administrative Assistant will be able to use basic math skills to compute weight, time and other numerical records.

Attention to detail in written reports to avoid errors will be important in this occupation.

Ability to perform a variety of duties, often changing from one to another, will be necessary in this occupation.

- An Administrative Assistant will be able to plan the activities of others.
- An Administrative Assistant will be able to make decisions based on both facts and experience.
- An interest in activities involving business contact with clients, earning their respect will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Administrative Assistant will, under supervision, coordinate services such as personnel, budget preparation and record keeping.
- An Administrative Assistant will analyze processes and procedures and provide advice to management about improvements.
- Under supervision an Administrative Assistant will assist in carrying out program responsibilities.
- An Administrative Assistant will often hire, train and supervise clerical staff.
- An Administrative Assistant will review and answer correspondence.
- An Administrative Assistant will often assist or prepare correspondence and annual reports.
- An Administrative Assistant will often direct services such as maintenance, repair, supplies and mail.



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ADMITTING CLERK

Admitting Clerks assign rooms, gather information; also answer questions and collect payments.

238.362-010 1435
 4643 07.04
 B 2-Business & Office (F)
 ES 8-Hospitality & Recreation (S)
 Secretarial & Clerical (F)
 Housing Services (S)

ESSENTIAL ABILITIES:

- Admitting Clerk will be able to learn the admission policies of the hospital or institution.
- Ability to follow directions and give clear instructions to others will be important in this occupation.
- Admitting Clerk will be able to use basic math for record keeping.
- Admitting Clerk will be able to pay attention to detail in written reports in order to avoid or correct errors.
- Ability to use eyes, hands and fingers at the same time to operate a typewriter or to fill out forms will be important in this occupation.
- Ability to sit for long periods of time, as well as reach and hear, will be important in this occupation.
- Admitting Clerk will be able to do many tasks in one day.

- The ability to work courteously and patiently with many people will be important in this occupation.
- An interest in work that has many of the same kind of contacts with people will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Admitting Clerk will be responsible for courteous service in receiving and registering persons.
- Assigning rooms, explaining procedures and answering questions will be some of the duties.
- An Admitting Clerk may collect payments or direct persons to the cashier.
- A Hospital Admitting Clerk will: (1) interview patients for room address, doctor in charge and insurance company; (2) explain hospital regulations; (3) type records; (4) store patient valuables; and (5) arrange for special diet, telephone and others.
- A Hotel/Motel Admitting Clerk will: (1) issue room key; (2) check rack incoming mail and messages; (3) compute bills as well as collect payments.

WAGES:

Hours per week	40
Average Wage (entry level)	\$3.55



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Phone (515) 281-5

RELEVANT HIGH SCHOOL SUBJECTS:

Language Skills

General Clerical

RELEVANT COURSEWORK AND TRAINING:

General Clerical

SOURCES OF ADDITIONAL INFORMATION:

1 Hospital Association
1500 Lake Shore Drive
Chicago, IL 60611

1 Hotel & Motel Association
1500 5th Avenue
New York, NY 10016



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

ADVERTISING ACCOUNT EXECUTIVE

Works in an advertising agency to develop and conduct advertising campaigns for its clients.

1196

164.167-010

11.09

125

3-Communication & Media (F)

11-Marketing & Distribution (S)

Advertising/Public Relations (F)

Public Relations & Advertising (S)

B
ES

PERSONAL APTITUDES:

An Advertising Account Executive will be able to learn and use the characteristics of human nature in creating new ways of presenting information to attract attention.

The ability to present ideas clearly by speaking and writing will be important in this occupation.

An Advertising Account Executive will be able to use basic math to calculate costs, charges and in measuring and creating artwork.

The ability to picture objects and their relationship to other objects and how they occupy space to create a desired effect will be important in this occupation.

An Advertising Account Executive will be able to pay attention to detail in both written and pictorial work.

- The ability to tell one color from another and to know how to create an effect will be important in this occupation.
- An Advertising Account Executive will be able to sit for long periods of time.
- An Advertising Account Executive will be able to plan and coordinate the activities of others.
- The ability to work with people in many different situations and acting to change their ideas and feelings will be important in this occupation.
- The ability to make decisions based on experience, personal judgment and the feelings of others will be important in this occupation.
- An interest in dealing with people and sharing ideas in a professional setting will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Advertising Account Executive serves as a 'go between' for the client and the employing company.
- A study of the client's sales and advertising problems will be one of the duties.
- An Advertising Account Executive will develop a plan to meet the needs of the client and submit it for approval.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ.
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

e necessary to begin as a research or production worker or as
copywriter.

205 E 42nd Street
New York, NY 110017

HIGH SCHOOL SUBJECTS:

- Language Skills
- Physical Education
- General Merchandising & Marketing
- Basic Math Skills

- Women in Communications, Inc.
P.O. Box 9561
Austin, TX 78766

COURSES OF STUDY AND TRAINING:

- International Business Management
- Marketing Management
- Fashion Merchandising
- Communications, General
- Advertising
- Journalism
- Public Relations
- Radio/Television, General
- Textiles and Clothing
- English, General
- Fine Arts, General

SOURCES OF ADDITIONAL INFORMATION:

- 1 Association of Advertising Agencies
Avenue
New York, NY 10017
- Professional Advertising Association.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

AGRICULTURAL COMMODITIES INSPECTOR

inspects grains, fertilizers, feeds, seeds and pesticides to ensure that everything inspected meets federal and state requirements.

2675
168.287-010
11.10
1473
14-Public Services (F)
1-Agriculture/Agri-Business (S)
Government (F)
Research & Regulation (S)

ESSENTIAL ABILITIES:

- An Agricultural Commodities Inspector will be able to learn and use technical skills and procedures that affect their field.
- It is important to speak and write clearly explaining regulations and to prepare required reports.
- An Agricultural Commodities Inspector will be able to solve standard problems used in testing and work with scales and gauges.
- Attention to detail of size, shape and color differences when running tests is important in this occupation.
- An Agricultural Commodities Inspector will be able to handle both small objects in laboratory test and large objects usually under 10 feet.

- An ability to change tasks often and accomplish many different tasks will be important in this occupation.
- An Agricultural Commodities Inspector will be able to make decisions based on facts and past experience.
- An interest in working with both things and sharing ideas will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Agricultural Commodities Inspector must work with various instruments, gauges, seals and other instruments that cut, measure, and evaluate commodities.
- The findings of the inspections will be reported to a supervisor.
- An Agricultural Commodities Inspector determines what actions to be done with a shipment that does not meet standards.
- Agricultural Commodities Inspectors examine feeds, seeds, and pesticides and place them in standardized grades.
- An Agricultural Commodities Inspector keeps records, writes reports, and gathers statistics.
- An Agricultural Commodities Inspector can specialize in vegetable inspection, grain inspection, nursery inspector, pest control, standardization, vertebrate (rodent and bird), poultry control, seed or apiary (bees) inspection.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

1986-87 edition
pages (42-45)

High school diploma or its equivalent is usually required.
Experience in agribusiness is helpful and sometimes required.
Courses in agribusiness are very helpful and may be required.
Employing agency may train the applicant in the laws and
rules pertinent to agricultural commodities.

RELEVANT HIGH SCHOOL SUBJECTS:

Language Skills

RELEVANT COURSES OF STUDY AND TRAINING:

Agricultural Business
Agricultural Sciences, General
Animal Sciences, General
Livestock
Food Science
Agronomy
Horticulture Science
Biology, General

SOURCES OF ADDITIONAL INFORMATION:

Department of Agriculture
State Office Building
Des Moines, IA 50319

National Outlook Handbook



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

AGRICULTURAL EQUIPMENT MECHANIC
The Agricultural Equipment Mechanic maintains and repairs farm tractors and other machinery used in farming operations.

3115

624.281-010

05.05

6118

9-Maintenance & Repair (F)

1-Agriculture/Agri-Business (S)

Machine Maintenance (F)

Service & Supply (S)

B
ES

PERSONAL APTITUDES:

The Agricultural Equipment Mechanic will learn to use and operate machinery and tools.

The ability to read, understand and interpret instructions, manuals and diagrams will be important in this occupation.

The Agricultural Equipment Mechanic will be able to use arithmetic to determine the part needed and the size of the part.

The Agricultural Equipment Mechanic will be able to picture how the parts of a machine fit together to make a whole.

The ability to see detailed differences in size and shape are important in this occupation.

It is important to be able to use fingers, hands and arms to tighten and fasten the parts to the machine.

- The ability to stoop, reach, hear and see will be important in this occupation.
- The strength required to lift 50 pounds and carry 25 pounds will be important in this occupation.
- An Agricultural Equipment Mechanic will be able to do a variety of tasks.
- An Agricultural Equipment Mechanic will be able to make measurements using measurable facts.
- The ability to complete tasks to meet set standards will be important in this occupation.
- An interest in working with things producing a result that is seen and touched will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Agricultural Equipment Mechanics may examine and test engines, motors, gasoline and diesel engines for operational defects.
- An Agricultural Equipment Mechanic should be able to follow instructions from instruction books and manuals.
- An Agricultural Equipment Mechanic will learn to make a diagnosis of mechanical problems.
- Agricultural Equipment Mechanics develop a knowledge of safety regulations.



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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

the Agricultural Equipment Mechanic with no specialized
begins as an apprentice. The duties are usually putting new
it together and then working up to a Agricultural Equipment
by learning from someone who has experience.

ackground is an advantage.

mployers prefer applicants who have an aptitude for mechani-

experience or training in diesel and gasoline engines, main-
and repair of hydraulics and welding will give an applicant
tage.

HIGH SCHOOL SUBJECTS:

c Math Skills
re
hanics
s of Technology
l Education
liance Repair/Small Engine Repair
motive Services & Diesel
gy/Power Systems
uct Services

MS OF STUDY AND TRAINING:

gricultural Power Machinery
pprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Farm and Industrial Equipment Institute
410 North Michigan Avenue
Chicago, IL 60611
- Farm Equipment Manufacturers Association
230 Bemiston Street E.
St. Louis, MO 63105
- National Farm and Power Equipment Dealers Associatio
10877 Watson Rd.
St. Louis, MO 63127
- Occupational Outlook Handbook
1986-87 edition
pages (343-345)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

AGRICULTURAL EQUIPMENT SALESPERSON

represents and discusses farm equipment with prospective buyers in an effort to persuade them to purchase the item.

7424

272.357-014

08.02

4233

11-Marketing & Distribution (F)

1-Agriculture/Agri-Business (S)

Buying & Selling (F)

Sales & Delivery (S)

B
ES

PERSONAL APTITUDES:

Agricultural Equipment Salesperson will be able to learn, understand and interpret payment plans, service guarantees and purchase contracts.

Ability to talk to other people easily and convincingly will be important.

Agricultural Equipment Salesperson will be able to use arithmetic skills to compute costs of purchases, figure percentages and fill out order and invoice forms.

Agricultural Equipment Salesperson will be able to picture how to display a product on the sales floor to look best.

Ability to demonstrate the product will be important in this occupation.

- An Salesperson will be able to lead people to make up their minds about purchases by suggesting suitable products.
- Making decisions, based on experience, about ways of approaching each new customer will be important in this occupation.
- An interest in business contacts and the sharing of ideas will be helpful in this occupation.
- An Agricultural Equipment Salesperson will be able to talk to customers with courtesy and respect even in difficult situations.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Agricultural Equipment Salesperson sells farm machinery and supplies such as tractors and other farm implements.
- An Agricultural Equipment Salesperson may also sell service contracts for machinery and equipment.
- An Salesperson might represent a manufacturing company by wholesaling equipment to dealers or other commercial buyers.
- Agricultural Equipment Salesperson may sell new and used equipment.
- The Agricultural Equipment Salesperson should be familiar with financial procedures.
- Representing a local farm equipment dealer and selling to farmers may be possible.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

d Industrial Equipment Institute
1 Michigan Avenue
IL 60611

uipment Manufacturers Association
iston Street E.
, MO 63105

Farm and Power Equipment Dealers Association
atson Road P.O. Box 8517
, Missouri 63127



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

AGRICULTURAL PRODUCTS BUYER

Buyer of agricultural products such as grain, produce and/or livestock from farmers or cooperatives for further processing, distribution or consumption.

1183

162.167-010

08.01

1443

11-Marketing & Distribution (F)

11-1-Agriculture/Agri-Business (S)

11-1-1-Buying & Selling (F)

11-1-1-1-Sales & Delivery (S)

B
ES

PERSONAL APTITUDES:

An Agricultural Products Buyer will be able to understand and use the principles of economics as they affect the products bought and sold.

The ability to speak and write clearly to give information about the products and how others will be important in this occupation.

An Agricultural Products Buyer will be able to use math in computing prices on products, quoting special rates for different amounts of products, as well as keeping mistake-free, detailed records.

The ability to compare by the size and shape of the product, the weight and quality may have will be important in this occupation.

An Agricultural Products Buyer will be able to lift twenty pounds and carry up to 10 pound loads.

- An Agricultural Products Buyer will be able to plan, direct and control the total activities of other helpers.
- Being able to get along with people in many different work settings will be important.
- An Agricultural Products Buyer will be able to affect people's attitudes and ideas to favor the product offered.
- Being able to make decisions alone, based on experience and information available, will be important in this occupation.
- An interest in business contacts with people resulting in sales to the customer would be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Agricultural Products Buyer learns about grain and/or livestock pricing and profits.
- An Agricultural Products Buyer may purchase livestock from commercial stockyards and livestock feeders.
- Agricultural Products Buyers usually buy livestock for large buyers often located in mid-western, western or southwestern areas.
- An Agricultural Products Buyer may do most of the buying by telephone.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

may be employed by packing houses, grain elevators, or on houses or work for a specific individual.

ment may be to a feed mill manager, broker position, or an agent business.

Y OCCUPATIONS:

d military occupations.

D OCCUPATIONS:

ral Commodities Inspector (2675)
ral Supplies Salesperson (7425)
vator Superintendent (1156)
s/Commodities Sales Agent (7415)

ATION AND TRAINING:

hool education or its equivalent is usually required.

ege training is preferred by most employers.

usinesses are more frequently looking for persons with college

n agribusiness, animal science and livestock buying offered
nity colleges and universities are recommended.

of background in agriculture and marketing is helpful.

HELPFUL HIGH SCHOOL SUBJECTS:

- Agriculture
 - Agricultural Production
- Language
 - Language Skills
- Math
 - Basic Math Skills

PROGRAMS OF STUDY AND TRAINING:

- 1002 - Agricultural Bussiness
- 1013 - Agricultural Products
- 1014 - Animal Production
- 1023 - Agricultural Supplies and Services
- 1201 - Agricultural Sciences, General
- 1202 - Animal Sciences, General
- 1209 - Livestock
- 1217 - Food Science
- 1220 - Agronomy
- 1221 - Horticulture Science

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (52-54)



OCCUPATIONAL BRIEFS

Career Information Syst

Iowa Dept. Of Educ.

Grimes State Office

Des Moines, IA 50

Phone (515) 281-5

AGRICULTURAL SUPPLIES SALESPERSON

chemicals, pesticides, fertilizers, feeds and supplements and explains the most efficient use of the products.

7425

272.357-010

08.02

4233

11-Marketing & Distribution (F)

1-Agriculture/Agri-Business (S)

Buying & Selling (F)

Sales & Delivery (S)

PERSONAL APTITUDES:

An Agricultural Supplies Salesperson will be able to learn, understand and explain the directions and uses of many products.

The ability to talk with people easily and convincingly will be important in this occupation.

An Agricultural Supplies Salesperson will be able to use math to total purchases, figure percentages and fill out sales and order forms.

Checking of figures will be important.

An Agricultural Supplies Salesperson will be able to lead people to their minds about purchases by suggesting suitable products.

- Making decisions based on past experiences on how to approach customers will be important in this occupation.
- An interest in business contact and sharing ideas with people will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Agricultural Supplies Salesperson may sell chemicals, fertilizers, and feeds to farmers and livestock producers.
- The Agricultural Supplies Salesperson may help identify weeds, insects and soil problems.
- The Agricultural Supplies Salesperson may recommend and sell fertilizers or feeds to solve problems.
- Agricultural Supplies Salespersons may discuss, with customers, feeding and management programs, for all kinds of livestock and poultry.
- Planning profitable feeding plans for use with a company's consumer grown product may be part of this occupation.
- Agricultural Supplies Salespersons schedule and make recommendations on customers to secure orders for the products.
- An Agricultural Supplies Salesperson seeks additional business.
- An Agricultural Supplies Salesperson keeps a current customer list and a file of the production records achieved by the customer.



OCCUPATIONAL BRIEFS

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Des Moines, IA 50
Phone (515) 281-5

ensed, applicants must fill out an application and pay a \$5.00
ut a financial responsibility statement, and pass a test.

L HIGH SCHOOL SUBJECTS:

e
guage Skills
ire
icultural Production
icultural Education

ic Math Skills
ive Education
eral Merchandising & Marketing

MS OF STUDY AND TRAINING:

gricultural Business
gricultural Production
gricultural Supplies and Services
gricultural Sciences, General
nimal Sciences, General
vestock
ood Science
gronomy
ant Protection
ological Laboratory Technology

§ OF ADDITIONAL INFORMATION:

Occupational Exploration
ion
(2-484)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

MIST

Improving the quality and yield of crops by using new growth methods, analyzing soils or by controlling disease, pests and weeds.

2643

040.061-010

02.02

1853

12-Natural Resources & Environment (F)

1-Agriculture/Agri-Business (S)

Research (F)

Research & Regulation (S)

PERSONAL APTITUDES:

An Agronomist will be able to learn and apply theories to everyday life.

Ability to state ideas clearly in spoken or written form will be important in this occupation.

An Agronomist will be able to solve standard math formulas used in field tests.

Attention to detail in checking math and other written work will be important in this occupation.

Ability to handle small and large objects weighing under 10 pounds will be important in this occupation.

An Agronomist will find good eyesight helpful in this occupation.

- An Agronomist will be able to take responsibility for a task.
- Decisions based on available facts and set limits of tests are important in this occupation.
- An interest in activities of a scientific nature requiring thought beyond known facts will be helpful in this occupation.
- An Agronomist will work independently or on a team.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Agronomist will probably specialize in either crop science or soil science.
- An Agronomist may carry out experiments to develop more efficient production and use of forage and field crops.
- An Agronomist will research seedbed preparation, plant selection, botanical relationships, methods of cultivation, soil and fertilizer requirements, time and methods of planting, effects of rotation, harvesting and marketing of crops and control of disease, insects and rodents.
- Performing experimental work on the response of plants to their environment; the effect of soil, drainage, altitude, weeds and crop plants may be another area for research.
- An Agronomist may prepare maps showing different kinds of soil.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ.
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

re
gricultural Products
s of Technology

MS OF STUDY AND TRAINING:

gricultural Sciences, General
gronomy
enetics

S OF ADDITIONAL INFORMATION:

. Society of Agronomy
goe Rd.
WI 53711
ervation Commission
tate Office Building
es, IA 50319

Occupational Exploration
nt of Labor
ndent of Documents
ernment Printing Office
on, D.C. 20402

nal Outlook Handbook
dition
-88)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

AIR TRAFFIC CONTROLLER

Responsible for regulating the arriving and departing aircraft, ground movement of aircraft and airway traffic communications to pilots by radio.

6126

193.162-018

05.03

392

3-Communication & Media (F)

15-Transportation (S)

Telecommunication (F)

Air & Space Transportation (S)

B
ES

PERSONAL APTITUDES:

An Air Traffic Controller will be able to learn legal radio procedures, rules and regulations. Common operating methods practical knowledge of aircraft will be important to learn.

The ability to understand technical language and use that language to follow instructions will be important in this occupation.

An Air Traffic Controller will be able to use math to make instant calculations of speed and distance traveled as well as reading and interpreting gauges and scales.

An Air Traffic Controller will be able to picture the airspace, the terrain in that area, as well as picture their movement within that area.

The ability to pay close attention to detail in written and pictorial materials will be very important in this occupation.

- An Air Traffic Controller will be able to use hands and fingers to operate small controls on electronic equipment.
- An Air Traffic Controller will be able to identify colors, especially red, green and white because these are used for aircraft navigation.
- The ability to see, hear, reach and handle objects under stress will be important in this occupation.
- An Air Traffic Controller will be able to do many tasks in a changing environment often and sometimes handling several responsibilities at the same time.
- An Air Traffic Controller will be able to work under stress. Quick decisions based on experience need to be made often and accurately.
- An interest in business contacts with people sharing ideas and information will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Air Traffic Controller will organize all of the aircraft movements and going out of an airport using radio, radar, computerized information and their own eyes.
- An approach controller will tell the pilots about weather, terrain, and conditions.
- A local controller is in touch with pilots during the last few minutes before the plane reaches the runway. This controller is in charge of all take offs and landings on the active runway.



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Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

on, applicants must have at least three years of responsible
e which would indicate an ability to perform the duties of an
ic Controller or four years of college or a combination of

or military experience as a controller, pilot, or navigator is an

all applicants must take classroom and on-the-job training
the Federal Aviation Administration Academy. This training
until the applicant reaches the journeyman level (usually
ree years).

HIGH SCHOOL SUBJECTS:

- Algebra/Geometry
- Math Processing
- Physical Education
- Transportation

COURSES OF STUDY AND TRAINING:

For this occupation is usually received after employment
Specialized Federal Aviation Administration training program
or on-the-job training.

SOURCES OF ADDITIONAL INFORMATION

- Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20590
- Federal Job Information Center
210 Walnut
Des Moines, Iowa 50309
- Occupational Outlook Handbook
1986-87 edition
pages (241-243)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

AIRCRAFT MECHANIC

inspects and maintains aircraft by completing Federal Aviation Administration (FAA) required inspections and performing any necessary repairs.

3116

621.281-014

05.05

6116

9-Maintenance & Repair (F)

15-Transportation (S)

Vehicle Maintenance (F)

Air & Space Transportation (S)

B
ES

PERSONAL APTITUDES:

An Aircraft Mechanic will be able to learn, understand and use the principles of jet and internal combustion engines, principles of airframe construction and principles of electricity, fluidics (hydraulic and pneumatic).

The ability to understand technical written and diagrammed instructions will be important in this occupation.

An Aircraft Mechanic will be able to use math, shop geometry and principles of physics.

The ability to picture how parts fit together and the way the system will operate will be important in this occupation.

The ability to move around and use arms, eyes, hands and fingers to use tools and equipment will be important in this occupation.

- An Aircraft Mechanic will be able to stoop, reach, hear and lift as well as lift up to 50 pounds.
- An Aircraft Mechanic will be able to do many different tasks every day.
- The ability to make decisions based on measurable facts will be important in this occupation.
- The ability to complete tasks to meet a set standard will be important in this occupation.
- An interest in working alone with things using processes and techniques resulting in things that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Aircraft Mechanic will work with all kinds of tools.
- The work may be at a maintenance hangar, in a small fixed-wing aircraft operation and/or on the ramp in many different kinds of operations.
- Repairs, periodic checks and routine maintenance to meet the Aviation Administration's (FAA) safety standards will be required.
- Most Aircraft Mechanics must be able to work on different types of aircraft and on any part of an aircraft, but specialization such as the engine is also possible.



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Career Information Syst
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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Aircraft Mechanics are licensed by the FAA as 'airframe mechanics', 'powerplant mechanics', or 'aircraft inspectors'.

Aircraft Mechanics are trained in vocational schools with FAA programs, which require two years of study for the combined airframe and engine license.

To receive a license, applicants must pass written, oral and practical tests.

18 months of work experience is required for the FAA's mechanic license and at least 30 months experience for the inspector's license. For an inspector's license, the Aircraft Mechanic must have held a combined license for three years.

Credit may be given toward a civilian license for military aircraft repair. The credit is based upon the practical experience that can be demonstrated.

Experience in auto repair or other mechanical work is very helpful.

RECOMMENDED HIGH SCHOOL SUBJECTS:

1. Education
2. Reading
3. Energy and Power Systems
4. Transportation
5. Welding
6. Science of Technology

Advanced Math

- Algebra/Geometry
- Basic Math Skills

PROGRAMS OF STUDY AND TRAINING:

- 7642 - Aircraft Mechanic
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Air Transport Association of America
1709 New York Avenue, N.W.
Washington, D.C. 20006
- Air Line Employees Association International
5600 South Central Avenue
Chicago, IL 60638
- Aviation Maintenance Education Fund
P.O. Box 709
Vasin, NY 82410
- Occupational Outlook Handbook
1986-87 edition
pages (334-335)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

FLIGHT ATTENDANT

as the personal link between the passengers and
line, making the passengers' flight safe, com-
and enjoyable.

7856

352.367-010

09.01

5257

8-Hospitality & Recreation (F)

15-Transportation (S)

Recreational Travel (F)

Air & Space Transportation (S)

B
ES

AL APTITUDES:

e Flight Attendant will be able to understand and follow
or regular flights and emergencies.

e to speak pleasantly and easily with many different people
sometimes sick or irritable will be important in this occupa-

e Flight Attendant will be able to use basic math in record
with few errors.

e to maintain control of one's body to move about the plane
pite the motion and confining space will be important.

e to maintain good health to handle climbing, reaching and
while on your feet for long periods of time will be important.

- An Airline Flight Attendant must be of a height between 6'2" with proportional weight.
- An Airline Flight Attendant will be able to handle routine as well as serious emergencies.
- An Airline Flight Attendant will be able to relate to people in business and social ways.
- An Airline Flight Attendant will be able to travel.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Airline Flight Attendant will make the passengers' flight comfortable, and enjoyable.
- The captain is in command of the entire crew.
- An Airline Flight Attendant receives a preflight briefing before flight factors.
- Knowledge of flight regulations, duties, company policies, procedures and equipment are an important part of employment.
- An Airline Flight Attendant will check before the flight that the cabin, buffet facilities, and supplies are in order.
- An Airline Flight Attendant will perform the following duties:
 - greet passengers as they enter the plane.
 - assist with seating arrangements and check tickets.
 - help passengers with coats, hats and carry on luggage.



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Educ.
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EL HIGH SCHOOL SUBJECTS:

Language Skills
Economics
Summer and Homemaking

Washington, D.C. 20591

- Occupational Outlook Handbook
1986-87 edition
pages (327-328)

MS OF STUDY AND TRAINING:

for this occupation is done by the airline in their private

S OF ADDITIONAL INFORMATION:

Sport Association of America
1700 York Avenue, N.W.
Washington, D.C. 20006

Employees Association International
1400 North Central Avenue
Chicago, IL 60638

Union of Flight Attendants
1500 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Training, Inc.
1000 South
Minneapolis, MN 55450

Aviation Administration
Department of Transportation
Education Program Division
1200 Independence Avenue, S.W.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

AIRCRAFT PILOT/CO-PILOT

is an aircraft that transports passengers, mail or cargo safely.

6188

196.263-014

05.04

825

15-Transportation (F)

15-Transportation (S)

Air & Space Transportation (F)

Air & Space Transportation (S)

ESSENTIAL APTITUDES:

An Aircraft Pilot/Co-Pilot will be able to learn, understand and use dynamic principles of flight, aircraft systems and the Federal Aviation Regulations affecting air traffic.

Ability to understand technical language as used by the air traffic control system to give instructions and information. An Aircraft Pilot/Co-Pilot will be able to use the same specific terms and words in both spoken and written communications.

An Aircraft Pilot/Copilot will be able to use formulas needed to determine fuel needs, aircraft weight and balance, and time/distance relationships.

An Aircraft Pilot/Copilot will be able to picture the aircraft's position in three-dimensional space, as well as other traffic and/or natural or man-made obstructions.

- The ability to pay close attention to detail will be important on course and holding the exact required altitude, and is required to perform professionally.
- An Aircraft Pilot/Copilot will be able to use hands, feet and eyes at the same time to control the plane.
- An Aircraft Pilot/Copilot will be able to reach, hear, see, and lift loads under 10 pounds.
- The ability to recognize white, red and green and tell one from the other will be important in this occupation.
- An Aircraft Pilot/Copilot will be able to complete many duties in the same day.
- The ability to work under the stress of responsibility for the lives of others through many different weather conditions will be important in this occupation.
- An Aircraft Pilot/Copilot will be able to make decisions based on experience and measurable facts.
- An Aircraft Pilot/Copilot will be able to complete tasks that meet a set standard.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

ment may be to first officer (copilot), instructor or captain.

Y OCCUPATIONS:

Pilots (61880)
r Pilots (61881)
Navigators (61882)
Members (61883)
ngineers (61884) See Aircrew members page 181, Airplane
rs page 320, Airplane Pilots page 322, and Helicopter Pilots
in the Military Career Guide 1988-1989.

O OCCUPATIONS:

ic Controller (6126)
Mechanic (3116)
ngineer (6186)

ATION AND TRAINING:

expected to be a high school graduate.

t two-year community college degree is expected, although a
college degree is preferred.

flying for hire are required to hold a Commercial license
strument rating.

ite must have knowledge of such subjects as aerodynamics,
cs and air navigation.

e operating jet and turbine-powered aircraft is highly valued
e Pilots/ Copilots.

- A Flight Instructor rating is an advantage as it allows a
time' (log time actually flown) quickly.
- To obtain a commercial pilot's certificate from the Feder
Administration (FAA) an applicant must be at least 18 y
have at least 250 hours of flight time and 40 hours of in
training. An applicant will also be required to pass a wri
practical flight test.
- To obtain an Air Transport permit (ATP), an applicant r
least 23 years old and hold a commercial pilot certificate
applicant must have no less than 75 hours of instrument
1500 hours of actual flight time and 500 hours of cross-c
time. An ATP applicant must also pass a written and pe
examination. A physical must be passed once every six r
Air Transport Pilots and every 12 months for any other
pilot.
- If employed by an airline, a pilot may receive additional
the job under the supervision of a flight instructor and w
flight checks on a regular basis.
- Training or experience in the military will be helpful in t
tion.

HELPFUL HIGH SCHOOL SUBJECTS:

- Science
- Physics
- Industrial Education
- Transportation
- Principles of Technology
- Social Studies
- Geography
- Math



OCCUPATIONAL BRIEFS

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CARETAKER

is a combination of duties involving the feeding, grooming and health care of animals in kennels, hospitals, zoos, and laboratories.

4174

410.674-010

03.03

5624

13-Personal Services (F)

13-Personal Services (S)

Domestic Animal Care (F)

Domestic Animal Care (S)

B
ES

PHYSICAL APTITUDES:

Animal Caretaker will be able to learn and understand the habits and special needs of animals.

Ability to follow both written and spoken instructions will be important in this occupation.

Animal Caretaker will be able to move around easily and use hand and fingers for such tasks as trimming the nails of dogs and cats.

Ability to reach and see as well as handle loads weighing 50 pounds or less will be important in this occupation.

Ability to do many different tasks in one day will be important in this occupation.

- An Animal Caretaker will be able to complete tasks to meet the industry standard.
- An interest in working alone with processes that are repetitive will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Animal Caretaker will keep records on animals, treatments, and drugs given and other important information.
- Many of the following duties will be a part of employment in different areas:
 - may learn to perform common laboratory procedures
 - may feed and water animals according to schedule.
 - may clean and disinfect cages, pens, and yards.
 - may bathe, clip or groom the animals.
 - may deal with blood and fecal collections and examinations
 - may sterilize surgical instruments and equipment.
 - may change bandages and give drugs under supervision
 - provide information concerning the care and breeding of animals.

WAGES:

Hours per week	40-55 *
Average Wage (entry level)	not available
Average Wage (all experience levels)	\$4.93
Average Range	\$4.17-\$5.58
	\$8,674-\$11,606

*Depending on type of setting and emergencies.
(Wage information from national sources.)



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APPLIANCE REPAIRER

and adjusts all kinds of electrical appliances
toasters, refrigerators and washing machines in
customer's home or in a shop.

3169

723.381-010

05.10

6156

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Household Appliance Maintenance (F)

Household Appliance Maintenance (S)

PERSONAL APTITUDES:

Appliance Repairer will be able to learn and use the basic
of electricity and basic mechanics.

Ability to picture how a system works will be important in this
occupation.

Appliance Repairer will be able to move around and use hands,
fingers to handle small and medium objects.

Ability to reach and see as well as handle objects up to 50 pounds
is important in this occupation.

Ability to make decisions based on measurable fact will be
important in this occupation.

Appliance Repairer will be able to complete tasks to meet a set

- An interest in working alone with things using processes that can be seen and touched will help in this occupation
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Appliance Repairer will develop a good understanding of electricity and motors work.
- Appliance Repairer finds out why appliances do not work then installs new parts, repairs parts or makes adjustments.
- An Appliance Repairer may ask the customer questions, such as: the appliance worked, when it was last in use.
- Operating the appliance in its faulty condition and checking sources of trouble will be part of the duties.
- Answering questions and complaints about appliances may be necessary.
- Showing the customer the proper use and care of the appliance will be part of the job responsibilities.
- An Appliance Repairer must give cost estimates on the repair.
- An Appliance Repairer will keep records of parts used and worked on each repair job.
- There are three types of appliance repair: Commercial, Domestic (Major)(Gas and Electric) and Small Appliances.



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Additional training may be available and can require up to three months of training. A training period of 6-12 months is average. Basic mathematics or electronics courses may be required as a supplement.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Home Appliance Repair/Small
Electronics
Product Services
Science and Technology

RELEVANT COURSES OF STUDY AND TRAINING:

Home Appliance Repair
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Home Appliance Industries Association
1400 17th Street
Washington, D.C. 20006

Association of Trade and Technical Schools
1400 Wisconsin Avenue NW
Washington, D.C. 20007

National Outlook Handbook
1980 Edition
(6-358)



OCCUPATIONAL BRIEFS

Career Information Syst
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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

APPRAISER
Determines the value of property such as jewelry, art
and real estate for insurance, sales or tax purposes.

1634

188.167-010

11.06

1135

2-Business & Office (F)

11-Marketing & Distribution (S)

Finance & Investing (F)

Buying & Selling (S)

B
ES

PERSONAL APTITUDES:

An appraiser will be able to understand and use math concepts to
determine the value to properties of all kinds.

The ability to understand technical and mathematical information and
to communicate that information to others will be important in this occupa-

An appraiser will be able to work math problems quickly without

An appraiser will be able to picture objects, their relationship to each
other, and the space they use when dealing with land or other real

The ability to pay close attention to detail in written and table form to
prepare reports will be important in this occupation.

- An Appraiser will be able to move about easily, climb, run, and
as well as carry loads up to 10 pounds and lift up to 20 pounds.
- The ability to make judgments based on both experience and
objective fact will be important in this occupation.
- An Appraiser will be able to complete tasks to meet a set
standard.
- An interest in working alone with things using technical
skills will help in this occupation.
- With employer assistance, some physical requirements may be met
through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Appraiser will make value decisions about many types of
property such as homes, commercial buildings, farms, antiques, jewelry,
and artwork. Specialization is possible in one particular type of
appraising.
- An Appraiser will use statistics and computer science, and
report writing skills.
- An Appraiser will have a basic knowledge of real estate
laws and regulations.
- Evaluating facts to arrive at an appraisal that is representative
of the market value during existing economic conditions will be
one of the duties.
- An interest in a particular field such as art or real estate
combined with many parts of the appraising process.



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KEY OCCUPATIONS:

and military occupations.

RELATED OCCUPATIONS:

Appraiser (7442)
Retail Sales Agent (74156)
Sales Agent (8432)
Appraiser (1636)
Retail Sales Agent (7417)

EDUCATION AND TRAINING:

For many types of property to be appraised and the requirements set forth by various appraising organizations, the requirements for Appraisers varies greatly.

Urban and Rural Appraisers are required to have a Baccalaureate degree from an accredited college or university or equivalent experience, although this 'experience' has not been clearly defined. A background in business, economics or agriculture would be the most desirable for these Appraisers.

In addition, these Appraisers must have at least two years of practical experience as trainees doing appraisals with experienced appraisers. They also need to attend and pass appraisal training and submit examples of their work to a committee of their peers to receive the Appraiser designation.

- Appraisers of jewelry containing diamonds and/or precious stones should hold certification as a 'registered jeweler' or 'gemologist'. After about three years of study, these designations are granted by the The Gemological Institute of America. For information regarding this training, contact:

Gemological Institute of America
11940 San Vicente Blvd.
Los Angeles, California 90049

- Antique and Art Appraisers are not required to be certified, but may gain most of their knowledge through familiarity with the field. They may serve as informal apprenticeships with antique dealers or museum curators to gain this experience. Attending auction may also give the aspiring Antique and Art Appraiser the opportunity to become familiar with item valuations.
- Valuation Sciences Degree programs are available at the Associate and Master's degree levels. This degree program became available in 1978 at a few colleges across the U.S. The American Society of Appraisers should be contacted for further details.
American Society of Appraisers
Dulles International Airport
P.O. Box 17265
Washington, D.C. 20041

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
- Basic Math Skills
- Office
- Data Processing



OCCUPATIONAL BRIEFS

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OBJECTIVE:
Provides professional consulting services to determine a building's needs and designs a structure to suit those needs.

2316

001.061-010

05.01

161

4-Construction (F)

4-Construction (S)

Engineering (F)

Engineering (S)

B
ES

ADDITIONAL APTITUDES:

Architect will be able to learn, understand and use the principles of mathematics and related sciences, as well as the principles of design.

Ability to understand technical language and explain technical concepts to others will be important in this occupation.

Architect will be able to use, understand and apply the formulas of algebra, trigonometry, and calculus.

Architect will be able to picture a whole building combining architectural, mechanical and decorative parts.

Ability to see slight differences in shapes and lines and compare them to a drawing of each will be important in this occupation.

Ability to pay attention to detail in written materials to avoid errors will be important in this occupation.

- An Architect will be able to use hands and fingers to handle tools.
- An Architect will be able to recognize color and use it for design purposes.
- The ability to reach, hear and see as well as handle load and weight will be important in this occupation.
- An Architect will work with people in many different situations, acting to change their attitudes or ideas.
- An Architect will be able to make decisions based on experience, personal feelings and the feelings of the client.
- An interest in sharing ideas of a technical nature and a broad original point of view will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Architect plans, designs and administers the construction of various types of structures.
- An Architect must consider the safety features of the building, utility and appearance.
- Choosing the site on which the structure will be built is a major task. It must be made with an evaluation of the climate, water tables, soil conditions, and the effects that these conditions may have on the structure itself.
- An Architect may do some technical writing to support projects.



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EDUCATION AND TRAINING:

is required in Iowa to practice architecture, to make sure architectural work which may affect life, health or property is qualified people.

licants in Iowa for the examination include a professional degree from an accredited school of architecture and at least yrs experience under a registered Architect.

credited schools of architecture offer a five year curriculum
) a Bachelor of Architecture degree or a six-year program
) a Master of Architecture degree.

l degrees (beyond the Bachelor's) are not necessary for g Architects; they are often desirable for those in research ing.

t exam consisting of nine divisions is given in June. Total ke the full exam is \$325.

are renewed by applicants following notification by the board 40 biennial renewal fee.

HIGH SCHOOL SUBJECTS:

bra/Geometry
anced Math

sics
l Education
struction
munications
gy/Power Systems

Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- 1502 - Architecture
- 1503 - City, Community and Regional Planning
- 1506 - Landscape Architecture

SOURCES OF ADDITIONAL INFORMATION

- American Institute of Architects
1735 New York Avenue, N.W.
Washington, D.C. 20006
- Occupational Outlook Handbook
1987-87 edition
pages (55-57)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
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objects of original design such as paintings, prints, and crafts.

9852

144.061-010
01.02

325

5-Fine Arts & Humanities (F)

5-Fine Arts & Humanities (S)

Art (F)

Art (S)

B
ES

AL APTITUDES:

It will be able to use reason and judgment in developing ideas.

Understanding another's ideas and being able to communicate ideas will be important.

It will be able to use math for measuring and computing.

Ability to 'see' pictures in your mind will be important for this occupation.

It will be able to see how shapes or objects are the same or different.

Having excellent eye-hand coordination and being able to perform tasks easily will be important in this occupation.

It will be able to recognize colors and be sensitive to them and respond to people.

- Being able to move and handle light to medium objects will be important in this occupation.
- An Artist will be able to make decisions based on feeling and to make a personal statement within self-made limits.
- An interest in presenting to others ideas you create using materials that can be seen and touched will be helpful in this occupation.
- An Artist will be able to work alone and maintain a high level of self-discipline.
- An Artist will have self confidence and believe in their own work; their work may often be criticized.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Artist will need a place to work and be able to set and meet his/her own deadlines.
- An Artist may use life experiences to contribute to the work; new ideas will come out of present and past experiences.
- An Artist may specialize in one or more art forms such as sculpture, pottery, etching, print making, metal work, jewelry, photography, batik, tapestry or variations of these.
- Ideas will be expressed through one of these art forms or a combination of techniques; the technique of the specific form and a personal perception will be important.



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Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

EDUCATION AND TRAINING:

A Bachelor of Arts degree is highly recommended as it provides an opportunity to develop professionally as well as the exposure to many careers.

A Master of Fine Arts (MFA) degree is helpful and allows teaching in Iowa. A Bachelor's degree in Art Education with appropriate state certification will qualify for teaching in schools pre-kindergarten through grade 12.

Continued practice in a media is necessary.

RELEVANT HIGH SCHOOL SUBJECTS:

Studio Arts & Crafts

COURSES OF STUDY AND TRAINING:

Art Education
Studio Arts, General

SOURCES OF ADDITIONAL INFORMATION:

Occupational Exploration
Edition
(1-223)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

LER

is the same joining operation to build a product.

5966
726.684-018
06.04
772
10-Manufacturing (F)
10-Manufacturing (S)
Assembly & Production (F)
Assembly & Production (S)

B
ES

AL APTITUDES:

Assembler will be able to see slight differences in form and shape of materials.

Assembler will be able to use eyes, arms, hands and fingers to operate machinery or complete assigned tasks.

Ability to reach, see and handle loads usually under 10 pounds is important in this occupation.

Ability to do the same task many times in the same day will be important in this occupation.

Assembler will be able to complete tasks to meet set standards.

Interest in working alone using processes that repeat will help in this occupation.

Employer assistance, some physical requirements may be met at changes to the work site or equipment.

OCCUPATION PROFILE:

- An Assembler may perform only one operation in the production process.
- A specific part of the total product must be completed in order to take the parts to pass by a work station on a conveyor.
- An Assembler may use power tools and machines or do work by hand.
- A knowledge of tools, equipment and work processes will be necessary for an Assembler.
- A variety of tasks may be performed in the production process depending on the industry.
- A Bench Assembler makes a complete part and tests it before it is attached to the product.
- As a Floor Assembler, you will put together large machinery or heavy equipment.
- An Electronic Assembler uses very small tools and magnifying glasses to put together parts for electronic devices.

WAGES:

Hours per week	40
Average Wage (entry level)	\$5.94
Average Wage (all experience levels)	\$6.42
Average Range	\$5.10-\$7.50
	\$10,608-\$15,600

(Wages courtesy of Iowa Dept. of Employment Services.)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

onal Association of Machinists &
e Workers
nnecticut Avenue, N.W.
ton, D.C. 20036

onal Outlook Handbook
edition
(2-444)

Occupational Exploration
ion
(6-442)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

NEER

is sales where interested persons can bid on
they wish to purchase.

7442

294.257-010

08.02

447

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Buying & Selling (S)

B
ES

AL APTITUDES:

oneer will be able to learn the value of a variety of items, as
ne kind of buying people do outside of stores.

ty to talk easily with all kinds of people will be important in
ation.

oneer will be able to pay attention to detail in written or
information.

ty to reach, hear and see as well as handle loads usually
pounds will be important in this occupation.

oneer will be able to work with people in many different
s often acting so their attitudes and ideas are changed.

y to make decisions based on experience, personal feelings
s feelings will be important in this occupation.

- An interest in business contacts with people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Auctioneer sells goods by calling for bids and letting people compete until there is one highest bidder.
- Knowledge of the approximate market value of the items being sold will be necessary so the starting bid is not too low or too high.
- Bidding may be encouraged by describing the article that is being sold.
- An Auctioneer must go over a sale bill before the sale and provide information if the value of an item is not known.
- Decisions must be made about the order in which to sell items, whether it is a general farm sale, household goods sale, or livestock sale.
- Telling the crowd how the real estate is to be purchased and when the sale begins will be part of the duties.
- Checking for any outstanding debts against the property to be sold will be part of the duties.
- An Auctioneer may set up advertising for the sale and give out catalogs, etc., printed.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
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Phone (515) 281-5

AUDILOGIST/SPEECH PATHOLOGIST

Diagnoses hearing and speech disorders for people of all ages and may prescribe treatment.

8128

076.101-010/076.107-010

02.03

3034

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
ES

PHYSICAL APTITUDES:

The Audiologist/Speech Pathologist will be able to learn the structure and function of the ear and speech organs, as well as the procedures to diagnose and treat hearing and speech disorders.

The ability to understand technical information and explain this information to others will be important in this occupation.

The Audiologist/Speech Pathologist will be able to use math for record keeping and testing.

The ability to picture objects and their relationship to other objects will be important in this occupation.

The Audiologist/Speech Pathologist will be able to pay attention to written, pictorial and table information to avoid errors.

The ability to use eyes, arms, hands and fingers together to handle objects will be important in this occupation.

- The ability to reach, hear and see as well as handle objects under 10 pounds will be important in this occupation.
- An Audiologist/Speech Pathologist will be able to plan and coordinate the activities of others.
- An Audiologist/Speech Pathologist will be able to work well in many different situations.
- The ability to make decisions based on experience, measurement and personal feelings as well as the feelings of others will be important in this occupation.
- An interest in work that will be helpful to others and using scientific processes that have results that can be recorded will be important in this occupation.
- An Audiologist/Speech Pathologist will be considerate when working with clients and their families to understand diagnosis and treatment.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Audiologist/Speech Pathologist will be able to identify and treat hearing and speech disorders.
- Diagnostic testing may be part of the duties.
- An Audiologist/Speech Pathologist may prescribe treatment for the client in overcoming speech or hearing problems.



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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

KEY OCCUPATIONS:

Speech Therapist (81280) See Speech Therapist in the Military Career Information System 1988-1989 page 292.

RELATED OCCUPATIONS:

Speech Therapist (8414)
Audiologist (8127)
Speech Pathologist (8434)

EDUCATION AND TRAINING:

Individuals employed in private practice or clinical centers must hold a certificate of Clinical Competence from the American Speech-Language-Hearing Association, and be licensed by the Iowa State Board of Speech Pathology and Audiology.

Education is optional for Audiologists/Speech Pathologists who hold a certificate of Clinical Competence and work in a school system.

A majority of states, including Iowa, require a Master's degree or its equivalent. The federal government and most public institutions also require a Master's degree.

There is separate certification and licensure for an audiologist and a speech pathologist although the professions are related.

An applicant for a license should possess a Master's degree or its equivalent from an accredited college, show evidence of at least 300 hours of supervised clinical training, and nine months of clinic experience.

- Upon passing an examination, the applicant is licensed to practice. Five years of experience on the job in the audio pathology profession may replace the education requirement.

HELPFUL HIGH SCHOOL SUBJECTS:

- Science
 - Biological Sciences
 - Physics
- Health & Physical Education
 - Health
- Psychology

PROGRAMS OF STUDY AND TRAINING:

- 3603 - Speech Pathology/Audiology
- 4310 - Speech, Debate and Forensics

SOURCES OF ADDITIONAL INFORMATION

- American Health Care Association
1200 15th Street
Washington, D.C. 20005
- American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, MD 20852
- Occupational Outlook Handbook
1986-87 edition
pages (179-181)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

AUTO BODY REPAIRER

The damage to the bodies of motor vehicles done by accidents, collisions and corrosion.

5486
807.381-010
05.05
6115
9-Maintenance & Repair (F)
15-Transportation (S)
Vehicle Maintenance (F)
Highway Transportation (S)

PERSONAL APTITUDES:

Body Repairer will be able to learn about basic automobile operation and repair methods.

Ability to follow written and spoken instructions will be important in this occupation.

Body Repairer will be able to use basic math to figure out what is needed and to give customers estimates.

Ability to picture what the finished product will look like will be important in this occupation.

Body Repairer will be able to pay close attention to detail in work information.

Body Repairer will be able to use eyes, arms, hands and feet together to use tools and equipment.

- The ability to stoop, reach and see as well as handle loads weighing 50 pounds will be important in this occupation.
- An Auto Body Repairer will be able to do many different tasks every day.
- The ability to make decisions based on measurable facts will be important in this occupation.
- An Auto Body Repairer will be able to complete tasks to a high standard.
- An interest in working alone with things, using processes and machines resulting in a product that can be seen and touched will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Auto Body Repairer works on motor vehicle bodies that are damaged by accidents, collisions and corrosion.
- One will study the damage and make an accurate estimate of the cost of repairs.
- Stripping the repair area of hardware and trim will be part of the duties.
- An Auto Body Repairer may reshape the damaged metal by pulling large dents out with a hydraulic jack or hand prying bar or 'bumping' the dents out with a hand tool or pneumatic (air) hammer.



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Phone (515) 281-5

EDUCATION AND TRAINING:

High school diploma is preferred.

Education through on-the-job, apprenticeship programs or through post-secondary school education is possible.

Apprenticeship program lasts four years and combines work experience and classroom activities.

On-the-job training approach to entering the field takes three to four years.

Southfield, MI 48076
(please send self-addressed stamped envelope when writing for information.)

- Automotive Service Councils
Suite 112
188 Industrial Drive
Elmhurst, IL 60126
- Occupational Outlook Handbook
1986-87 edition
pages (339-340)

RECOMMENDED HIGH SCHOOL SUBJECTS:

- Mathematics
- Science
- English
- Automotive Services & Diesel Technology
- Welding
- Mechanical Services
- Computer Services
- Arts and Technology

RECOMMENDED COURSES OF STUDY AND TRAINING:

- Automotive Body Repair
- Automotive Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Automotive Service Industry Association
1400 North Michigan Avenue
Chicago, IL 60611

Automotive Information Council
1400 North Michigan Avenue



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

Mechanic

... adjusts and replaces engine parts on auto-
... trucks, buses and tractors.

3112

620.261-010

05.05

6111

9-Maintenance & Repair (F)

15-Transportation (S)

Vehicle Maintenance (F)

Highway Transportation (S)

B
ES

PERSONAL APTITUDES:

Mechanic will be able to learn and understand the principles of internal combustion engine and related systems.

Ability to read, understand and follow instructions will be important in this occupation.

Mechanic will be able to picture three dimensional objects, and their relationship to each other and the space they occupy.

Mechanic will be able to see detail in objects and drawings.

Ability to use eyes, arms, hands and fingers together to handle large and small tools will be important in this occupation.

Mechanic will be able to stoop, reach, hear and see as well as lift loads up to 50 pounds.

- The ability to do many different tasks in the same day will be important in this occupation.
- The ability to make decisions based on both experience and a sound judgment will be important in this occupation.
- An Auto Mechanic will be able to complete tasks to meet a high standard.
- An interest in working alone with things using processes and techniques to produce a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Auto Mechanic will service automobiles to keep them operating mechanically (preventive maintenance).
- Auto Mechanics repair, service and adjust mechanical, electrical and vacuum systems of automobiles, trucks, buses and other line, diesel or electrically powered equipment.
- Work may be done on computer command systems requiring the use of computer sensory units.
- A checklist may be used to make sure all the necessary items are checked for trouble.
- The problem must be diagnosed before repairs can be made.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ.
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

High school diploma or its equivalent is recommended.
Associate degree in automotive technology from a junior or community college is becoming increasingly important.
Courses in automobile repair are offered by high schools, vocational schools, and trade schools.
Apprenticeship training lasts three to four years and gives training in all phases of automobile repair.
Work experience is important.
Bachelor's degree would be very helpful to advance to a management position within a large dealership.
A well-trained mechanic is a must. With the technology of the past and in the future every mechanic will need this knowledge.
Experience and/or training as an Automobile Mechanic in the military is an advantage in this occupation.
Companies require an auto mechanic to hold a valid driver's license.

- Agriculture
 - MechanicsPrinciples of Technology

PROGRAMS OF STUDY AND TRAINING:

- 1009 - Agricultural Power Machinery
- 3242 - Automotive Service Technician
- 7638 - Automotive Mechanics
- 7639 - Diesel Engine Mechanics
- 7640 - Small Engine Repair
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Automotive Service Industry Association
444 N. Michigan Avenue
Chicago, IL 60611
- Automotive Information Council
29200 Southfield Road
Southfield, MI 48076
(Please send self-addressed stamped envelope when writing for information.)
- Automotive Service Council, Inc.
Suite 112
188 Industrial Drive
Elmhurst, IL 60126
- National Association of Trade and Technical Schools
2021 K Street, N.W.
Washington, D.C. 20006

RECOMMENDED HIGH SCHOOL SUBJECTS:

- Math Education
- Automobile Repair/Engine Repair
- Automotive Services & Diesel
- Electricity/Power Systems
- Fluid Services



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

MOBILE SALESPERSON

new and used cars that meet the customer's wants and needs.

7418

273.353-010

08.02

4342

11-Marketing & Distribution (F)

15-Transportation (S)

Buying & Selling (F)

Highway Transportation (S)

B
ES

PERSONAL APTITUDES:

An Automobile Salesperson will be able to understand and explain policies about finance charges, deferred payment plans and warranties.

The ability to read and understand contract technical information and to communicate with customers in a language they can understand will be important in this occupation.

An Automobile Salesperson will be able to use arithmetic to total costs, fill out sales forms and draw up time purchase contracts.

The ability to picture the most attractive way to display the product will be important in this occupation.

An Automobile Salesperson will be able to move around easily and operate the auto if necessary.

- The ability to reach and hear as well as handle objects up to 15 pounds will be important in this occupation.
- An Automobile Salesperson will be able to talk easily with customers and help them make up their minds about purchases often by recommending suitable products.
- An interest in business contacts with people will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Automobile Salesperson sells both new and used cars.
- A Salesperson will greet the customer, and find out the level of interest the customer is interested in.
- An Automobile Salesperson should be familiar with financial terms and procedures.
- Appraising used cars may be necessary.
- Finding out what features or extras the customer has in mind will be part of the duties.
- The customer may want to test drive a model like the one they are interested in.
- A Salesperson may arrange financing and insurance, register the car and obtain license plates for the car.



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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

L HIGH SCHOOL SUBJECTS:

e
guage Skills
ive Education
eral Merchandising & Marketing
ic Math Skills

MS OF STUDY AND TRAINING:

etailing
utomotive Vehicle and Accessories Marketing

S OF ADDITIONAL INFORMATION:

ive Information Council
outhfield Rd.
d, MI 48076
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iting for information.)

onal Outlook Handbook
edition
31-263)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

MOBILE SERVICE ATTENDANT

Mobile Service Attendant will be able to work on vehicles and accessories, performs minor repairs and maintains automobiles.

3124

915.467-010

05.10

873

9-Maintenance & Repair (F)

15-Transportation (S)

Vehicle Maintenance (F)

Highway Transportation (S)

B
ES

PERSONAL APTITUDES:

Mobile Service Attendant will be able to learn the routine of vehicle maintenance and some basic car care methods.

Ability to follow written and spoken directions will be important in this occupation.

Mobile Service Attendant will be able to use math to total sales and make change.

Mobile Service Attendant will be able to work with hands to operate equipment and do minor repair work.

Ability to stoop, reach and hear, as well as lift up to 50 pounds is important in this occupation.

Mobile Service Attendant will be able to change from task to task many times in one day.

- An Automobile Service Attendant will be able to work with all kinds of people.
- An interest in working with things, using machines and tools that are repeated, will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Automobile Service Attendant makes change or prepares a receipt if the customer uses a credit card.
- An Automobile Service Attendant may need to keep business records up to date.
- Waxing and polishing cars may be part of this occupation.
- Inventorying stock, reordering supplies and setting up displays may be a part of the duties.
- An Automobile Service Attendant may also keep the service area and restrooms clean.
- This work may be in a business that only runs a service station or car wash or work in a large business that has both.
- A Service Station Attendant should be familiar with local roads and highways.
- A Service Station Attendant may:
 - put gasoline in the fuel tank and clean the windshield.

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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

OCCUPATIONAL BRIEFS



RELEVANT HIGH SCHOOL SUBJECTS:

General Education
Automotive Services & Diesel
Energy/Power Systems
Math
Mechanics

COURSES OF STUDY AND TRAINING:

Automotive Body Repair
Automotive Mechanics
Small Engine Repair

SOURCES OF ADDITIONAL INFORMATION:

Automotive Service Industry Association
1400 Michigan Avenue
Chicago, IL 60611

Automotive Service Councils, Inc.
2000
Industrial Drive
Chicago, IL 60126



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

with bakery equipment and several kinds of making breads, cakes, pies, pastries, doughnuts and other bakery products.

4324

526.381-010

06.02

6872

10-Manufacturing (F)

7-Home Economics (S)

Assembly & Production (F)

Food & Nutrition (S)

B
ES

PERSONAL APTITUDES:

will be able to learn, use and understand the recipes. In a bakery, a Baker will be able to learn and understand the steps of producing the baked goods.

It is important to be able to use words, written and spoken, to present information to others.

It is important to be able to use math and measuring skills.

will be able to tell differences in shapes and objects to check the quality of baked goods.

will be able to control hands, arms and movement of the body to handle small and large objects. Some objects to be lifted may weigh up to 100 pounds, but most will weigh under 50 pounds.

The ability to recognize colors is important for the decorating process.

- A Baker will be able to work a variety of duties.
- Bakers will be able to make decisions on their own and set limits of quality.
- An interest in working alone with objects you can see and touch is helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- As a Baker, perform and/or supervise all the steps needed to produce a variety of finished baked products.
- A Baker may perform only one or two of the many tasks needed to finish a baked product.
- As a mixer in a large bakery, you will weigh ingredients and mix them in blending machines.
- A Baker may mix the dough and allow it to rise.
- A Baker may add other ingredients, and the dough is mixed and allowed to rise again.
- A Baker may separate the dough into small pieces (loaves) and roll it into balls.
- Forming the dough by hand for the fancy shaped bread or pastries and placing it in pans may be part of the duties.
- A Baker may perform other mixing and cutting/shaping tasks for other baked products such as cookies, doughnuts, pies, etc.



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

1 Institute of Baking
kers Way
an, KS 66502

kers of America
crest
le, MD 20782

ary Institute of America
k
k, NY 12538

onal Outlook Handbook
edition
3)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

ir, gives hair and scalp treatments, gives shaves
ial massages and may fit hair pieces.

8284
330.371-010
09.02
5252
13-Personal Services (F)
13-Personal Services (S)
Personal Care & Grooming (F)
Personal Care & Grooming (S)

B
ES

AL APTITUDES:

- will be able to learn the common disorders of scalp, hair
the principles of cutting hair; and basic business manage-
- ty to understand spoken descriptions of the kind of service
mer wants is important in this occupation.
- will be able to picture the result before the service is begun.
- ty to see small differences in objects will be important in this
n.
- will be able to move around easily and use eyes, arms,
d fingers.
- ty to reach, hear and see as well as handle objects weighing
pounds, will be important in this occupation.

- A Barber will be able to talk and work with people in ma
ways.
- The ability to make decisions based on experience will be
this occupation.
- A Barber will be able to complete tasks to meet a set sta
- An interest in business contacts with people working wit
will help in this occupation.
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Barber spends most of the time cutting hair.
- Knowledge of razor and scissor cuts is necessary.
- A Barber may also do other things such as shampoo and
shave and trim beards and style mustaches.
- Selling grooming products such as shampoos, conditioner
lotions and soaps may be part of the duties.
- Giving facial massages and fitting hair pieces and wigs r
of the duties.
- New training now prepares barbers to give permanents
hair color.
- A Barber should enjoy working with people and help kee
atmosphere in the shop.



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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

ination with both a written and performance test will be
efore the license is issued.

pages (321-323)

or the Barber examination is \$75.

ual fee for the license is \$60 and 6 hours of Continuing
n Units per year are required for renewal every two years.

L HIGH SCHOOL SUBJECTS:

l Education
sonal Services

MS OF STUDY AND TRAINING:

arbering

§ OF ADDITIONAL INFORMATION:

d Master Barbers & Beauticians of America
'82
, NC 28222

Association of Barber Styling Schools
h 11th Street
NE 68508

partment of Health
oard

es, IA 50309

mal Outlook Handbook
edition



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

BARTENDER
Prepares all kinds of alcoholic and nonalcoholic drinks for customers in restaurants, hotels and bars.

7852

312.474-010

09.04

5212

11-Marketing & Distribution (F)

8-Hospitality & Recreation (S)

Buying & Selling (F)

Food Services (S)

B
ES

ESSENTIAL ABILITIES:

Bartender must learn the way a business is expected to be run after working for a short period of time.

Communication for the job is the ability to talk with many different people.

Bartender may take money from customers and make change.

Strength, arms and hands are used to mix and serve beverages and neatly.

Bartender may need to decide when to stop serving alcohol to a customer.

Flexibility in working around and with people in a business setting help a Bartender.

Bartender's work would be routine and in an organized workplace.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Bartender prepares alcoholic and nonalcoholic drinks for customers in hotels, bars and restaurants.
- Work will be done behind a bar which is stocked with the ingredients for the many drinks which are mixed.
- A Bartender may operate a cash register.
- A Bartender should be familiar with state and local laws regarding the sale of alcoholic beverages.
- Drinks will be mixed with hard liquor, soft drinks, water and other beverages.
- Draft beer may be provided from kegs.
- Operating blenders, ice crushers and other mixing machinery is part of the duties.
- Familiarity with a variety of drink recipes, types of alcoholic beverages and mixes will be necessary.
- Replacing or ordering the bar stock when supplies run low is part of the duties.
- Learning the names of regular customers and talking to many different subjects such as sports, latest local and national events, will be part of the duties.
- Keeping the bar area clean, neat and sanitary will be necessary.



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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

High school education or its equivalent is preferred.

Training is usually done in small restaurants and bars; larger establishments may require persons who already have experience.

Applicants must be of legal drinking age.

Private schools offer short courses in bartending that include instruction on local regulations, cocktail recipes, attire and conduct, and operating a bar.

Some businesses may require a health certificate.

RELEVANT HIGH SCHOOL SUBJECTS:

Physical Education
Community Food

DURATION OF STUDY AND TRAINING:

Varies; bartending

SOURCES OF ADDITIONAL INFORMATION:

International Hotel and Motel Association
1100 North Avenue
New York, NY 10019

Occupational Outlook Handbook
1980 Edition
(800-368-6308)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

BICYCLE REPAIRER

and replaces bicycle parts that are worn out or
and assembles new bicycles for sale.

3125

639.681-010

05.10

6179

9-Maintenance & Repair (F)

15-Transportation (S)

Vehicle Maintenance (F)

Highway Transportation (S)

ESSENTIAL ABILITIES:

Repairer will be able to learn the mechanical principles
of each different type of bicycle.

Ability to picture how parts fit together as well as how they work
is important in this occupation.

Ability to see detail in objects and in drawn plans will be
important in this occupation.

Repairer will be able to move around and use eyes, arms,
and fingers together to handle small and large tools and

Ability to tell one color from another will be important in this
occupation.

Repairer will be able to handle objects weighing 10 pounds.

- A Bicycle Repairer will be able to do the same task man-
day.
- The ability to complete a task to meet a set standard will
be important in this occupation.
- An interest in working with processes and machines that
produce a product that can be seen and touched will be helpful in this
occupation.
- With employer assistance, some physical requirements may
be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Bicycle Repairer will use hand tools to repair and adju-
st.
- Repairing and replacing bent rims; cleaning and repack-
ing; adjusting brakes; checking rims and cleaning the chain are
part of the occupation.
- A Bicycle Repairer will tighten or loosen wheel spokes to
wheels.
- A Repairer will take apart axles to repair brakes, adjust
and replace worn-out parts.
- Adjustment, repair and replacement cables for handbrake
bars, and seats may be part of this occupation.
- Assembling a complete bicycle from the parts received from
the manufacturer may be part of the duties.



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

CLERK

Statements, bills and invoices to be sent to customers.

1621
214.482-010
07.06
4718
2-Business & Office (F)
2-Business & Office (S)
Accounting & Bookkeeping (F)
Accounting & Bookkeeping (S)

PHYSICAL APTITUDES:

Clerk will be able to learn the billing system of the company and the operation of the business machine.

Ability to follow both spoken and written directions will be important in this occupation.

Clerk will be able to use basic math for computing with few errors.

Ability to see detail in written work to avoid errors will be important in this occupation.

Clerk will be able to use eyes, arms, hands and fingers to operate business machines.

Ability to sit for long periods of time as well as reach and see will be important in this occupation.

- A Billing Clerk will be able to do the same task, the same way, the same number of times a day.
- A Billing Clerk will be able to complete tasks to meet a schedule.
- An interest in working with things using processes that are repetitive and routine will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Billing Clerk will prepare statements, bills and invoices and send them to customers.
- Itemizing on the statement or bill the amount of money owed for goods or services will be part of this occupation.
- A Billing Clerk will use a billing machine or computer to prepare statements.
- A Billing Clerk will calculate the total amount due, plus any extra charges, and record this on the statement.

WAGES:

Hours per week	40
Average Wage (entry level)	\$5.40
Average Wage (all experience levels)	\$6.69
Average Range	\$5.68-\$7.50
	\$11,814-\$15,600

(Wages courtesy of Iowa Dept. of Employment Services.)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

BINDERY WORKER

operates various machines and performs other duties involved in the binding of books, magazines, pamphlets and catalogs.

4774

653.685-010

06.04

7649

10-Manufacturing (F)

3-Communication & Media (S)

Assembly & Production (F)

Newspaper/Magazine/Book (S)

B
ES

PHYSICAL APTITUDES:

A Bindery Worker will be able to picture how the finished product will look.

A Bindery Worker will be able to use eyes, arms, hands and fingers to handle objects and machine controls as well as some heavy lifting.

A Bindery Worker will be able to reach, see and handle loads up to 10 pounds will be required in this occupation.

A Bindery Worker will be able to do the same tasks in the same way every day.

A Bindery Worker will be able to work in routine work with things using processes and machines to produce a product that can be seen and touched will be helpful in this occupation.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Bindery Worker will operate a machine that folds large sheets into units making sure the pages are in the right order.
- A Bindery Worker will insert any illustrations or other sheets printed separately.
- Gathering all the pages together in order and feeding the various machines for stitching, folding, and gluing are a part of the duties.
- A Bindery Worker may shape book bodies with machines and attach fabric strips to the 'spine' of the books to strengthen them.
- A Bindery Worker may apply gold leaf, silver leaf or metal covers.
- Machines such as conveyor belts to transport the books through the binding process may be used.
- One may specialize in one or two steps in the process, although training may be in all of them.
- A Bindery Worker may stack and pack various material on the delivery table of machines.
- Operating a variety of machines used in the process of book binding may be part of the duties.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5111

BOOKKEEPER
orderly and up-to-date financial records for an

1616
210.382-014
07.02
4712
2-Business & Office (F)
2-Business & Office (S)
Accounting & Bookkeeping (F)
Accounting & Bookkeeping (S)

PERSONAL APTITUDES:

Bookkeeper will be able to learn, understand and use the methods of bookkeeping.

Bookkeeper will be able to understand written and spoken directions will be able to follow them in this occupation.

Bookkeeper will be able to read, compute and copy large amounts of numbers without errors.

Bookkeeper will be able to see detail in written, table and number forms to avoid or correct errors will be very important in this occupation.

Bookkeeper will be able to use eyes, hands, and fingers at the same time to enter numbers in books and forms, or to operate business equipment.

Bookkeeper will be able to sit for long periods of time doing some reaching will be able to do so in this occupation.

- A Bookkeeper will be able to complete many different tasks each day.
- A Bookkeeper will be able to complete tasks to meet a schedule.
- An interest in working with things using processes that are repetitive many times will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Bookkeeper will keep accurate business records.
- A Bookkeeper will keep these records in account and cash books.
- Record entries are made from sales slips, invoices, check stubs, inventory records and requisitions.
- A knowledge of data processing and bookkeeping procedures is required in this occupation.
- A Bookkeeper will balance the books and make a report of the business to give to the employer.
- In a small office a Bookkeeper may perform all the duties of a complete set of books.
- A Bookkeeper may use office equipment, such as adding machines and computers.
- In smaller offices you may do most of the work by hand.



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Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

MS OF STUDY AND TRAINING:

gricultural Supplies and Services
ccounting
anking and Finance
ookkeeping
usiness Computer and Console Operation

S OF ADDITIONAL INFORMATION:

1 Health Care Association
h Street, N.W.
on, D.C. 20005

onal Outlook Handbook
edition
'1-273)



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

BRICKLAYER

Bricklayers lay many things such as walls, chimneys and fireplaces using brick, mortar and other materials.

4264

861.381-018
05.05

6412

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

PERSONAL APTITUDES:

Bricklayers will be able to learn, understand and use the methods of working with brick and mortar.

Bricklayers will be able to follow written, spoken and drawn instructions well in this occupation.

Bricklayers will be able to use arithmetic and shop geometry to determine dimensions and amounts of materials needed for a job.

Bricklayers will be able to picture what the finished product will look like.

Bricklayers will be able to pay attention to detail in objects or pictures well in this occupation.

Bricklayers will be able to use eyes, arms, hands and fingers at the same time to work with tools and materials well in this occupation.

- A Bricklayer will be able to climb, stoop, reach and see, and handle loads up to 50 pounds.
- A Bricklayer will be able to make decisions based on measurements and facts.
- An ability to complete tasks to meet a set standard will be important in this occupation.
- An interest in working alone with things, using processes to create a product that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Bricklayer builds walls, fireplaces and other structures.
- A Bricklayer may read blueprints.
- A Bricklayer also works with other masonry materials such as concrete, marble, stone, tile and terra cotta (a hard-bake material for ornamental purposes).
- Installing the brick lining of industrial kilns and furnaces is a part of this occupation.
- A Bricklayer will use plumb lines and a mason's level to make corners exact.
- The bricks will lay in lines called courses so that the bricks in a course are horizontal.
- A Bricklayer first spreads a layer or 'bed' of mortar.



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Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

EDUCATION AND TRAINING:

High school diploma or its equivalent is needed.

Four-year apprenticeship program covering all phases of a Bricklayer's job is the most common preparation for this trade.

Apprentices must be at least 17 years old.

Learn the trade by working as 'hod carriers' (a person who carries bricks and other supplies to the Bricklayer).

Classes in building trades offered by community colleges and vocational schools would be helpful.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Mathematics
Science
Construction
Construction & Maintenance

MAJOR COURSES OF STUDY AND TRAINING:

Brick, Block and Stone Masonry

SOURCES OF ADDITIONAL INFORMATION:

Bricklayer Institute of America
Commerce Park Drive
Des Moines, IA 50319

Occupational Outlook Handbook
1990 Edition
(800-368-381)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

BROADCAST TECHNICIAN

Operates and maintains the electronic equipment which controls the transmission of signals from a radio or television station.

5664

193.262-038

05.03

393

3-Communication & Media (F)

3-Communication & Media (S)

Radio/T.V. Broadcasting (F)

Radio/T.V. Broadcasting (S)

BS

ESSENTIAL APTITUDES:

Broadcast Technician will be able to learn, understand and use the principles of electronics and the rules and regulations of the Federal Communications Commission (FCC).

Ability to read and understand technical language and explain this to others will be important in this occupation.

Broadcast Technician will be able to use math formulas involving trigonometry and electronics.

Ability to picture how electricity and radio equipment work will be important in this occupation.

Broadcast Technician will be able to pay close attention to detail in work and objects.

Ability to use eyes, hands and fingers at the same time to handle electronic equipment will be important in this occupation.

- A Broadcast Technician will be able to tell one color from another.
- The ability to reach, hear and see, as well as handle loads and lift up to 50 pounds will be important in this occupation.
- A Broadcast Technician will be able to make decisions based on past experience and measurable facts.
- A Broadcast Technician will be able to complete tasks to a high standard.
- An interest in technical and scientific activities that use theories that cannot always be measured will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Broadcast Technician is responsible for maintaining the quality of radio and television broadcasts.
- A Technician makes sure that the programming appears clear on viewing and listening.
- A Broadcast Technician will use the knowledge of basic electronics to perform your duties.
- One will work mainly at a control panel to regulate broadcast and maintain the technical quality of the control room equipment.
- A Broadcast Technician may be required to do more than one job at smaller stations.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5664*

COURSE OF STUDY AND TRAINING:

Radio/Television, General
Electronic Technology
Apprenticeship

SOURCE OF ADDITIONAL INFORMATION:

1. Information Office
1000 Avenue
New York, NY 10022

2. Association of Trade and Technical Schools
1400 Wisconsin Avenue NW
Washington, D.C. 20007

3. National Outlook Handbook
1980 Edition
(800-3-244)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

BUILDING MAINTENANCE WORKER

and keeps in good working order the doors, windows, plumbing fixtures, etc., in all kinds of buildings.

3422
899.381-010
05.10
6179
9-Maintenance & Repair (F)
9-Maintenance & Repair (S)
Building Maintenance (F)
Building Maintenance (S)

PERSONAL APTITUDES:

- Building Maintenance Worker will be able to learn basic repair and how to use many kinds of hand and power tools.
- Building Maintenance Worker will be able to understand and follow written and spoken directions will be important in this occupation.
- Building Maintenance Worker will be able to use basic math in measuring and ordering supplies.
- Building Maintenance Worker will be able to picture objects and their relationship to other objects and how they use will help decide what repairs are needed.
- Building Maintenance Worker will be able to see detail in objects and make fine comparisons.

- The ability to use eyes, arms, hands and fingers at the same time to handle small and medium tools and objects will be important in this occupation.
- The ability to climb, stoop, reach and see, as well as handle heavy objects from 25-50 pounds will be important in this occupation.
- A Building Maintenance Worker will be able to do many tasks in one day.
- A Building Maintenance Worker will be able to complete work that meets a set standard.
- An interest in working alone with things using machines and processes that result in a product that can be seen and touched in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Building Maintenance Worker will repair and keep in good working order all kinds of buildings such as office buildings, apartment buildings, schools and hospitals.
- Repairing doors, windows, plumbing fixtures and building equipment may be part of this occupation.
- Replacing washers and valves, unclogging drains and repairing pipes and faucets will be part of the duties.
- A Building Maintenance Worker may perform minor repairs on electrical fixtures and switches.



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Phone (515) 281-5

MS OF STUDY ADN TRAINING:

carpentry
Building Maintenance

S OF ADDITIONAL INFORMATION:

Association of Trade and Technical Schools
1400 Wisconsin Avenue NW
Washington, D.C. 20007

Job Information Center
1000 Walnut Street
Des Moines, IA 50309



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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

BUILDING MANAGER/SUPERINTENDENT
Building Manager/Supervisors are responsible for supervising activities or workers engaged in operating and maintaining facilities and equipment in buildings such as apartment houses or office buildings.

1158
187.167-190
05.02
1353
2-Business & Office (F)
9-Maintenance & Repair (S)
Management (F)
Building Maintenance (S)

PERSONAL APTITUDES:

- Ability to learn the needs of the building, as well as the needs and kinds of people who live or work in the building.
- Ability to understand instructions and requests, as well as give instructions clearly, will be important in this occupation.
- Ability to use math to keep records for the building.
- Ability to picture objects and their relationship to other objects and to decide on repairs and improvements for the building.
- Ability to pay close attention to detail in both objects and written records will be important to correct or avoid errors.

- A Building Manager/Supervisors will be able to handle up to 10 pounds.
- An ability to do many different tasks in one day will be important in this occupation.
- A Building Manager/Supervisors will be able to direct the activities of others.
- An ability to work with people in many different situations will be important in this occupation.
- A Building Manager/Supervisors will be able to make decisions based on measurable facts.
- An interest in business contact with people whose respect is earned will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Building Manager/Supervisors may inspect facilities and equipment to determine the need and extent of service and performance required.
- Hiring, training and/or firing various maintenance personnel will be part of this job.
- One may be responsible for leasing office and/or living space in the building.



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EL HIGH SCHOOL SUBJECTS:

ic Math Skills
l Education
fting
luct Services

MS OF STUDY AND TRAINING:

uilding Maintenance

S OF ADDITIONAL INFORMATION:

Owner's and Manager's

9709
ID 21012



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Phone (515) 281-5

VER

onsible for the safety and well-being of passen-
id transports assengers, mail and freight locally
long distances.

6141

913.463-010

09.03

8215

15-Transportation (F)

15-Transportation (S)

Highway Transportation (F)

Highway Transportation (S)

B
ES

AL APTITUDES:

iver will be able to learn the differences in operating a bus
an a car as well as the regulations of the company and

7 to understand and follow written and spoken directions will
ant in this occupation.

iver will be able to use basic math to handle fares and use
dules and meters.

iver will need to be able to judge distances and speed to
idents.

7 to use hands, arms and legs in controlling the bus will be
t in this occupation.

- A Bus Driver will be able to reach, hear and see, as well as lift loads up to 50 pounds.
- A Bus Driver will be able to work with different people in various situations.
- The ability to make decisions based on both experience and a sound judgment will be important in this occupation.
- An interest in business contact with people using machine processes that are repeated many times will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Bus Driver is charged with the responsibility for the safety of passengers and freight.
- A Bus Driver will work closely with people.
- A Bus Driver should have a knowledge of state and local vehicle laws and regulations.
- A Bus Driver will inspect the bus and pick up change, tickets, blanks and other needed items.
- An Intercity Bus Driver may also carry express packages and may also get a list of express and mail to be carried.
- A Bus Driver will collect fares or tickets, and help the passengers who need assistance.



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are renewed by passing an eye examination and paying the fee.

permanent positions become available, new drivers usually are preferred for experienced drivers who are absent.

Companies may offer additional training.

HIGH SCHOOL SUBJECTS:

Education
Transportation

COURSES OF STUDY AND TRAINING:

Truck and Bus Driving

SOURCES OF ADDITIONAL INFORMATION:

Transportation Union
Detroit Avenue
Columbus, OH 44107

Annual Outlook Handbook
1987 Edition
(614-455)



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CABINETMAKER

Plans and installs cabinets, counter tops and various types of wooden cupboards.

4586

660.280-010

05.05

6832

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

GENERAL APTITUDES:

Cabinetmaker will be able to learn about the materials used as well as the tools needed.

Ability to read and understand instructions and blueprints will be important in this occupation.

Cabinetmaker will be able to use arithmetic and shop geometry to determine amounts of materials needed and dimensions to be followed.

Cabinetmaker will be able to picture what the finished product will look like.

Ability to pay attention to detail in objects, blueprints and written instructions to avoid or correct errors will be important in this occupation.

Cabinetmaker will be able to use eyes, arms, hands and fingers at times to use hand tools or operate machines.

- The ability to reach, see and handle loads of 25 and lift 50 pounds will be important in this occupation.
- A Cabinetmaker will be able to do many tasks in the same area.
- The ability to make decisions based on experience and mechanical aptitude will be important in this occupation.
- A Cabinetmaker will be able to complete tasks to meet a standard.
- An interest in working alone with things using processes and machines resulting in products that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Cabinetmaker specializes in making furniture, cabinet units and other woodwork requiring a high degree of skill.
- Cabinetmakers plan the job after studying the plans of the job.
- Cabinetmakers must be familiar with the various kinds of wood.
- A Cabinetmaker must have great skill in using woodwork and machinery.
- Cabinetmakers use some very complicated power tools as well as simple hand tools.
- The Cabinetmaker may have to use files, saws or grinders and keep tools in good working order.



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RELEVANT HIGH SCHOOL SUBJECTS:

Algebra
Basic Math Skills
Business Education
Manufacturing
Woodworking

RECOMMENDED COURSES OF STUDY AND TRAINING:

Cabinetmaking
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

· Occupational Exploration
Division
(515-281-218)



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CABLE INSTALLER/REPAIRER

installs and repairs conduit and cable systems which carry electrical energy between source and consumer.

3165
821.361-010
5.05
6433
9-Maintenance & Repair (F)
9-Maintenance & Repair (S)
Utilities & Service (F)
Telecommunications (S)

B
ES

PERSONAL APTITUDES:

Cable Installer/Repairer will be able to learn the principles of electrical energy transmission by wire and fiber optics and the methods of installation and repair of both types of transmission.

Cable Installer/Repairer will be able to read and follow company manuals and fill out required work orders.

Cable Installer/Repairer will be able to use basic math skills to follow company manuals and fill out work orders will be required in this occupation.

Cable Installer/Repairer will be able to picture an object in relation to other objects and how they occupy space.

Cable Installer/Repairer will be able to see small differences in shapes, forms and lines will be required in this occupation.

Cable Installer/Repairer will be able to pay attention to detail in reading and tabular information to avoid or correct errors.

- A Cable Installer/Repairer will be able to use eyes, fingers and feet together to handle both small and large objects and materials.
- An ability to tell one color from another will be important in this occupation.
- A Cable Installer/Repairers will be able to see, reach, stand and lift as well as lift up to 50 pounds.
- A Cable Installer/Repairer may be under stress on emergency because of installation deadlines.
- An ability to make decisions on measurable fact will be important in this occupation.
- A Cable Installer/Repairer will be able to complete tasks to a standard.
- An interest in working with things using processes that produce a real product will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Cable Installer/Repairer may place lines on poles and towers.
- Many cables are placed in underground conduits.
- Cable Installers/Repairers may use trenchers or other power equipment to bury cable underground.
- A Cable Splicer completes the connection after the the cable is buried.



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Manufacturers of cable installation equipment provide training
s.

ational and technical schools sometimes provide training
s for smaller companies.

n to supervisory positions will be possible with more exper-
l/or training.

L HIGH SCHOOL SUBJECTS:

- ic Math Skills
- l Education
- munications
- struction/Maintenance
- trical/Electronic
- rgy/Power Systems

MS OF STUDY AND TRAINING:

ine Worker

S OF ADDITIONAL INFORMATION:

onal Brotherhood of Electrical Workers
h Street, NW
ton, D.C. 20005

onal Outlook Handbook
edition
58-360)



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TER
ood products and hand and ower tools to build
ing from houses to cabinets to window frames.

4254
860.381-022
05.05
6422
4-Construction (F)
4-Construction (S)
Building Trades (F)
Building Trades (S)

B
ES

AL APTITUDES:

- ter will be able to learn many different parts of the
ion industry as well as learn about the many different
s used in the industry.
- y to understand and follow written and spoken directions and
understand blueprints will be important in this occupation.
- ter will be able to use math and shop geometry to figure
of materials needed and dimensions to be followed.
- y to picture what the finished product will look like will be
t in this occupation.
- ter will be able to pay attention to detail in objects and
avoid or correct errors.
- ter will be able to use eyes, arms, hands and fingers at the
e to use tools and operate power machines.

- The ability to climb, stoop, reach and see, as well as har
to 50 pounds will be important in this occupation.
- A Carpenter will be able to complete many different task
- The ability to make decisions based on measurable facts
important in this occupation.
- A Carpenter will be able to complete tasks to meet a set
- An interest in working alone with things using processes
chines resulting in a product that can be seen and touche
helpful in this occupation.
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Carpenter will measure and cut the lumber to proper
fasten the materials with nails, bolts, screws, or glue.
- A Carpenter should become familiar with building regula
- A 'rough' Carpenter will construct the wooden framewor
ings.
- A 'finish' Carpenter will put in window sashes, door fran
stairs, molding and lay floors.
- The Carpenter will be concerned with the appearance as
accuracy of the work.
- A 'rough' Carpenter will also install heavy timbers used
ing docks, railroad trestles and similar installations.



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ide schools give good training which can shorten the appren-
period.

ool programs provide helpful training for those who cannot
nion apprenticeship and who otherwise might not receive
1 training.

L HIGH SCHOOL SUBJECTS:

ic Math Skills
re
hanics
l Education
struction
struction & Maintenance

MS OF STUDY AND TRAINING:

arpenry
pprenticeship

S OF ADDITIONAL INFORMATION:

onal Outlook Handbook
edition
(1-382)



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Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

CASHIER/CHECKER

A cashier/checker is a cash register and receives money from customers in payment for goods or services and may keep records of all transactions.

1642

211.462-010/014

07.03

4364

2-Business & Office (F)

11-Marketing & Distribution (S)

Accounting & Bookkeeping (F)

Buying & Selling (S)

B
ES

PERSONAL APTITUDES:

A cashier/checker will be able to learn the cashiering method used by the employer, as well as the operation of computer cash register, cash registers or business machines.

The ability to understand and follow written and spoken directions is important in this occupation.

A cashier/checker will be able to use math to figure the cost of goods and make change.

The ability to pay attention to detail in written and table form will be important in this occupation.

A cashier/checker will be able to use eyes, hands and fingers at the time to operate an adding machine, calculator or cash register.

- The ability to reach, hear and see, as well as handle loads and heavy pounds will be important in this occupation.
- A Cashier/Checker will be able to work with many different people with consideration and courtesy.
- The ability to complete tasks to meet a set standard will be important in this occupation.
- An interest in business contacts with people and activities that are repeated many times will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Cashier/Checker will receive or collect money from customers, employees or from various businesses who have used their services or goods.
- Accurate records of each day's transactions must be kept.
- Noting price changes on sales items may be part of this job.
- A Cashier/Checker may bag merchandise and issue tickets.
- One may also prepare cash receipts and reports on money during the day.
- Some Cashiers/Checkers may operate office machines such as typewriter; cash register; calculating, bookkeeping and adding machines.



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Iowa Dept. Of Educa
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

MS OF STUDY AND TRAINING:

for this occupation is generally received on the job.

S OF ADDITIONAL INFORMATION:

ployment Services
Grand
es, IA 50316

onal Outlook Handbook
edition
53-255)



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

R menus and prepares food, usually for large groups
le, to be served for specific occasions.

7842
319.677-010
09.05
5217
7-Home Economics (F)
8-Hospitality & Recreation (S)
Food & Nutrition (F)
Food Services (S)

B
ES

AL APTITUDES:

r will be able to make plans and carry them out.
requirement is the ability to understand and to give direc-
r will be able to use basic math in planning and preparing to
ugh food to large groups.
r must be able to handle food without waste or spilling.
b, a Caterer will need to move around and may be on his or
nost of the day.
r may be responsible for the direction and supervision of

- A number of different tasks will be performed. Responsi-
tasks, many involving people and requiring decisions to
be part of the duties.
- To consider this occupation, an interest in business conta-
people and an ability to work alone will be necessary.
- As a Caterer, one will develop a keen sense of taste and
- A Caterer will work under pressure during busy periods.
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Caterer will plan menus and prepare food for large gro-
for special occasions.
- A Caterer must plan the correct amount of food for the r
people to be served.
- Discussing the type of menu wanted, the time, place and
with the customer will be part of the duties.
- A Caterer must schedule serving arrangements planned
helpers and plan the arrangement of tables.
- A Caterer will direct the preparation of food and the pac-
delivery.
- A Caterer will supervise and help with the serving, being
the food warm or cold as needed.
- A Caterer will arrange for clean up afterwards.



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onnecticut Ave. N.W. Suite 800
ton, DC 20036



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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CENTRAL OFFICE REPAIRER

Central Office Repairer repairs and maintains all types of automatic telephone equipment that connect phone lines at a central office when customers dial numbers.

3163

822.281-014

05.05

6151

9-Maintenance and Repair (F)

3-Communications and Media (S)

Machine Maintenance (F)

Telecommunications (S)

B
ES

PERSONAL APTITUDES:

Central Office Repairer will be able to learn the installation and maintenance procedures for the complex equipment located in central offices of a telephone company.

Central Office Repairer will be able to use both oral and written communication to understand the problems and make reports on the equipment.

Central Office Repairer will be able to use knowledge of basic formulas for finding resistance and power to determine those characteristics of the system will be required.

Central Office Repairer will be able to judge the types and sizes of controls, relays and other components, as well as how to place those parts in the space allowed and required in this occupation.

- A Central Office Repairer will be able to see small differences when comparing parts to inspect for defective parts or to install components to the instruments.
- A Central Office Repairer will be able to see detail in wiring diagram form to follow installation diagrams and keep accurate records of repairs or installations.
- A Central Office Repairer will be able to make quick, accurate movements using both eyes, hands and fingers.
- An ability to use the hands and feet guided by seeing will be important in this occupation.
- A Central Office Repairer will be able to do a variety of work during the day that require many different skills and ways of working.
- A Central Office Repairer will be able to make decisions based on facts.
- A Central Office Repairer will be able to complete tasks to a standard.
- An interest in working with things using processes that produce a product that can be used will be important in this occupation.
- A Central Office Repairer will be able to carry 10 pound and at least 20 pound loads.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

pages (350-352)

High school diploma or its equivalent is usually required.

Electronic or electrical experience is preferred.

Individuals hired to be Central Office Repairers are often hired from a telephone company and start as Frame Wiremen, it takes a year or more to master this job.

Community College courses in electronics would be helpful although not required for this position.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Mathematics
Science
Education
Electronics/Electrical

RECOMMENDED COURSES OF STUDY AND TRAINING:

Electronic Technology
Communications Electronics

SOURCES OF ADDITIONAL INFORMATION:

Telephone Association
1400 M Street N.W., Suite 800
Washington, D.C. 20006-2102

Annual Outlook Handbook
1980 Edition



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Career Information Syst

Iowa Dept. Of Educ

Grimes State Office

Des Moines, IA 50

Phone (515) 281-5

ed with research and development in the chemi-
physical properties and changes in substances.

2625

022.061-010

02.01

1845

10-Manufacturing (F)

10-Manufacturing (S)

Management & Research (F)

Management & Research (S)

AL APTITUDES:

st will be able to learn, understand and use the principles of
s, research and test methods.

r to understand, use and explain technical, scientific and
anguage and information will be important in this occupa-

st will be able to use complex math formulas to solve

r to picture how a system works will be important in this
n.

st will be able to pay close attention to details in pictures or

r to pay close attention to detail in written information to
orrect errors will be important in this occupation.

- An ability to use eyes, hands and fingers at the same tir
delicate instruments and small objects will be important
occupation.
- A Chemist will be able to tell one color from another.
- An ability to reach, see and handle loads up to 10 pound
important in this occupation.
- An ability to do many different tasks in one day will be i
this occupation.
- A Chemist will be able to plan and direct the activities of
- The ability to make decisions based on both experience a
able fact will be important in this occupation.
- A Chemist will be able to complete tasks to meet a set st
- An interest in working with things of a scientific or techr
using processes or machines will help in this occupation.
- With employer assistance, some physical requirements n
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Chemist does basic research to learn more about how
composed and the energy involved when matter undergoe
- A Chemist applies the result of experiments to everyday
a crime analyst or in a crime lab.



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KEY OCCUPATIONS:

Chemist (2625) See Chemists in the Military Career Guide
page 297.

RELATED OCCUPATIONS:

Chemist (2611)
Scientist (2674)
Teacher (2166)
High School/College Teacher (8454)

EDUCATION AND TRAINING:

A baccalaureate degree with a major in chemistry is sufficient for
beginning jobs as a Chemist.

Additional training is required for many research and college teaching
positions.

Most Chemists should have a broad background in chemistry
and laboratory skills.

Many employers have special training and orientation programs
and are concerned with the special knowledge needed for the
employee's type of work.

Advanced training is generally required for basic research, for teaching in
colleges and universities and for advancement to many administrative
positions.

HELPFUL HIGH SCHOOL SUBJECTS:

Math

- Algebra/Geometry
- Advanced Math

Science

- Chemistry
- Physics
- Biological Sciences

PROGRAMS OF STUDY AND TRAINING:

- 1217 - Food Science
- 6705 - Chemistry

SOURCES OF ADDITIONAL INFORMATION

- American Chemical Society
1155 16th Street, N.W.
Washington, D.C. 20036
- Occupational Outlook Handbook
1986-87 edition
pages (80-82)



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Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

CHILD DAY-CARE WORKER

are for children during the day in private homes, schools and day care centers.

8449

359.677-018

10.03

5264

7-Home Economics (F)

13-Personal Services (S)

Family Management & Child Care (F)

Child Care (S)

PERSONAL APTITUDES:

Child Day-Care Worker will be able to learn, understand and carry out routine children follow.

It is important to be able to give and receive directions.

It is necessary to be able to reach, stoop and move around quickly. It is also necessary to be able to lift and carry children weighing up to 25 pounds.

Child Day-Care Worker will be able to do a variety of tasks while interacting and playing with the children.

It is important to be able to make decisions by yourself that affect the safety of the children.

It is important to be able to assist in doing work that will help others will be important in the occupation.

- It is important to be able to get along with children and adults.
- A Child Day-Care Worker will be able to stay calm in emergency situations.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Child Day-Care Worker is responsible for the safety and well-being of the children.
- The Child Day-Care Worker will organize games and activities and talk to children about their games.
- A Child Day-Care Worker usually teaches children simple activities such as drawing, handwork, songs and similar activities.
- The children's needs for food, rest and personal care must be met.
- At least one meal and a snack will be served.
- A Child Day-Care Worker may assist in preparing the meals and cleaning up afterwards.
- A Child Day-Care Worker will help the children develop self-help skills such as caring for their own clothing.
- A Child Day-Care Worker will also teach children to pick up toys and books which are not being used.
- The ability to recognize symptoms of illness, disease and proper medical care will be necessary in this occupation.



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Des Moines, IA 50319

Phone (515) 281-5000

RELEVANT HIGH SCHOOL SUBJECTS:

Physical Education
Health
Economics
Consumer & Homemaking
Child Care

RELEVANT COURSES OF STUDY AND TRAINING:

Elementary Education
Early Childhood Education
Teaching English as a Foreign Language
Home Economics, General
Child Development, Care and Guidance
Liberal Studies
Religious Education
Community Services

SOURCES OF ADDITIONAL INFORMATION:

Association for the
Care of Young Children
1400 Connecticut Avenue, NW
Washington, D.C. 20009



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CHIROPRACTOR

...spinal columns and other parts of the body to
...healing and corrects problems in the body which
...caused by interference with the nervous system.

8122
079.101-010
02.03
289
6-Health (F)
6-Health (S)
Doctor (F)
Doctor (S)

B
ES

GENERAL ABILITIES:

...actor will be able to learn the principles of the human body
...and their relationship to illness and disease.

...y to understand and explain to others technical and scientific
...and thinking will be important in this occupation.

...actor will be able to use math to interpret tests and keep

...actor will be able to deal with things that are known or
...with things which are often not easy to recognize or
...nd.

...y to pay close attention to detail in objects, or graphs to
...correct errors will be important in this occupation.

- A Chiropractor will be able to use eyes, hands and fingers with skill and accuracy.
- An ability to reach, hear and see, as well as handle loads in pounds, will be important in this occupation.
- A Chiropractor will be able to direct the activities of other workers.
- A Chiropractor will be able to deal with people in many different situations.
- An ability to make decisions based on both experience and scientific fact will be important in this occupation.
- An interest in scientific or technical work that will help them earn their respect will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Chiropractor will usually examine patients at his or her office which may be in a clinic.
- Trying to prevent illness by advising patients in the area of exercise to promote and maintain good health may be part of the occupation.
- A Chiropractor usually treats health problems by manual manipulation (adjustments) of parts of the body, especially the spine.
- A Chiropractor may use additional measures of treatment such as exercise, rest, water, light, heat and nutritional therapy.



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Educ.
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

se is a two-year license which expires biannually on June 30
umbered years. The renewal fee is \$100 for a two-year
he State of Iowa requires 40 hours of continuing education
a two-year period, earned by the end of an odd numbered

HIGH SCHOOL SUBJECTS:

ogical Sciences
sics
mistry
Physical Education
lth

MS OF STUDY AND TRAINING:

iropractor

S OF ADDITIONAL INFORMATION:

Chiropractic Association
redon Bld.
, VA 22209

nal Outlook Handbook
edition
4-145)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CIVIL ENGINEER

designs and directs the construction and maintenance of structures such as roads, airports, bridges and pipelines.

2428

005.061-014

05.01

1628

4-Construction (F)

4-Construction (S)

Engineering (F)

Engineering (S)

B
ES

PERSONAL APTITUDES:

Civil Engineer will be able to learn, understand and use the concepts of chemistry, physics, geology and related sciences.

The ability to understand complex technical language to explain, and write using technical language will be important in this occupation.

Civil Engineer will be able to analyze and measure using the concepts of math from algebra to calculus.

The ability to picture the relationships of objects to each other and to the way they use will be important in this occupation.

The ability to pay close attention to small differences in size and detail will be important in this occupation.

- A Civil Engineer will be able to pay close attention to detail in number and written work to avoid or correct errors.
- The ability to use eyes, hands and fingers at the same time with tools and delicate equipment will be important in this occupation.
- The ability to tell one color from another will be important in this occupation.
- A Civil Engineer will be able to reach, see and handle loads up to 50 pounds.
- The ability to do many different tasks in one day will be important in this occupation.
- A Civil Engineer will be able to plan and direct the activities of others.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Civil Engineer will be able to complete tasks to meet a standard.
- An interest in scientific or technical work that allows originality and deals with ideas and things not easily described will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



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KEY OCCUPATIONS:

Civil Engineers (24280) See Civil Engineers in the Military Career Briefs 88-1989 page 298.

RELATED OCCUPATIONS:

Engineering Technician (2426)
Industrial Engineering Technician (2451)
Mechanical Engineer (2434)
Chemical Engineer (2624)
Aeronautical Engineer (2315)

EDUCATION AND TRAINING:

A Bachelor's Degree in Civil Engineering is required for employment.

Continuing education is increasingly more important for advancement.

One does not need to obtain a license to gain employment as an engineer. However, to practice as a Registered Professional Engineer one must meet the state requirements for licensure.

For an Engineer license, several combinations of experience and educational training are possible.

For professional registration, applicants must pass written examinations in the fundamentals and the principles of the practice of engineering.

During the first year of practice as a Registered Professional Engineer, continuing education is required for license renewal. The number of hours required varies with work experience.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Algebra/Geometry
 - Advanced Math
- Science
 - Physics
- Principles of Technology
- Industrial Education
 - Construction
 - Transportation
- Language
 - Composition
- Speech

PROGRAMS OF STUDY AND TRAINING:

- 3001 - Engineering, General

SOURCES OF ADDITIONAL INFORMATION

- American Society of Civil Engineers
345 East 47th Street
New York, NY 10017
- International Chiropractors Association
1901 L Street, N.W.
Washington, D.C. 20036
- Occupational Outlook Handbook
1986-87 edition
pages (64-65)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CLAIM ADJUSTER

Investigates claims for loss or damage filed in connection with insurance policies and tries to make settlements out of court.

1632
241.217-010
11.12
4782
2-Business & Office (F)
2-Business & Office (S)
Secretarial & Clerical (F)
Secretarial & Clerical (S)

B
ES

PERSONAL APTITUDES:

Claim Adjuster will be able to learn the requirements of the policies and to recognize false claims.

Ability to understand legal information and speak and write clearly to avoid misunderstandings will be important in this occupation.

Claim Adjuster will use math to compute costs and prepare cost estimates.

Ability to picture damaged goods and to make comparisons of value is important in this occupation.

Claim Adjuster will pay close attention to detail in objects, pictures, and written information.

- The ability to move around, hear and carry loads under stress and lift 20 pound loads will be important in this occupation.
- A Claim Adjuster will deal with all kinds of people, often trying to get them to agree to terms.
- A Claim Adjuster will be able to make decisions based on facts and measurable fact.
- An interest in business contact with many people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Claim Adjuster will investigate claims filed for losses and to determine if losses or damages are covered by the policies.
- Investigating the claims and estimating the cost of repair and replacement will be part of this occupation.
- A Claim Adjuster will conduct different types of investigations depending on the type of insurance involved, i.e., fire, casualty, health, fidelity or workers' compensation loss.
- Additional investigation may be necessary when the claim involves suicides, accidental deaths or missing persons.
- A Claim Adjuster works away from the office with little or no travel except for life or health claims work.



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Phone (515) 281-5

MS OF STUDY AND TRAINING:

anking and Finance
urance and Risk Management
utomotive Body Repair

S OF ADDITIONAL INFORMATION:

1 Council of Life Insurance
nsylvanian Ave. N.W.
on, D.C. 20006

2 Information Institute
am Street
k, NY 10038



Career Information System
 Iowa Dept. Of Education
 Grimes State Office
 Des Moines, IA 50319
 Phone (515) 281-5100

OCCUPATIONAL BRIEFS

...rs to the spiritual needs of people and provides
 ...hip to groups involved in organized religious ac-

8436
 120.007-010
 10.01
 2042
 13-Personal Services (F)
 5-Fine Arts & Humanities (S)
 Special Human Services (F)
 Religion (S)

B
 ES

PERSONAL APTITUDES:

...r of the Clergy will be able to understand the principles of
 ...nd apply these using reason and judgment when working
 ...le.

...ing yourself clearly in writing and speaking will be important
 ...cupation.

...r of the Clergy will be able to use basic math in record
 ...nd work with detail as in proof reading written materials to
 ...l correct math errors.

...e to move around locally to meet with individuals and groups
 ...portant.

...r of the Clergy person will be able to do a variety of
 ...working with people and their feelings.

- An interest in using information of a scientific nature and ideas that are original using that information will help in this occupation.
- A member of the Clergy will have strong religious beliefs.
- Being emotionally stable with compassion, understanding, and tolerance will be important in this occupation.
- A member of the Clergy will be concerned about the spiritual well-being of people in addition to having a sincere desire to help them.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A member of the Clergy will serve in one of three major groups as a Protestant minister, a Roman Catholic priest, or a rabbi.
- A Protestant minister leads the congregation in worship, presents sermons and administers the rites of baptism, confirmation, and Holy Communion.
- Protestant ministers may also perform marriages, conduct funerals, provide instruction for new members, visit the sick and care for persons with problems.
- A Protestant minister is trained for and serves a specific denomination; for example, Baptist, Methodist, Lutheran, or Presbyterian.



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ergy positions are considered self-employed as they are not
by unemployment benefits.
ment demand varies from denomination to denomination.
nt ministers serve individual congregations, they may also
k in youth, family service and welfare organizations.
ment for members of the Clergy usually means a larger
tion or regional positions in religious organizations or govern-
s.

Y OCCUPATIONS:

s, Military (84360)
Workers (84361) See Religious Workers page 61 and Chap-
e 269 in the Military Career Guide 1988-1989 .

D OCCUPATIONS:

r (8414)
orker (8417)
y/College Teacher (8454)
lations Specialist (1195)

PREPARATION AND TRAINING:

- Preparation for members of the Clergy varies considerable denomination to another.
- All members of the Clergy must be ordained by their den
- A large number of Protestant denominations require a tl course of professional study in a theological school or ser following graduation from college with at least a Bachelo Bachelor's or Master's of Divinity degree is awarded up
- Students entering Jewish seminaries usually hold a Bacl although it is not always required. Jewish rabbinic train from three to six years to complete depending on the bra Judaism for which the student is being trained and the e acquired before entering the seminary.
- Preparation for the priesthood requires eight years beyo school. The first four years in the seminary consist of a arts curriculum including two years of Latin. The secon concentrate on the religious teachings of the Roman Catl

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Speech
- Social Studies
 - Sociology
- Health & Physical Education
 - Health



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and directs sporting activities to individuals
ups.

8458

153.227-018

12.01

2390

8-Hospitality & Recreation (F)

14-Public Service (S)

Sports & Entertainment (F)

Sports & Entertainment (S)

B
S

AL APTITUDES:

will be able to understand and interpret correctly all the
sport.

important to communicate with members of the team so
can understand the plays being used.

will be able to use basic math in record keeping.

important to be able to visualize before the play, how the
t of the game will use the space on the playing field.

sight and hearing will help in this occupation.

will need the above abilities and will also be responsible for
and organizing.

nvolved in this occupation will be able to work with people
stress of competition.

- It will be important to be able to make independent decis
the limits of the sport.
- An interest in doing work that attracts the respect of oth
helpful in this occupation.
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Coach may work for pay with athletes who perform be
public in several sports:

Baseball
Basketball
Bowling
Boxing
Football
Golf

Hockey
Skiing
Soccer
Tennis
Wrestling

- A Coach may work basically as an instructor, such as th
pro or the tennis instructor.
- A Coach observes the players while they perform to deci
for individual or team improvement.
- A Coach instructs players individually or in groups showi
and methods of one sport.
- A Coach oversees the daily practice of the players.
- A Coach recommends players to be drafted or traded.



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EDUCATION AND TRAINING:

Most coaches hold a Baccalaureate degree, but it is not required.

Some coaches in Physical Education or coaching courses can be very

years of competitive experience are required.

Coaching experience is also helpful.

Some secondary schools often hold a bachelors degree in an subject such as social studies, science or English and accept coaching duties in addition to teaching full time in a subject

RELEVANT HIGH SCHOOL SUBJECTS:

Physical Education
Physical Education

LEVELS OF STUDY AND TRAINING:

Secondary Education

SOURCES OF ADDITIONAL INFORMATION:

Association for Sports, and Physical Education
Association Drive
A 22091

Athletic Trainers Association
4th Street
, NC 27858



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

FOR

the customer to collect or arrange payment on accounts, damage claims or nonpayable checks.

1652

241.367-010

07.03

4786

2-Business & Office (F)

2-Business & Office (S)

Secretarial & Clerical (F)

Secretarial & Clerical (S)

B
ES

AL APTITUDES:

or will be able to learn the company policies, type of plans and some understanding of money and credit.

7 to speak well, making a point quickly and clearly will be t in this occupation.

or will use math to figure costs, interest and extended plans.

7 to pay close attention to detail in number and written on to avoid or correct errors will be important in this n.

7 to hear, and handle light loads weighing up to 10 pounds, times lifting 20 pound loads will be important in this n.

- A Collector will work with all kinds of people often convince them to change their minds about a charge, service or payment.
- An interest in business contact with people will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Collector usually phones the customer and attempts to get them to pay the amount due or make arrangements for payment on a later date.
- Interviewing neighbors and postal workers to determine a customer's new address may be part of this occupation.
- A Collector may have a customer's service discontinued if the account is disrepossessed for nonpayment of a bill.
- One will keep very accurate records of collections and the accounts.
- A collector may help maintain the employer's financial records by keeping bad debts to a minimum.
- A Collector will know what is in a customer's financial file and keep all information confidential.
- Different approaches may be needed for collecting, depending on the type of payment problem.



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EL HIGH SCHOOL SUBJECTS:

ic Math Skills
a Processing
ive Education
eral Merchandise & Marketing

MS OF STUDY AND TRAINING:

anking and Finance

S OF ADDITIONAL INFORMATION:

1 Collectors Association
x 35106
st 70th Street
olis, MN 55435



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

COMMUNITY ORGANIZATION WORKER

Plans, organizes and supports individuals, groups and agencies to identify and meet the program and needs of the community.

8488

195.167-010

11.07

2032

14-Public Service (F)

14-Public Service (S)

Legal and Social Services (F)

Legal and Social Services (S)

B
ES

PERSONAL APTITUDES:

Community Organization Worker will be able to make detailed plans and policies for many different activities.

Community Organization Worker will be able to speak or write well to give information or describe ideas important in this occupation.

Community Organization Worker will be able to use basic math in planning.

Community Organization Worker will be able to use physical strength in this occupation, lifting and carrying objects up to 10 pounds may be necessary.

Community Organization Worker will be able to work with many different activities.

Community Organization Worker will be able to take responsibility for planning, controlling and directing activities performed by others.

- An interest in sharing business ideas with people will help in this occupation.
- An interest in earning the respect of others will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Community Organization Worker plans and works with groups concerned with the social problems of the community.
- The Community Organization Worker may coordinate agencies or groups or individuals to meet needs identified in the community.
- A Community Organization Worker studies and assesses the strengths and weaknesses of existing resources.
- A Community Organization Worker provides leadership in interpreting needs to agencies, groups and individuals.
- Assisting in budget preparation and presentation may be necessary in this occupation.
- A Community Organization Worker may assist in raising funds for community projects.
- The Community Organization Worker may specialize in one of the following areas: The Aging Population, Juvenile Delinquency, Community Renewal and Development, Mental and Physical Health, Welfare or Health Council.



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Career Information Syst
Iowa Dept. Of Educ
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Des Moines, IA 50
Phone (515) 281-5

MS OF STUDY AND TRAINING:

fro American (Black) Studies
amily and Community Services
eligion
sychology
ommunity Services
ocial Work
ociology
rban Studies

S OF ADDITIONAL INFORMATION:

Occupational Exploration
ion
(1-303)

onal Outlook Handbook
edition
(2-116)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

COMPUTER/PERIPHERAL EQUIPMENT OPERATOR

Computer/Peripheral Equipment Operator will be able to enter all kinds of data on electronic computers and to operate other equipment attached to the computer such as lineprinters.

1686

213.382-010

07.06

4613

2-Business & Office (F)

2-Business & Office (S)

Data Processing (F)

Data Processing (S)

B
ES

PERSONAL APTITUDES:

Computer/Peripheral Equipment Operator will be able to learn the computer and office procedures used by computer systems.

Ability to understand and give clear spoken and written instructions will be important in this occupation.

Ability to picture the correctly running machine to avoid breakdowns will be important in this occupation.

Computer/Peripheral Equipment Operator will be able to pay close attention to written information to avoid or correct errors.

Ability to use eyes, arms, hands and fingers at the same time to operate machines quickly and without error will be important in this occupation.

- A Computer/Peripheral Equipment Operator will be able to see, as well as sit for long periods of time.
- The ability to do many different tasks in one day will be important in this occupation.
- A Computer/Peripheral Equipment Operator will be able to perform tasks that will meet set standards.
- An interest in using machines and processes that repeat will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Computer Operator will be familiar with the technical information used in computer manuals.
- A Computer Operator will mount and position materials, reels of magnetic tape or paper tape onto spindles, decks and hoppers of output forms and carriage tapes in printing devices.
- Setting guides, keys and switches according to written instructions will be part of the duties.
- Keypunch Operators use a typewriter like keyboard to punch patterns into cards that are then read by the computer.
- Data Typists use special machines to code information by punching cards or electronic pulses on magnetic tape or disc.



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Phone (515) 281-5000*

S OF ADDITIONAL INFORMATION:

Processing Management Association
1000 Highway
Des Moines, IA 50068

Annual Outlook Handbook
1983 edition
(515-274-1234)



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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

COMPUTER PROGRAMMER

Computer Programmer will be able to follow step-by-step instructions for a computer to follow for it to carry out its function.

1684
020.162-014
11.01
3971
2-Business & Office (F)
2-Business & Office (S)
Data Processing (F)
Data Processing (S)

B
ES

- An ability to reach, hear and see, as well as sit for long time, will be important in this occupation.
- An ability to make decisions based on measurable fact will be important in this occupation.
- A Computer Programmer will be able to complete tasks to a standard.
- An interest in scientific and technical work using process machines will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

PERSONAL APTITUDES:

Computer Programmer will be able to learn, understand and use methods, systems and symbols.

Ability to use technical complex language, math, computer language and complex charts and graphs will be important in this occupation.

Computer Programmer will be able to understand and use arithmetic and statistics.

Ability to picture a process running correctly to avoid or locate a problem quickly will be important in this occupation.

Computer Programmer will be able to pay very close attention to details in pictures, tables or written information to avoid or correct errors.

OCCUPATION PROFILE:

- A Computer Programmer will write the step-by-step instructions to tell the computer to perform the required processes.
- A Programmer may work with a Systems Analyst in a large organization and from the Analyst's outline of the needs to write the program.
- A Programmer Analyst in a smaller organization may analyze a problem to be solved and write the program.
- One may work as part of a team of programmers.
- Responsibility for both single programs that take a few days to write, and long programs that take several months to write will be necessary.
- The Computer Programmer will be responsible for testing the program to make sure it does what is required.



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RELEVANT HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Advanced Math

Computer Processing
Computer Technology

RELEVANT COURSES OF STUDY AND TRAINING:

Management Information Systems
Computer and Information Sciences, General
Computer Programming
Information Sciences and Systems, General
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Processing Management Association
1000 Highway
Chicago, IL 60068

National Outlook Handbook
1988 Edition
(800) 424-247



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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

CONCRETE MASON

The concrete mason is responsible for the concrete used in construction work of all kinds. He is sometimes called a concrete finisher.

4246

844.364-010

05.05

6463

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

PERSONAL APTITUDES:

The concrete mason will be able to learn the characteristics of the concrete used and how weather affects it as well as the operation of various types of masonry machines.

The ability to picture what the finished product will look like will be important in this occupation.

The concrete mason will be able to pay attention to detail in objects so that errors will be avoided or corrected.

The ability to use eyes, hands and fingers at the same time to use tools and operate the needed machines will be important in this occupation.

The concrete mason will be able to climb, stoop, reach and see as well as lift loads up to 50 pounds.

- The ability to make decisions based on measurable facts is very important in this occupation.
- A Concrete Mason will be able to complete tasks to meet a high standard.
- An interest in working alone with things using machinery and processes that result in a product that can be seen and touched is important in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Concrete Mason will finish concrete on large construction projects, highway construction projects, on sidewalks and on other types of concrete in homes.
- A Concrete Mason will check the forms, which hold the concrete in place, for strength and proper size.
- A Concrete Mason may need to read and understand blueprints.
- A Concrete Mason will develop a knowledge of building requirements.
- A Concrete Mason will direct the pouring of the concrete and use specialized rakes to spread and level it.
- On a small job, a Concrete Mason performs all of these tasks.
- On a large project, you will work as part of a crew.
- Concrete Masons use both hands and machine tools to complete the finishing process.



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EDUCATION AND TRAINING:

High school diploma or its equivalent is preferred.
Apprenticeship of two to three years is one way to prepare for this occupation.
Apprentices generally must be 18 years of age.
Experience in construction work would be helpful.
Apprentices begin with simple tasks but usually are doing more complex work within one year.
Senior apprentices receive special instruction in layout work and finishing.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Mathematics
Science
Education
Construction
& Industrial
Construction &
Mechanics
Physical Education
English

METHODS OF STUDY AND TRAINING:

Apprenticeship
On-the-job training
Classroom instruction

SOURCES OF ADDITIONAL INFORMATION

- American Concrete Institute
P.O. Box 1915 Redford Station
Detroit, MI 48219
- Occupational Outlook Handbook
1986-87 edition
pages 384-3851



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CONSTRUCTION INSPECTOR

inspects new and existing buildings and structures to determine conformity to building, zoning or other specific standards.

2672

182.267-010

05.03

1472

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
CS

PERSONAL APTITUDES:

A Construction Inspector will be able to learn and understand principles of different types of buildings and the federal and state regulations that apply to construction.

The ability to understand written plans and specifications and spoken instructions will be important in this occupation.

A Construction Inspector will be able to use geometry and some algebra and math.

The ability to picture the finished product and meet regulations will be important in this occupation.

A Construction Inspector will be able to pay close attention to detail and read blueprints to avoid or correct errors.

- The ability to use eyes, hands and feet together to climb, reach in order to inspect different areas under construction is important in this occupation.
- An ability to see, hear and handle loads up to 10 pounds is important in this occupation.
- A Construction Inspector will be able to do a variety of tasks during the day.
- A Construction Inspector will be able to work with many different people.
- The ability to make decisions based on both experience and a reliable fact will be important in this occupation.
- A Construction Inspector will be able to complete tasks to a high standard.
- An interest in scientific and technical work with things and processes and machines will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Construction Inspector may inspect residential, commercial and other buildings during and after construction.
- This inspection may cover any and all parts of buildings and must meet the building, grading, zoning and safety laws, regulatory standards.



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Department of Employment Services figures do not include those who are self employed.

Department of Labor also expects the best opportunities to be for college graduates and persons experienced as carpenters, electricians or plumbers.

Construction Inspectors are generally employed by the federal, state or local government, some are also employed by private industry.

Opportunities should be best for those who have some college education or who are currently employed in the construction field.

Advancement may be to a supervisory inspector position.

KEY OCCUPATIONS:

Includes military occupations.

RELATED OCCUPATIONS:

Electrician (1634)
Electrician (4254)
Construction Worker (4286)
Plumber (5626)
Pipefitter (4274)

PREPARATION AND TRAINING:

- High school education or its equivalent is required.
- A Construction Inspector should have a working knowledge of construction materials and practices in general and specialized.
- Many employers prefer inspectors to be graduates of an apprenticeship program or to have studied at least two years including in construction technology, mathematics, and building in high school, community or junior college.
- Construction Inspectors must have a motor vehicle license.
- Federal, State and many local governments usually require that construction inspectors pass a civil service examination.
- Construction Inspectors may receive much of their training on the job.

HELPFUL HIGH SCHOOL SUBJECTS:

- Industrial Education
 - Construction

PROGRAMS OF STUDY AND TRAINING:

- 3001 - Engineering
- 3204 - Civil Technology
- 3244 - Mechanical Design Technology
- 3901 - Industrial Arts, General
- 7701 - Drafting



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

CONSTRUCTION WORKER

Construction Worker will be able to complete tasks to a standard on all types of construction jobs, aiding building construction on highways, dams, pipelines and buildings.

4286

869.664-014

05.10

6479

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

PERSONAL APTITUDES:

Construction Worker will be able to learn the job process as well as working about the material used.

Ability to picture a completed job paying attention to the detail in the plan will be important in this occupation.

Construction Worker will be able to use eyes, hands and fingers at the same time to use some tools and equipment.

Construction Worker will be able to climb, stoop, reach and see, as well as handle loads sometimes weighing 100 pounds.

Ability to do many different tasks in one day will be important in this occupation.

Construction Worker will be able to make decisions based on the facts.

- A Construction Worker will be able to complete tasks to a standard.
- An interest in working with things using machines and equipment which are repeated many times will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Construction Worker will do all kinds of construction jobs.
- A Construction Worker will do most of the heavy work and that does not require a special skill.
- Loading and unloading the construction materials at the work site may be part of the duties.
- A Construction Worker may build and tear down scaffolding and clean up rubbish and debris.
- A Construction Worker may operate a variety of tools and equipment.
- Bringing materials to the site and running supply errands may be part of the duties.
- Cleaning tools, equipment, materials and work areas may be part of the duties.
- A Construction Worker will mix, pour, and spread concrete, gravel and other materials using hand tools.
- Exposure to a variety of different construction jobs, each with the opportunity to learn new skills may be part of this occupation.



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IEF
orders for food and prepares it, or directs others
to prepare the food that is served.

7824

313.361-014

05.05

5214

7-Home Economics (F)

8-Hospitality & Recreation (S)

Food & Nutrition (F)

Food Services (S)

B
ES

AL APTITUDES:

ob you will need to be able to read and follow recipes and
carefully.

chef will be able to use math in measuring while following
and in judging how much food to prepare.

chef will be able to pay attention to details in the way food
well as in following or adapting recipes.

chef will be able to pass a physical exam, be able to move
and handle both small and large utensils in food preparation.

chef will often change from one task to the other, sometimes
others doing tasks and often making decisions by them-

n working alone often with things that can be seen and
ould help someone considering this occupation.

- A Cook/Chef may work as a member of a team in a coop
- A Cook/Chef may work under pressure during busy peri
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Cook/Chef must be an experienced cook and take char
kinds of food preparation.
- A Cook will decide the size of food portions served, plan
sometimes purchase food supplies.
- Calculating food costs, setting prices and taking inventor
part of the duties.
- A Cook/Chef must see that the foods taste good and look
- Specialization may be possible as a short order cook, pas
roast cook, vegetable cook or sauce cook.
- Carving meat and garnishing servings may be part of th
- A Cook/Chef may employ, train, and discharge workers.
- A Cook/Chef may supervise personnel engaged in prepar
and serving food.
- Familiarization with safety & sanitation regulations will
sary.



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MS OF STUDY AND TRAINING:

Food Management and Production
Cooking
Cook/Chef
Apprenticeship

S OF ADDITIONAL INFORMATION:

1 Hotel & Motel Association
Avenue
k, NY 10019

Institute for Foodservice Industry
Wacker Drive, Suite 2620
IL 60606

onal Association of Cooking Schools
nnecticut Ave., Suite 800
ton D.C. 20036

1 Culinary Federation, Inc.
3466
stine, FL 32084

onal Outlook Handbook
edition
)8-310)



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

COSMETOLOGIST

on customers' hair by cutting and styling and permanent waves and scalp treatments; may also manicure nails.

8286

332.271-010

09.02

5253

13-Personal Services (F)

13-Personal Services (S)

Personal Care & Grooming (F)

Personal Care & Grooming (S)

GENERAL ABILITIES:

Cosmetologist will be able to learn the principles of caring for hair, skin, as well as methods, processes and chemicals used.

Cosmetologist will be able to understand written and pictured instructions for permanents and hair coloring will be important in this occupation.

Cosmetologist will be able to picture certain hairstyles or makeup if the style would suit an individual customer's physical characteristics.

Cosmetologist will be able to pay close attention to detail in shape, form and line will be important in this occupation.

Cosmetologist will be able to use eyes, hands and fingers to handle tools to get the planned results.

- An ability to tell one color from another will be important in this occupation.
- A Cosmetologist will be able to reach, hear, see and handle heavy loads.
- An ability to do many different tasks in one day will be important in this occupation.
- A Cosmetologist will be able to deal pleasantly with all kinds of people.
- The ability to make decisions based on experience will be important in this occupation.
- An interest in business contact doing work that encourages creative thought resulting in a product that can be seen and used will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Cosmetologist will do shampoo, sets, permanent waves, coloring, and hair cuts.
- Advising customers on proper hair and skin care may be part of the duties.
- A Cosmetologist will need to be aware of the latest trends in hair styling.



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endent salon may be started with a relatively small invest-

Y OCCUPATIONS:

nd military occupations.

D OCCUPATIONS:

3284)
turer's Representative (7414)
son (7454)

ATION AND TRAINING:

s, including Iowa, require that Cosmetologists be licensed.

pproved Cosmetology course must be completed before
e state examination for a license.

se is 2100 hours or approximately 10-1/2 months.

board examination is given four times per year (February,
gust, November).

a \$25.00 charge for making application for the qualifying
permit costs \$5.00.

l fee is \$20.00 and requires 16 hours of continuing educa-
r two years.

ant must be 18 years old to be licensed.

- Tenth grade must be completed to enter training. Some require high school graduation or the equivalent.

HELPFUL HIGH SCHOOL SUBJECTS:

- Industrial Education
- Personal Services

PROGRAMS OF STUDY AND TRAINING:

- 2813 - Cosmetology

SOURCES OF ADDITIONAL INFORMATION

- National Cosmetology Association
3510 Olive Street
St. Louis, MO 63103
- Occupational Outlook Handbook
1986-87 edition
pages (325-327)



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

LOR

clients to understand and overcome social and emotional problems; may also provide educational and vocational guidance.

8414

045.107-010

10.01

24

13-Personal Services (F)

14-Public Service (S)

Special Human Services (F)

Education (S)

B
S

PERSONAL APTITUDES:

Counselor will be able to learn about people, their attitudes and behaviors, and to themselves, others and the environment. Counseling techniques and methods will be learned also.

Counselor will be able to listen, speak clearly and share many hard to explain concepts. Communication will be important in this occupation.

Counselor will be able to use basic math for record keeping and analyzing test results.

Counselor will be able to pay attention to detail in written and graph form will be important in this occupation.

Counselor will be able to work with many different people in many situations will be important in this occupation.

Counselor will be able to do many different tasks in one day.

- A Counselor will be able to make decisions based on both qualitative and measurable fact.
- An interest in work that may help others, involves sharing and earning the respect of others will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Counselor will accept people as they are and get along with them.
- A Counselor may assist individuals to understand and overcome social and emotional problems.
- Teaching classes in counseling may be part of this job.
- A Counselor should have knowledge and understanding of the field of work.
- A Counselor may do research and follow-up activities to develop counseling techniques.
- A Counselor may give achievement, aptitude and interest test results and interpret the results.
- A Counselor may collect, organize and interpret information to identify educational and occupational opportunities.
- Organizing and beginning programs promoting sound measurement may be part of the duties.



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rs may become directors or supervisors of counseling and

Y OCCUPATIONS:

ers and Counselors (84140) See Caseworkers and Coun-
the Military Career Guide 1988-1989 page 47.

D OCCUPATIONS:

nal Administrator (1136)
ry Teacher (8455)
l Administrator (1186)
y Teacher (8456)

ATION AND TRAINING:

ce as an Elementary Counselor in Iowa, you must meet the
ents for a professional teacher's certificate and have a Mas-
ree in guidance and counseling from a recognized institution
mphasis in elementary guidance and counseling, and present
of successful teaching experience.

ce as a Secondary Counselor in Iowa, you must meet the
ents for a professional teacher's certificate and have a Mas-
ree in guidance and counseling from a recognized institution
hasis in secondary guidance and counseling, and present
of successful teaching experience.

ce as a School Counselor in kindergarten and grades one
welve in Iowa, the following is required: a professional
certificate endorsed for teaching at either the elementary or
7 school level, a Master's degree and a completed approved

45 semester-hour graduate program in guidance with co-
experience at both the elementary and secondary school
present evidence of successful teaching experience.

- To practice as a Vocational Rehabilitation Counselor, a M
degree in rehabilitation counseling is preferred. Master's
other areas of counseling or behavioral science are also e
well as Baccalaureate degrees in the behavioral sciences
ience in areas such as rehabilitation counseling, guidance
with disabled persons.
- To practice as an Employment Counselor, a Baccalaurea
preferably in a behavioral science such as psychology or
customary for entry into the field; and a Master's degree
ingly being stressed.
- Applicants with advanced degrees and additional qualify
ience may enter at higher levels on the counselor career

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Health & Physical Education
 - Health
- Social Studies
 - Sociology

PROGRAMS OF STUDY AND TRAINING:

- 3530 - Alcohol/Drug Abuse Counselor
- 6502 - Religion
- 6606 - Theological Studies
- 6901 - Psychology, General



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Des Moines, IA 50
Phone (515) 281-5

COURT REPORTER

every word spoken during a court session and
p the notes for a permanent record.

1415

202.362-010
07.05
4623

2-Business & Office (F)
14-Public Service (S)
Secretarial & Clerical (F)
Legal & Social Services (S)

B
ES

PERSONAL APTITUDES:

Reporter will be able to learn and use machine shorthand,
grammar, punctuation and related subjects, court procedure
and legal vocabularies as in medicine and law.

Ability to follow directions and proceedings exactly will be impor-
tant in this occupation.

Reporter will pay close attention to detail in written material
to avoid errors in writing or typing.

Ability to use eyes, hands and fingers at the same time to use the
typewriter will be important in this occupation.

Reporter will be able to see, hear and reach, as well as sit in
one position for long periods of time.

Reporter will work with many different kinds of people.

- The ability to work under the stress of required speed and accuracy will be important in this occupation.
- A Court Reporter will be able to complete tasks to meet a high standard.
- An interest in communications of information and/or activities that are repeated in the same way many times will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Court Reporter may be required to concentrate for long periods of time under pressure.
- A Court Reporter will be a specialized stenographer or shorthand reporter who records all the testimonies and proceedings during a court session.
- Responsibility for the accuracy of the transcribed notes is a major part of this occupation.
- A Court Reporter will need a thorough knowledge of English grammar, punctuation and spelling.
- The records are transcribed on a typewriter or a typist is required to transcribe the material.
- There are now devices to interface the stenotype machine with a computer which then transcribes automatically in a word processing form.



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gh command of grammar and spelling, a working knowledge
nd medical terminology and speed of transcribing are essen-

e positions, applicants must pass the Certified Shorthand
s Examination or the Civil Service Examination.

L HIGH SCHOOL SUBJECTS:

Language Skills

Retarial & Typing

MS OF STUDY AND TRAINING:

Court Reporting

S OF ADDITIONAL INFORMATION:

Shorthand Reporters Association
Street, S.W.
IA 22180

Job Information Center
ut
es, IA 50309

onal Outlook Handbook
edition
5-287)



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Grimes State Office
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Phone (515) 281-5

MANAGER

s procedures and directs the activities of per-
to check and verify information given in order to
loans and credit.

1638

168.167-054

11.06

1419

2-Business & Office (F)

2-Business & Office (S)

Management (F)

Management (S)

B
ES

AL APTITUDES:

Manager will be able to analyze credit transactions, learn
rstand the companies' credit methods and policies.

r to read and understand technical and mathematical in-
and write clear financial reports will be important in this
n.

Manager will be able to understand and use complex math
used in financial and economic systems.

r to pay close attention to detail in written information to
orrect errors will be important in this occupation.

Manager will be able to sit for long periods of time.

Manager will be able to plan and direct the activities of

- An ability to work with all kinds of people will be import occupation.
- A Credit Manager will be able to make decisions based o experience and measurable fact.
- An interest in work that involves sharing ideas, business people and the opportunity to earn the respect of others helpful in this occupation.
- With employer assistance, some physical requirements n through changes to the work site or equipment.

OCCUPATION PROFILE:

- Credit Managers are responsible for training, supervision of the the activities and staff.
- A Credit Manager conducts credit investigations and ana
- The Credit Manager reviews and evaluates credit applica make sound credit decisions
- Customer account credit limit decisions may be the Credi responsibility.
- Delinquent accounts may need to be submitted to an atto outside agency for collection.
- A Credit Manager may talk with people and check their r references to assist in the decision to extend credit.
- Credit Managers may work for banks, loan associations, stores and other businesses.



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EL HIGH SCHOOL SUBJECTS:

ic Math Skills
ive Education
ances

ounting

MS OF STUDY AND TRAINING:

gricultural Business
ccounting
anking and Finance
usiness Administration and Management, Gen.
arketing Management

S OF ADDITIONAL INFORMATION:

i Collectors Association
K 35106
st 70th Street
olis, MN 55435

i Management Associations
0th Street
s, NY 10020

Credit Institute
Station F
Ontario M4Y 2L8



OCCUPATIONAL BRIEFS

Career Information Syst
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

PLAN
Buildings clean, sanitary and orderly, and runs heating and cooling systems to keep the buildings comfortable.

3455
382.664-010
05.12
5244
9-Maintenance & Repair (F)
9-Maintenance & Repair (S)
Building Maintenance (F)
Building Maintenance (S)

B
S

PHYSICAL ABILITIES:

Plan will be able to follow directions and learn short organized tasks.

Plan will be able to use basic math to add, subtract and do some measuring important in this occupation.

Plan will be able to handle small and large objects, some up to 25 pounds, and be able to move around easily.

Plan will be able to reach and stoop will be important in this occupation.

Plan will be able to do many different things in one day will be important.

Plan will be able to do most tasks to meet a set standard.

Plan will be able to work with things rather than people and working help in this occupation.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Custodian must keep the inside and outside of building repair and clean.
- A Custodian monitors the heating and hot water units to make sure there is enough hot water and heat.
- A Custodian will be expected to make minor repairs as they arise.
- The Custodian may repair locks or plumbing.
- A Custodian is responsible for notifying building owners if an outside repair person is needed.
- Custodians will clean halls, rooms and stairways.
- The Custodian will scrub, sweep and vacuum floors.
- A Custodian may also dust and polish furniture and fixtures as well as clean mirrors and windows.
- Custodians may shovel walks and driveways.
- A Custodian may also care for yards, lawns and gardens.

WAGES:

Hours per week	40
Average Wage (entry level)	\$5.01
Average Wage (all experience levels)	\$7.05



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Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

n Health Care Association
h Street, N.W.
ton, D.C. 20005

ployment Services
st Grand
es, IA 50319

onal Outlook Handbook
edition
19-320)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

CUSTOMER SERVICE REPRESENTATIVE

Deals with customers by phone or in person to receive orders and handle complaints concerning products and services.

1165

239.367-010

07.04

4664

11-Marketing & Distribution(F)

11-Marketing & Distribution(S)

Marketing & Distribution(F)

Public Relations & Advertising(S)

GENERAL ABILITIES:

A Customer Service Representative will be able to learn the procedures for ordering and/or handling complaints.

A Customer Service Representative will be able to understand ideas and information in both written and spoken form. He/she will also be able to communicate clearly and speak clearly.

The ability to see differences in written material, proofread accurately and detect errors in arithmetic computation will be important in this occupation.

A Customer Service Representative will be able to change quickly from one task to another.

The ability to work with many different kinds of people, in both pleasant and unpleasant situations, will be important in this occupation.

- An interest in business contact with people will be helpful in this occupation.
- A Customer Service Representative will be able to lift 20 pounds and frequently lift or carry up to 10 pounds.
- Normal vision is usually required for this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Customer Service Representative may take orders by phone or in person for goods or services.
- A Customer Service Representative may determine charges for service requested, fill out contract forms, collect deposits, change of address records and prepare 'stop service' orders.
- Interviewing new applicants for service or possible customers is a part of this occupation.
- A Customer Service Representative may often handle and respond to customer complaints about goods or services.
- A Customer Service Representative may specialize in visiting customers in their homes to investigate service connection problems.
- Acting as a wedding consultant or a personal shopper is a specialization of a Customer Service Representative.



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is alone, with a partner or with a group to perform in people in theaters, at night clubs or parties on television.

9868

151.047-010

01.05

327

5-Fine Arts & Humanities (F)

8-Hospitality & Recreation (S)

Theatre Arts (F)

Sports & Entertainment (S)

- A need to communicate ideas and feelings to people will be necessary in this occupation.
- An ability to work with others will be necessary.
- A Dancer will be able to work under pressure.
- A Dancer will spend much time in rehearsal.
- In this occupation self-discipline is needed.
- A Dancer should have patience and determination.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

PERSONAL APTITUDES:

Dancers will be able to quickly understand and sometimes develop complex instructions.

It is important to be able to understand the ideas of others and to create your ideas.

In this occupation a Dancer will be able to use basic math with few errors.

It is important to visualize the changing movements of the dancers in the choreography. This ability is a requirement.

Dancers will have an above average muscle control and eye-hand coordination.

Occupational judgments must be made on how to express ideas within the set limits.

OCCUPATION PROFILE:

- Dancers may perform in classical ballet or modern dance productions, in movies, in night clubs and on television.
- Work with many other Dancers in a chorus may be part of the occupation.
- Dancers may do special numbers or solo work.
- Teaching full-or part-time in colleges and universities and in dance studios is possible.
- Becoming a choreographer and creating new ballets of dance may be possible.
- A Dancer may help in theater production where movement is an important part of the performances or may help gymnasts in their routines.



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EDUCATION AND TRAINING:

High school education is recommended.

Dance usually begins with dance lessons offered by private dance studios starting at age five or six.

Dancers are hired past age 30 unless they have much experience and strong dancing ability.

Community colleges and universities offer degree programs as well as specific training in dance.

Rehearsal and practice are part of the daily routine and must continue throughout a Dancer's career.

Experience with various styles of dance, choreographers, and teachers is necessary for a broad-based understanding of dance as an art form.

RELEVANT HIGH SCHOOL SUBJECTS:

Physical Education
Dance
Social Education

RELEVANT COURSES OF STUDY AND TRAINING:

Dramatic Arts

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (228-230)



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ASSISTANT

patients, schedules appointments, assists with the patient's chair side, keeps records and helps laboratory work.

8176

079.371-010

10.03

5232

2-Business & Office (F)

6-Health (S)

Secretarial & Clerical (F)

Health Technicians (S)

B
ES

ADDITIONAL APTITUDES:

Assistant will be able to learn and direct an office routine so patients are served without wasting time but in a way they will feel comfortable.

Ability to understand and carry out verbal and written instructions will be important in this occupation.

Ability to use math to keep records and measure and mix dental materials will be important in this occupation.

Assistant will be able to compare and see differences in size, weight and form when mixing dental materials or in processing X-ray films.

Ability to see detail when checking records or results of X-ray films will be important in this occupation.

- A Dental Assistant will be able to handle small instruments and materials as well as larger items, most weighing under 10 pounds.
- Being able to be interested in and talk with many different people will be important in this occupation.
- A Dental Assistant will be able to meet set standards for accuracy and quality of tasks.
- An interest in working with processes and some machinery and equipment, having contact with people, will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Dental Assistant performs all the tasks necessary to keep the dental office running smoothly.
- The Dental Assistant may answer questions about dental services, insurance, bills, etc.
- Employment may be by public health services, dental clinics, hospitals, military posts and government agencies.
- A Dental Assistant might work for a specialist in the dental field, such as an orthodontist who straightens teeth, or an oral surgeon who removes teeth and performs other surgical procedures or for a pedodontist who works on children patients only.
- The Dental Assistant may serve as a receptionist, office bookkeeper, and a chair side assistant.



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EDUCATION AND TRAINING:

High school education or its equivalent is required.

On-the-job training is possible and a few dentists prefer it this way. Dentists can then teach their way of doing things. However, this can be very time-consuming for the Dentist.

Community colleges and vocational schools offer one to two years of training for Dental Assistants. This qualifies Dental Assistants to take the Certified Dental Assistant (CDA) test.

For expanded training in expanded duties, a CDA may be required.

Subjects taught in dental assisting programs include dental anatomy, dental radiology, sterilization, anesthesia methods, X-ray development, dental terminology, dental assistant procedures, laboratory techniques, and office management and bookkeeping.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Economics
Home & Homemaking
Physical Education
Math

Technical-Dental Technology

DEGREES AND COURSES OF STUDY AND TRAINING:

Dental Assisting
Dental Hygiene

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (312-313)



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HYGIENIST

and polishes teeth, develops X-rays, applies flu-
treatments and locates decay and disease for the

8174

078.361-010

10.02

363

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
ES

AL APTITUDES:

Hygienist will be able to learn the structure and systems of
h, corrective and preventive procedures and how to apply
cedures.

ty to understand technical information and explain it to
written or spoken form will be important in this occupation.

Hygienist will be able to use math without errors for
nd in figuring standard formulas.

ty to picture the space and arrangement of the mouth in
o the work that needs to be done will be important to this
n.

ty to see small differences in shape, form and and color will
tant in this occupation.

- A Dental Hygienist will be able to work with small objec
space with excellent control and a gentle touch.
- An ability to recognize most colors will be important in t
tion.
- A Dental Hygienist will be able to be interested in and t
many different people.
- A Dental Hygienist will be able to meet set standards in
tasks.
- An interest in technical things and processes will help in
tion.
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Dental Hygienist cleans teeth by removing stains ar
deposits.
- A Hygienist may polish teeth and apply flouride treatme
- The Dental Hygienist notes cavities and other conditions
patient's teeth.
- Preparation of test results for the Dentist to examine m
the duties.
- The Dental Hygienist takes and develops x-rays and mix
compounds.



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s require Dental Hygienists to pass a test for a license.

nsed you must complete the Dental Hygienist program at an
d school to be able to take the test.

en and clinical exam is given once a year at the University
Dental School, Iowa City. The fee is \$275.00.

newal fee is required biennially prior to June 30.

HIGH SCHOOL SUBJECTS:

ogical Sciences
conomics
summer & Homemaking
Physical Education
lth

COURSE OF STUDY AND TRAINING:

ental Hygiene
ental Laboratory Technology

SOURCE OF ADDITIONAL INFORMATION:

nal Outlook Handbook
edition
(6-187)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

LAB TECHNICIAN

teeth, crowns, bridges and other dental pieces
a Dentist orders for patients.

2655

712.381-018

05.05

6865

10-Manufacturing (F)

6-Health (S)

Assembly & Production (F)

Health Technicians (S)

B
ES

LABORATORY SKILLS:

Lab Technician will be able to learn the processes to make
stings and learn the use and operation of different tools and
it.

Ability to read, understand and follow written and spoken tech-
nical instructions will be important in this occupation.

Lab Technician will be able to use math to figure amounts
of material needed and dimensions to be followed.

Lab Technician will be able to read instructions and picture
of a finished product will look like and estimate the material
needed to complete the task.

Ability to see and feel small differences between shapes and
textures will be important in this job.

- The ability to move around easily and use hands, arms and feet to use small exact tools on objects will be important in this occupation.
- A Dental Lab Technician will be able to recognize color changes in dental materials.
- The ability to do some reaching and to handle loads under stress will be important in this occupation.
- A Dental Lab Technician will be able to do a variety of tasks and make decisions using information available and meeting set standards.
- An interest in working alone with things resulting in a product that can be seen and touched will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Dental Lab Technician will do all types of dental labor or specialize in areas such as denture ceramist.
- Dental Lab Technicians work with a variety of laboratory equipment.
- Specialization is possible in a particular dental material such as wax or plastics.
- A Dental Lab Technician must satisfy the requirements of the dentist as well as the patient.
- The Dental Lab Technician makes the device for the patient using the impression made by the Dentist.



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onal Association of Certified Dental Laboratories offer an
reship program.

ab Technicians may become Certified Dental Technicians
sing written and practical examinations.

L HIGH SCHOOL SUBJECTS:

ical-Dental Technology

MS OF STUDY AND TRAINING:

ental Hygiene
ental Laboratory Technology
pprenticeship

S OF ADDITIONAL INFORMATION:

onal Outlook Handbook
edition
(7-419)



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examines teeth and tissues of the mouth to diagnose dental problems and treats those that are

8172
072.101-010
02.03
262
6-Health (F)
6-Health (S)
Doctor (F)
Doctor (S)

PERSONAL APTITUDES:

will be able to learn, understand and use the principles of anatomy, bacteriology and physiology for diagnosis and treatment.

ability to read, understand and interpret information concerning dental procedures and those not as easy to understand will be important in this occupation.

will be able to use math to use formulas for mixing metal and other dental materials.

will be able to picture how the teeth should fit into the relationship to the way the teeth are really growing.

ability to see details of teeth and surrounding tissue both in trays and in a patient's mouth will be important in this occupation.

- The ability to pay attention to detail when setting up treatment for patients or in keeping records will be important.
- A Dentist will be able to move around easily and use hand tools with fingers gently handling small tools in a cramped work area.
- A Dentist will be able to do a variety of tasks in the same area, making decisions based on facts.
- The ability to talk with and earn the confidence of many people will be important in this occupation.
- An interest in work that will benefit people and use scientific technical information and materials will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Dentist should be familiar with a variety of dental equipment and techniques.
- A Dentist examines teeth and gums and takes x-rays and uses them to determine their condition and the need for treatment.
- The Dentist cleans teeth with small dental instruments, and further examines the mouth for signs of disease.
- The Dentist removes decay, restores teeth with suitable material, extracts teeth, constructs crowns, bridges and dentures when necessary.
- A Dentist straightens crowded and crooked teeth.



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EDUCATION AND TRAINING:

is required to practice dentistry in Iowa, all other states, District of Columbia.

For a license in Iowa, the applicant must be a graduate of a dental college, take a written National Board examination and practical. The application fee is \$100.00. Active renewal is \$50.00 per biennium. Inactive renewal is \$50.00 per biennium.

Dental colleges require from two to three years of pre-dental education, although many dental school applicants hold a Bachelor's degree.

Pre-dental education must include courses in sciences and humanities.

Attention is given for admittance to dental schools

to high school and college grades and the amount of college education is given.

Dental colleges also conduct admission testing. The scores earned on these tests are considered with information gathered about the applicant through interviews and recommendations.

Dental school training generally lasts four academic years. The first two years emphasize classroom instruction and laboratory work in subjects such as anatomy, microbiology and physiology. The last two years are spent primarily in a dental clinic treating patients.

Preparation for dental school can take as long as seven or eight years preparation for dental school.

HELPFUL HIGH SCHOOL SUBJECTS:

Science

- Biological Sciences
- Chemistry
- Physics

Health & Physical Education

- Health

PROGRAMS OF STUDY AND TRAINING:

- 3612 - Dentistry

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (145-147)



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SHERIFF

is duties such as serving civil court orders, seizure of property and making arrests.

9418

377.137-010

04.01

5134

14 - Public Service (F)

14 - Public Service (S)

Utilities and Services (F)

Utilities and Services (S)

- A Deputy Sheriff will be able to deal with a variety of highly stressful situations.
- A Deputy Sheriff will be able to work effectively under pressure to high stress levels.
- A Deputy Sheriff will be able to make decisions based on sound judgment.
- An interest in business contact with people which may require earning the respect of others, will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

PERSONAL APTITUDES:

Deputy Sheriff will be able to understand the judicial system, constitutional rights and understand the relationship between various factors.

Deputy Sheriff will be able to use both written and verbal language to communicate with a variety of people.

Ability to see detail in objects and make comparisons between the shape of objects will be important.

Deputy Sheriff will be able to see details in written material and in information to avoid or correct errors.

Ability to make rapid, accurate movements of eyes, hands and feet will be important in this occupation.

Deputy Sheriff will be able to use hands and feet in easy accurate movements guided by sight.

OCCUPATION PROFILE:

- A Deputy Sheriff may locate and arrest persons in the act of committing a crime.
- A Deputy Sheriff may investigate traffic accidents.
- Accepting and processing applications for gun permits may be one of the duties.
- A Deputy Sheriff may be required to accept citizen telephonic reports and complaints.
- A Deputy Sheriff may be called on to serve warrants, subpoenas, summonses, garnishments, court orders, attachments and documents and notices.
- A Deputy Sheriff will participate in seizing property on writs (legal orders).



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Phone (515) 281-5

MS OF STUDY AND TRAINING:

riminal Justice
aw Enforcement
pprenticeship

S OF ADDITIONAL INFORMATION:

onal Outlook Handbook
edition
)3-305)



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000*

DIETARY AIDE

Dietary aides are workers who serve food in institutions such as hospitals, nursing homes, schools or colleges.

7849
077.121-010
05.05
302
7-Home Economics (F)
7-Home Economics (S)
Food & Nutrition (F)
Food & Nutrition (S)

PERSONAL APTITUDES:

Dietary Aide will be able to learn, understand and use the principles of nutrition and diet therapy.

It is important to be able to relay information clearly in speech and writing.

Dietary Aide will be able to use basic math as in calculating the number of servings needed and the nutritional value of the food.

It is important to plan ahead as to how the food will look as well as taste.

Dietary Aide will be able to pay attention to detail as in judging the quality of fresh or cooked food.

Ability to move around easily and to have good sight and hearing are helpful in this occupation.

- A Dietary Aide will be able to have good use of the hands and sometimes help in the preparation of food.
- It is important to be able to handle a variety of tasks.
- Planning and organizing a workload and being able to give directions to carry out plans will be very important.
- A Dietary Aide will have to deal with many different people, especially as large groups.
- The ability to make decisions based on information received will be important.
- An interest in helping others and sharing ideas of a technical nature will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Dietary Aide works under the close supervision of a Dietitian.
- A Dietary Aide may train new employees.
- The Dietary Aide orders food, equipment and supplies when needed, plans menus and suggests menu changes.
- A Dietary Aide needs a great deal of knowledge about nutrition, cost and the production of large quantities of food.



OCCUPATIONAL BRIEFS

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Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

1 Health Care Association
h Street, N.W.
ton, D.C. 20005



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

DIETITIAN
The dietitian plans and/or administers the preparation of nutritious and appetizing meals to help people maintain or recover from illness.

8136
077.127-018
05.05
302
7-Home Economics (F)
6-Health (S)
Food & Nutrition (F)
Health Care Administration (S)

PERSONAL APTITUDES:

- The dietitian will be able to learn and understand the principles of nutrition science.
- The dietitian will be able to use the principles of nutrition in practice.
- It is important to be able to relay information clearly in speech and writing.
- The dietitian will be able to use basic math in determining the nutrient content of diets, in adapting recipes, in estimating nutrient requirements and in handling budgets.
- It is important to be able to plan ahead as to how the food will look and taste.
- The dietitian will be able to pay attention to detail when judging the quality of fresh or cooked food.

- The ability to move around easily and to have good hearing and vision will be helpful in this occupation.
- A Dietitian will be able to handle a variety of tasks.
- The ability to organize, plan and assign schedules and work will be important.
- A Dietitian will be able to deal with many types of people, especially in large groups.
- The ability to make decisions based on information received will be important.
- An interest in helping others and sharing ideas of a technical nature will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Dietitian plans and directs the preparation and service of some, nutritious meals.
- A Dietitian plans menus and special diets to fit the needs of individuals.
- Records of the patient's food preferences and the quantities consumed will be required.
- Dietitians may be responsible for managing the food budget.
- The Dietitian may purchase food supplies, keep accounts and supervise the persons who prepare and serve food.



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They may be employed in a variety of settings such as hospitals, long-term care facilities, schools, industrial plants, camps, airlines and restaurants as well as community health programs, research situations and consultation in private practice.

KEY OCCUPATIONS:

Registered Dietitian (81360) See Dietitians in the Military Career Guide page 285.

RELATED OCCUPATIONS:

Child Care Worker (8455)
Dietician (8472)
Food Service Worker (8456)
Nurse/College Teacher (8454)

EDUCATION AND TRAINING:

A bachelor's degree, preferably in food and nutrition, food service management or institution management, is the basic educational requirement for Dietitians.

To qualify for professional recognition, the American Dietetic Association recommends the completion of an approved internship or an approved pre-professional performance experience program. Enrollment in a coordinated undergraduate program.

Colleges and universities, through the use of integrated programs with schools of medicine and related health and home science departments, have made it possible for dietetic students to earn their Baccalaureate degree and clinical experience requirements in a four-year coordinated undergraduate program.

- In some states licensure for Dietitians is possible.

HELPFUL HIGH SCHOOL SUBJECTS:

General high school diploma courses with an emphasis on science and mathematics.

PROGRAMS OF STUDY AND TRAINING:

- 3701 - Home Economics, General
- 3712 - Food/Food Sciences
- 3713 - Dietetics/Human Nutritional Services

SOURCES OF ADDITIONAL INFORMATION

- American Health Care Association
1200 15th Street N.W.
Washington, D.C. 20005
- Occupational Outlook Handbook
1986-87 edition
pages (158-160)



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
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Phone (515) 281-5100

DINING ROOM ATTENDANT

and sets tables and assists waiters or waitresses serving people in eating establishments.

7888
311.677-018
09.05
5218
8-Hospitality & Recreation (F)
8-Hospitality & Recreation (S)
Food Services (F)
Food Services (S)

PHYSICAL ABILITIES:

It is important to be able to handle small and medium table loads quickly and neatly to clean and reset the table.

Dining Room Attendant will be able to carry 25 pounds and lift up to 50 pound loads.

It is important in this occupation to stoop, reach and be on your feet for several hours.

Dining Room Attendant will be able to get along with all kinds of people.

It is important to be able to work steadily doing the same tasks many hours.

Dining Room Attendant will be able to follow instructions from supervisors.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Dining Room Attendant works at a station or a group of stations.
- Dining Room Attendants are usually responsible for preparing dining areas before guests arrive and during dining hours.
- Dining Room Attendants clean and carry equipment, food and linens.
- The Dining Room Attendant arranges tables and helps with the service.
- An attendant may wash tables and help with the general cleaning of the restaurant.
- An attendant may also clean silverware, help with the dishes and put dishes away.
- Dining Room Attendants carry food from the kitchen and set dishes and equipment back to the kitchen.
- The Dining Room Attendant keeps the serving places stocked with silverware, utensils, butter, napkins and such things ready for the waitresses.
- Taking care of accidents, cleaning up and replacing lost utensils may be part of the duties.
- In a cafeteria, a Dining Room Attendant may carry the trays to the table if the customer wants help.



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Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

nary Institute of America
rk
k, NY 12538

Institute for the Foodservice Industry
Wacker Drive, Suite 2620
IL 60606



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Phone (515) 281-5

DISPENSING OPTICIAN

in a retail optical shop to make, fit and adjust
eye glasses to a customer's facial features.

2684

713.361-014

05.05

6864

13-Personal Services (F)

11-Marketing & Distribution (S)

Personal Care & Grooming (F)

Buying & Selling (S)

B
ES

PERSONAL APTITUDES:

A Dispensing Optician will be able to learn, understand and use the
principles of lens and light to follow a written prescription.

The ability to read prescriptions, understand them and give some
information to the customer will be important in this occupa-

A Dispensing Optician will be able to use basic math as well as
work accurately.

The ability to picture how a different frame and lens would fit a
customer will be important.

A Dispensing Optician will be able to pay close attention to detail in
eye and shape.

The ability to handle small tools while doing detailed work on small
eyes will be important.

- A Dispensing Optician will be able to work with different
tasks making decisions based on facts that can be measured a
set limits on all tasks.
- An interest in working alone, with processes, and earning
of others will help in this occupation.
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Dispensing Optician makes certain that the lens foll
prescription of the eye doctor and that they fit the custo
- A Dispensing Optician measures the distance between th
the pupils to find out exactly where the lenses should be
that the eyes will get the most benefit.
- The Dispensing Optician also helps the customer choose
eyeglass frames and types of lenses.
- An Optician must know about the various styles and col
eyeglass frames.
- A Dispensing Optician should know what colors and styl
look good on a customer.
- An Optician may fit contact lenses, measure the corneas
customer's eyes and prepare instructions for the lens ma
- Dispensing Opticians assist contact wearers in learning h
insert and adjust to the lenses.



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Des Moines, IA 50
Phone (515) 281-5

MS OF STUDY AND TRAINING:

ptometric Assisting

S OF ADDITIONAL INFORMATION:

1 Optometric Association
h Lindberg Boulevard
, MO 63141

Association of America
emocracy Lane
VA 22030

onal Outlook Handbook
edition
(37-189)



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Iowa Dept. Of Educ
Grimes State Office
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Phone (515) 281-5

DOMESTIC HELPER

is housekeeping tasks such as dusting and cleaning in private homes.

3456

301.474-010

05.12

507

13-Personal Services (F)

13-Personal Services (S)

Domestic Services (F)

Domestic Services (S)

B
ES

PHYSICAL APTITUDES:

Domestic Helper will need good use of hands to handle medium weight objects.

Ability to stoop, reach and carry up to 10 pounds will be necessary for this occupation.

Ability to do a variety of tasks will be important.

Consistency in working with things in a set routine would help in this occupation.

Domestic Helper will be able to work without close supervision.

Ability to follow instructions will be important.

Domestic Helper will be able to remain polite and pleasant even when doing unpleasant tasks.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Domestic Helper either lives in the home where they work or comes to the home during the day.
- A Domestic Helper operates a variety of household appliances such as vacuums, floor polishers and irons.
- The Domestic Helper works every day for the same family or a different house each day.
- Domestic Helpers wash floors, dust and scrub walls.
- Domestic Helpers may change beds, wash dishes and even prepare meals in some homes.
- A Domestic Helper may wash clothes and help care for children.
- The Domestic Helper may work in public places doing housework such as making beds, changing linens and keeping the surroundings neat and ready for use.
- A Domestic Helper may have other duties, such as answering telephone, doorbell and feeding pets.
- A Domestic Helper may handle household business such as answering messages and personal schedules.
- A Domestic Helper will work alone without supervision most of the time so they need to know the job and do it well.



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R The drafter takes the designer's idea and draws plans for a craftsman to follow in making a finished product.

2364 -
007.281-010
05.03
372
10-Manufacturing (F)
10-Manufacturing (S)
Engineering & Design (F)
Engineering & Design (S)

PERSONAL APTITUDES:

- The drafter will be able to learn and apply principles, procedures and methods that fit each job.
- The drafter will be able to understand and interpret many kinds of technical data.
- The drafter's ability to use geometry and similar kinds of math will be important in this occupation.
- The drafter will be able to see parts of a blueprint as separate from the whole and visualize them in three dimension.
- The drafter's ability to see small differences in shape and form will be important in this occupation.
- The drafter will be able to pay close attention to detail in pictured and technical work to avoid error.

- The ability to use arms, hands and fingers to handle small instruments with precision will be important in this occupation.
- A Drafter will be able to make decisions based on measurements and meet set standards.
- An interest in working alone with technical processes will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Drafters develop detailed design drawings, using engineering specifications, and related data and drawings to determine such as size, shape and arrangement.
- Drafters work from verbal and written instructions.
- The Drafter may make detailed multiview drawings of mechanical buildings and other structures including specifications for parts of heating/air conditioning equipment, wiring, plumbing, etc.
- Drafters compile and analyze test data to determine the correct design components on the total structure of item.
- The design is modified according to the results of these tests.
- Drafters may specialize in areas such as architectural drafting, mechanical or civil drafting.
- An ability to use or learn computer-aided drafting is becoming increasingly important.



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EDUCATION AND TRAINING:

High school education or the equivalent is usually the minimum requirement for Drafters.

Many Drafters now use computer aided drafting equipment.

Computer aided drafting and computer aided drafting systems is available at technical institutes, community colleges, vocational training and high schools.

Some Drafters learn drafting through a three to four year apprenticeship program.

Interest in computer-aided drafting is becoming increasingly important.

RELEVANT HIGH SCHOOL SUBJECTS:

Algebra/Geometry

Science
Computer Technology
Technical Education
Communications
Construction
Drafting
Transportation

PROGRAMS OF STUDY AND TRAINING:

- 3201 - Architectural Construction Technology
- 3204 - Civil Technology
- 3244 - Mechanical Design Technology
- 7701 - Drafting, General
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- UAW Solidarity House
800 East Jefferson Avenue
Detroit, MI 48214
- National Association of Trade and Technical Schools
2251 Wisconsin Ave. NW
Washington, D.C. 20007
- Occupational Outlook Handbook
1986-87 edition
pages (234-235)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

DRY WALL INSTALLER/FINISHER

Attaches plasterboard to ceilings or wall surfaces, covers joints and puts on the finish.

4243
842.681-010
05.10
6424
4-Construction (F)
4-Construction (S)
Building Trades (F)
Building Trades (S)

GENERAL APTITUDES:

Dry Wall Installer/Finisher will be able to learn, understand and interpret blueprints and drawings.

Ability to use math to measure and compute the amount of material needed is important.

Dry Wall Installer/Finisher will be able to picture how the finished wall will look.

Ability to see detail and compare similarities and differences in checking finished work will be important in this occupation.

Dry Wall Installer/Finisher will be able to reach, stoop, climb and carry heavy loads up to 50 pounds and lift up to 100 pounds.

Ability to move around easily and do fine finishing using arms, hands and fingers will be important in this job.

- The ability to make decisions based on measurable facts is an important skill in this occupation.
- A Dry Wall Installer/Finisher will be able to meet set standards.
- An interest in working alone with things and processes is important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Dry Wall Installers/Finishers mark the correct measurements on the building's blueprints on the wallboard.
- A Dry Wall Installer/Finisher creates inside walls by fastening wall panels to the inside framework of a house or other building.
- The Dry Wall Installer/Finisher cuts and fits the board to the studs, studding and joints.
- A Dry Wall Installer/Finisher cuts out openings with a hand saw and a hammer.
- The Dry Wall Installer/Finisher fits and nails the plasterboard to the supports.
- An Installer must trim the rough edges, tape the seams and sand the surface.
- Dry Wall Installers/Finishers apply a finishing coat of spackling when the wall surface is dry.



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MS OF STUDY AND TRAINING:

carpentry
apprenticeship

S OF ADDITIONAL INFORMATION:

Occupational Outlook Handbook
1990 edition
(pages 35-387)



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TECHNICIAN

and measures the electrical activity of the heart. E.K.G. Technicians aid in the diagnosis of heart disease and dis-

2666

078.362-018

10.03

369

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

ESSENTIAL ABILITIES:

1. Technician will be able to learn, understand and use the techniques of operating the E.K.G. machines and other related equipment.

2. Technician will be able to understand and follow written and spoken instructions, convey information to others clearly, and function as part of a health care team.

3. Technician will be able to use basic math to read and interpret data from charts, graphs, and gauges and dials.

4. Technician will be able to recognize normal and abnormal test patterns and identify abnormal patterns from equipment malfunction will be important in this occupation.

5. Technician will be able to check records and find and correct any errors will be important in this occupation.

- The ability to move around a room easily will be important in this occupation.
- An E.K.G. Technician will be able to use hands and fingers to feel and accurately measure electrical activity.
- The ability to see, hear, reach, handle loads up to 10 pounds on his or her feet most of the work day will be important in this occupation.
- An E.K.G. Technician will be able to talk with and encourage patients and persons of all ages.
- An ability to make decisions based on measurable facts and standards will be important in this occupation.
- An interest in working with scientific and technical information and processes will help in this occupation.
- An E.K.G. Technician will be able to handle emergencies calmly.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An E.K.G. Technician may work in a hospital, doctor's office or clinic.
- The E.K.G. Technician must make the patient comfortable and at rest on his/her back. The work area may be in a room protected against outside electrical interference.



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KEY OCCUPATIONS:

Electrocardiography and E.E.G. Technicians (26660) See Cardiopulmonary and E.E.G. Technicians in the Military Career Guide 1989 page 61.

RELATED OCCUPATIONS:

Electrocardiography Medical Technician (8168)
Electrocardiography Technologist (2652)
Electrocardiography Technician (2661)
Electrocardiography Technician (8155)

EDUCATION AND TRAINING:

High school education or its equivalent is required.

On-the-job training (lasting three to six months) is provided on the job under the supervision of an experienced E.K.G. Technician.

Some hospitals offer on-the-job training.

Applicant should be 18 years old.

Assistant training is very helpful. This is a one year program that provides classroom and clinical experience.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Mathematics courses leading to a high school diploma.

PROGRAMS OF STUDY AND TRAINING:

- Training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:

- ACTA - American Cardiology Technologists Association
1980 Isaac Newton Square South
Reston, VA 22090
- American Association of Medical Assistants
20 N. Wacker Dr. Suite 1575
Chicago, IL 60606
- Occupational Outlook Handbook
1986-87 edition
pages (189-191)



OCCUPATIONAL BRIEFS

Career Information System
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Des Moines, IA 50319
Phone (515) 281-5000

IST

and recommends solutions to the problems that
the use of such resources as land, raw materi-
ple and money.

2146

050.067-010
11.03 S.O.C. NO. 1912
11-Marketing & Distribution (F)
11-Marketing & Distribution (S)
Management & Research (F)
Management & Research (S)

AL APTITUDES:

mist will be able to learn planning, research methods,
g and organizing information for presentations.

r to read, analyze and organize information to present ideas
ng or writing will be important in this occupation.

mist will be able to use math to build charts and graphs
g information in mathematical form.

r to proofread in detail ,written and number information will
ant in this occupation.

mist will be sitting most of the time.

sight will help in this occupation.

y to make decisions using both past experience and measur-
will be important in this occupation.

- An interest in sharing scientific or technical ideas will be important in this occupation.
- An Economist may work as part of a team.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Economists analyze the relationship between the supply and demand of goods and services; how those goods and services are produced, distributed and consumed.
- Areas of concentration may be the control of inflation, the business cycle and unemployment.
- An Economist may develop theories to explain these economic conditions.
- Economists collect, analyze and interpret data for its economic activity, on industry, consumer consumption and production.
- A Government Economist assesses economic conditions and provides information and economic advice to government decision makers.
- An Economics Teacher teaches theories, principles and methods of economics and/or is in charge of economic research.
- An Economist employee of a business firm provides management with valuable information on which to base decisions on the production and marketing of products.
- Economists work with equipment such as computers.



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EDUCATION AND TRAINING:

A baccalaureate degree in economics with emphasis in mathematical economics is usually sufficient for most beginning research jobs, although persons holding these entry jobs are not usually considered professional Economists.

A master's degree in economics is preferred for higher level positions such as the instructor's rank in a college or university.

A Ph.D. degree is required for the professorship in a high-ranking university and is an asset when seeking other responsible positions.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Foreign Language Skills

Mathematics
Social Studies
History
Government
Science

RECOMMENDED COURSES OF STUDY AND TRAINING:

Business and Economics
Microeconomics

SOURCES OF ADDITIONAL INFORMATION

- American Economic Association
1313 21st Avenue, South
Nashville, TN 37212
- National Association of Business Economists
28349 Chagrin Blvd.
Cleveland, OH 44122-4589
- Occupational Outlook Handbook
1986-87 edition
pages (101-104)



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EDUCATIONAL ADMINISTRATOR

responsible for the educational activities being conducted within a school district or a specific attendance center.

1136

099.117-022

11.07

121

14-Public Service (F)

14-Public Service (S)

Education (F)

Education (S)

PERSONAL APTITUDES:

An Educational Administrator will be able to learn and use educational management practices.

The ability to speak and write clearly will be very important in this occupation.

An Educational Administrator will be able to use math skills to read and interpret financial reports, statistics and government project budget requirements.

The ability to see detail in checking pictorial and written work will be important in this occupation.

An Educational Administrator will be able to handle light loads of up to 25 pounds. Adequate hearing will help in this occupation.

An Educational Administrator will be able to plan and direct professional activities of others.

- The ability to work with different people sometimes influences the action to be sure your programs are accepted and followed. This is important in this occupation.
- The ability to make decisions based on past experience will be important in this occupation.
- An interest in work that helps others and allows the share of responsibility will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Educational Administrator conducts and organizes management activities.
- An Educational Administrator will find management and decision-making skills very helpful.
- An Educational Administrator must provide educational leadership for the school keeping with local needs and district-wide policies on curriculum development.
- Educational Administrators must direct and supervise the school program and the faculty and staff.
- An Educational Administrator supervises the operation and maintenance of the facilities.
- The Educational Administrator deals with many situations and requires a thorough involvement in community activities.
- Working closely with the board of education will be part of the job.



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EDUCATION AND TRAINING:

In Iowa as an administrator from the prekindergarten level through grade six, you must hold or be eligible for an educational certificate, have five years of teaching experience, three years of which must have been as a classroom teacher at the PK-6 level, complete an approved master's degree program in elementary school administration at a recognized institution and hold a valid Iowa administrative certificate.

In Iowa as an administrator in grades seven through twelve, you must hold or be eligible for an educational certificate, have five years of teaching experience, three years of which must have been at the PK-6 level (7-12), complete an approved master's degree program in secondary administration at a recognized institution and hold a valid Iowa administrative certificate.

In Iowa as a superintendent from the prekindergarten level through grade twelve, you must hold or be eligible for an educational certificate, have five years of teaching experience and three years experience as a building principal or other PK-12 district wide or area administrator, complete an approved master's degree program in school administration at a recognized institution and hold a valid Iowa administrative certificate.

HIGH SCHOOL SUBJECTS:

Completion of courses leading to a high school diploma.

COURSES OF STUDY AND TRAINING:

Completion of educational institutions in Iowa have Master's level programs in School Administration that are not listed separately from the Education Program.

SOURCES OF ADDITIONAL INFORMATION

- Iowa Association of School Administrators
900 Des Moines Street, No. 30
Des Moines, IA 50316
- The American Association of School Administrators
1801 North Moore Street
Arlington, VA 22209
- Occupational Outlook Handbook
1986-87 edition
pages (34-35)



OCCUPATIONAL BRIEFS

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Phone (515) 281-5000

ELECTRIC MOTOR REPAIRER

Diagnoses and repairs electrical motors, generators and other related equipment.

3147

721.281-018

05.05

6711

9-Maintenance and Repair (F)

9-Maintenance and Repair (F)

Machine Maintenance (F)

Machine Maintenance (F)

B
S

GENERAL APTITUDES:

Electric Motor Repairer will be able to learn basic electrical theory and diagnosing problems.

Electric Motor Repairer will be able to understand both written and oral directions.

Knowledge of shop math in measuring and testing both broken and new items will be required.

Electric Motor Repairer will be able to see the relationships between an object and the space it requires.

Ability to see small differences in shapes and lines to check for accuracy will be important in this occupation.

Electric Motor Repairer will be able to use eyes, hands and fingers to make quick, smooth well-controlled movements.

- The ability to match the color coded wiring from one item to another will be important in this occupation.
- An Electric Motor Repairer will be able to make judgments based on known facts.
- An Electric Motor Repairer will be able to complete tasks to a set standard.
- An interest in working with things, using processes that produce a product that can be used, will be important in this occupation.
- An Electric Motor Repairer will be able to carry 25 pounds to 50 pounds.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Electric Motor Repairer will test the motors, generators and equipment to determine what part is not working.
- An Electric Motor Repairer will use hand tools and measurement such as ohmmeter and micrometers to help determine the problem and to check repaired equipment.
- Taking apart the motor or other equipment will be part of the occupation either to help determine the problem or in order to complete the repair.
- An Electric Motor Repairer will reassemble and adjust the equipment.



OCCUPATIONAL BRIEFS

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ELECTRICAL ENGINEER

and supervises the manufacturing and testing of electrical components, equipment and systems.

2432

003.061-010

05.01

1633

10-Manufacturing (F)

10-Manufacturing (S)

Engineering & Design (F)

Engineering & Design (S)

ESSENTIAL APTITUDES:

An Electrical Engineer will be able to learn, understand and use the principles of chemistry, physics and related sciences.

An Electrical Engineer will be able to understand and use the techniques of several fields.

The ability to use algebra, geometry, trigonometry and calculus will be important in this occupation.

The ability to picture a finished product or how a system will operate, and to develop a plan or idea has been developed, will be important in this occupation.

The ability to be able to notice slight differences in lines and shapes will be important in this occupation.

An Electrical Engineer will be able to check mathematical work and correct any errors.

- An Electrical Engineer will be able to move around easily.
- The ability to use feet, arms, hands and fingers with tools, equipment and handle large objects usually weighing under 50 pounds will be important.
- Good eyesight and hearing will be important in this occupation.
- The ability to do many different tasks in one day will be important in this occupation.
- An Electrical Engineer will be able to plan and direct the work and activities of others.
- An Electrical Engineer will be able to make decisions based on measurable facts.
- The ability to do tasks so they will meet a set standard will be important in this occupation.
- An interest in working alone with scientific and technical processes will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Electrical Engineers may do research and development and design electrical/electronic equipment.
- An Electrical Engineer may design, test and supervise the manufacturing of electrical and electronic components, systems and equipment.



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EDUCATION AND TRAINING:

A Bachelor's Degree in Engineering is required for most beginning

Engineering positions are filled by people trained in the appro-
priate physical sciences or mathematics.

Continuing education is increasingly important for advancement.

One does not need to obtain a license to gain employment as
an engineer. However, to be acknowledged as a registered or profes-
sional engineer, one must meet the state requirements for licensure.

For an Engineering license, several combinations of exper-
ience and formal training are possible.

Candidates must pass two written examinations in the fundamentals,
and the practices of engineering. After the first year of
employment as a Registered Professional Engineer, Continuing Education
is required for license renewal. The number of hours varies with work
experience.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Advanced Math

Physics
Education
Biology/Power Systems
Manufacturing
History of Technology

PROGRAMS OF STUDY AND TRAINING:

- 3001 - Engineering, General

SOURCES OF ADDITIONAL INFORMATION

- Institute of Electrical & Electronic Engineers
445 Hoes Lane
Piscataway, NJ 08854-4150
- Occupational Outlook Handbook
1986-87 edition
page (69)



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Phone (515) 281-5100

CAREER INFORMATION

and tests all electrical fixtures, appliances and in the electrical systems of structures; may re-sting electrical work.

5626

824.261-010

05.05

6432

4-Construction (F)

4-Construction (S)

Plumbing & Electrical (F)

Plumbing & Electrical (S)

PERSONAL APTITUDES:

Electrician will be able to learn, understand and use the laws of and electrical systems.

Electrician will be able to read technical instructions and interpret them on the job important in this occupation.

Electrician will be able to use the formulas of electricity and do h computations.

Electrician will be able to picture what the finished product looks like will be in this occupation.

Electrician will be able to see detail and make comparisons of objects and pictured material.

Electrician will be able to move around easily and work in small

- The ability to work with small to medium tools and equipment weighing under 25 pounds will be important in this occupation.
- An Electrician will be able to climb, reach and stoop while working.
- The ability to do many things in one day, changing tasks and priorities will be important in this occupation.
- An Electrician will be able to make decisions based on previous experience and measurable facts.
- An interest in working alone with things and processes and a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Electricians use a variety of hand and power tools, as well as precision measuring instruments.
- An Electrician analyzes problems in electrical systems.
- Electricians lay out, install and test electrical systems.
- These systems may be installed in homes, businesses, hospitals, and many other places.
- An Electrician also installs electrical machinery, controls, switchboards for telephones and intercom systems.
- Electricians follow blueprints and other instructions about the electrical components.



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Seasonal nature of construction work affects Electricians less than other workers in most building trades, because so much of their work is done indoors.

Job openings are decreased during general downturn in the construction industry.

Electricians own their own business.

KEY OCCUPATIONS:

Electrical Products Repairers (56260)
Electricians (56261)
Industrial Electricians (56262)
Electricians (56263)
Electricians (56264) See Electrical Products Repairers page
Industrial Electricians page 139, Power Plant Electricians page
Electricians page 151, Building Electricians page 157 in the
Career Guide 1988-1889.

OTHER OCCUPATIONS:

Refrigeration Repairer (3169)
Refrigeration Technician (4254)
Refrigeration Technician (2461)
Refrigeration Repairer (3168)

PREPARATION AND TRAINING:

- A four-year apprenticeship program is one way to learn the trade.
- Apprenticeship applicants must be high school graduates or high school equivalent, eighteen and have better than average ability.
- Applicants must pass a test to qualify for a license.
- On-the-job training takes much longer.
- A license is necessary for employment in some cities. An applicant must pass a test to receive a license.
- Trade schools, community colleges, and the Armed Forces Institute of Technology are means of learning this trade.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
- Basic Math Skills
- Principles of Technology
Industrial Education
- Communications
 - Construction
 - Electrical/Electronic
 - Energy/Power Systems
 - Manufacturing

PROGRAMS OF STUDY AND TRAINING:

- 7507 - Electrician
- 9001 - Apprenticeship



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ELECTROENCEPHALOGRAPHIC TECHNICIAN
and measures electrical activity that comes from the brain; aids in the diagnosis of brain diseases and disorders.

2667

078.362-022

10.03

369

6-Health Technicians (F)

6-Health Technicians (S)

Health Technicians (F)

Health Technicians (S)

PERSONAL APTITUDES:

An electroencephalographic (E.E.G.) Technician will be able to learn, read and use the instruments employed in recording EEG's, and related equipment.

The Technician will be able to follow written and spoken instructions, to relay information to others clearly, and to function as a member of a health care team.

The ability to use basic math will be important in this occupation.

The Technician will be able to recognize normal and abnormal patterns, and to tell the difference abnormal test patterns from normal patterns.

The ability to check records and find and correct errors will be important.

- An E.E.G. Technician will be able to use their hands, have the ability to see, hear, and move freely. An E.E.G. technician will be able to work on their feet for intervals of up to one hour.
- The skill and patience to talk with, and encourage, sick patients will be important.
- An ability to make decisions based on measurable facts and standards will be important in this occupation.
- An interest in working with scientific and technical information processes will help in this occupation.
- An E.E.G. Technician will be able to handle emergencies rapidly.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.
- An E.E.G. Technician may be employed in a hospital, a clinic, or a private physician's office.
- The E.E.G. Technician measures and marks the E.E.G. patient's head, and, after preparing the skin, applies a series of electrical small cup-shaped discs, to the patient's scalp. Electrical signals generated by the brain is received at these scalp electrodes and transferred into a recording instrument. The instrument filters unwanted electrical signals and traces the remaining data on a sheet of graph paper.
- The E.E.G. Technician, who has a knowledge of normal and abnormal brain wave patterns, is responsible for technically recording and interpreting so that it is useful to a physician who specializes in disorders of the brain and nervous system.



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opportunities are greater in large urban areas, and advancement to a supervisory or management head position; the technician may also cross-train into related diagnostic areas.

RELATED OCCUPATIONS:

Respiratory and E.E.G. Technicians (26660) See Cardiopulmonary and E.E.G. Technicians in the Military Career Guide 1989 page 61.

ADDITIONAL OCCUPATIONS:

Electrocardiography Technician (2666)
Respiratory Medical Technician (8168)
Respiratory Therapist (8123)
Electroencephalography Technologist (2661)
Electroencephalography Technician (8155)

EDUCATION AND TRAINING:

Applicants should be a minimum of 18 years old with a high school diploma or its equivalent. A college degree is not required for admission into a training program in E.E.G. but college credits are helpful.

E.E.G. Technology training programs usually offered through technical colleges or university affiliated hospital schools and last from 12 to 24 months.

A large number of hospitals and clinics offer on-the-job training and specialization, which has become very specialized.

- A "Registered" E.E.G. Technologist has 1 to 2 years of formal program, at least one year of laboratory experience and has successfully completed a written and oral examination by a national registry board.

HELPFUL HIGH SCHOOL SUBJECTS:

General courses leading to a high school diploma with an emphasis on mathematics, biology, and language arts.

PROGRAMS OF STUDY AND TRAINING:

- 3508 - Encephalographic Technology

SOURCES OF ADDITIONAL INFORMATION:

- American Society of E.E.G. Technologists
Executive Office, Sixth at Quint
Carroll, IA 51401
- Occupational Outlook Handbook
1986-87 edition
pages (191-193)



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ELECTRONICS TECHNICIAN

Use hand tools and testing devices to maintain and repair electronic equipment.

2461

828.281-010

05.05

6153

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Machine Maintenance (F)

Machine Maintenance (S)

B
ES

PERSONAL APTITUDES:

An Electronics Technician will be able to learn, understand and use the principles of electricity and principles of electronic circuitry.

An Electronics Technician will be able to read and understand technical drawings and instructions.

An Electronics Technician will be able to use algebra, trigonometry, tables and basic computation skills important in this occupation.

An Electronics Technician will be able to picture the circuits and parts before it is built.

An Electronics Technician will be able to see small differences in line and shape will be important in this occupation.

An Electronics Technician will be able to do detailed checking of numbers and written work and catching errors will be important in this occupation.

- An Electronics Technician will be able to move around and work in confined spaces.
- The ability to use arms, hands and fingers in working with medium tools will be important in this occupation.
- The ability to do many different tasks in one day will be important in this occupation.
- An Electronics Technician will be able to make decisions based on experience and measurable facts.
- The ability to do tasks to meet a high set standard will be important in this occupation.
- An interest in working with things and processes using technical information will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Electronics Technician repairs electronic equipment such as computers, radar generators, transmitters and other electronic equipment.
- Electronics Technicians follow the blueprints and manufacturer specifications.
- Many hand tools and test instruments may be used.
- An Electronics Technician tests faulty equipment and uses the knowledge of electronics to find the cause of the trouble.



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ing to the U.S. Department of Labor, an average increase in
ployment of Electronics Technicians expected. The production
trial electronic products will increase as businesses buy more
ers and other electronic equipment to automate paper work
duction processes.

ement possibilities are good in this field.

erience and additional training, you may be promoted to lab
ch technical specialist or assistant to the test engineer.

Y OCCUPATIONS:

ry and Electronics Occupations (56000) See Electricity and
s Occupations in the Military Career Guide 1988-1989 page

OCCUPATIONS:

Repairer (3169)
(5626)
g Technician (2451)
epairer (3168)

ION AND TRAINING:

ol diploma or its equivalent is required by most employ-

ining in a college, community college, vocational school
ol is often necessary.

can take up to two years.

- A basic knowledge of general electronics is essential.
- Some on-the-job training may be available.

HELPFUL HIGH SCHOOL SUBJECTS:

Math

- Basic Math Skills

Principles of Technology

Industrial Education

- Communications
- Energy/Power Systems
- Product Services

PROGRAMS OF STUDY AND TRAINING:

- 3211 - Electronic Technology
- 3212 - Laser-Optics Technology
- 3214 - Biomedical Equipment Technology
- 3218 - Robotics Technology
- 3901 - Industrial Arts
- 7603 - Communication Electronics
- 7604 - Computer Electronics
- 7605 - Industrial Electronics
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Electronic Industries Association
2001 Eye Street
Washington, D.C. 20006
- International Society of Certified Electronic
Technicians



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NTARY TEACHER

les a good learning environment and resents pro-
s of instruction designed to suit the students' needs
des 1-6.

8455

092.227-010

11.02

232

14-Public Service (F)

14-Public Service (S)

Education (F)

Education (S)

B
S

AL APTITUDES:

ntary Teacher will be able to learn, understand and use the
of learning and human relations.

to gather information and present spoken or written
1 at the level of understanding needed will be important in
tion.

ary Teacher will be able to understand the number
be able to use it for basic computation.

o check written material and tables for errors will be
this occupation.

ary Teacher will be able to do in a day many different
ing tasks often.

- An ability to work with many people in different situat
important in this occupation.
- The ability to make decisions based on experience will l
this occupation.
- An interest in work concerned with sharing ideas, resul
being offered to others will be important in this occupati
- With employer assistance, some physical requirements r
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Elementary Teachers instruct students individually or in
- An Elementary Teacher teaches several subjects to one o
his/herself or with a team of teachers.
- Elementary Teachers design units of study and classroom
tions for a balanced curriculum and to meet the needs an
the students.
- An Elementary Teacher may use school and community
build and enhance the units.
- Elementary Teachers make and use audiovisual material
and enrich units of learning.
- Assistance may be provided to students outside of class.
- Elementary Teachers illustrate to students the relationsh
classroom study and the world of work through the use o
education ideas.



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RELATED OCCUPATIONS:

Elementary School Teacher (8414)
Educational Administrator (1136)
Counselor (8434)
Secondary Teacher (8456)

- Earth/Space Sciences
- Health & Physical Education
- Health
- Physical Education
- Home Economics
- Consumer & Homemaking
- Child Care

EDUCATION AND TRAINING:

To be eligible for employment in kindergarten and grades one through six in Iowa, you must complete an approved four-year Elementary Teacher education program, including supervised student teaching at the elementary level, and an approved human relations component, and a baccalaureate degree from a recognized institution and hold a valid Iowa teaching certificate.

PROGRAMS OF STUDY AND TRAINING:

- All programs in the Education (2900) group prepare students for the field of teaching.
- A teaching certificate may be obtained as a part of most programs offered at colleges/universities. See other program group for details.

RELEVANT HIGH SCHOOL SUBJECTS:

English
Mathematics
Science
Social Studies
Art
Physical Education
Foreign Language
Music
Drama
Dance
Career Education
Arts & Crafts
Health
Physical Education
Math Skills
Social Sciences

SOURCES OF ADDITIONAL INFORMATION:

- National Council for Accreditation of Teacher Education
1919 Pennsylvania Ave., N.W., Suite 202
Washington, D.C. 20006
- National Council of Teachers of Mathematics
1906 Association Drive
Reston, VA 22091
- Occupational Outlook Handbook
1986-87 edition
pages (126-128)



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EMERGENCY MEDICAL TECHNICIAN

immediate first aid treatment, and helps lift patients onto carts or stretchers and into the ambulance.

8168

079.374-010

10.03

369

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
ES

PERSONAL APTITUDES:

An Emergency Medical Technician will be able to learn and apply the procedures used in each type of emergency and how to determine the cause of injury or illness.

The ability to follow written and spoken instructions exactly in caring for a patient, will be important in this occupation.

An Emergency Medical Technician will be able to use math in basic measuring and reading scales.

The ability to picture the way the patient and the needed equipment will fit in a small space of an ambulance will be important in this occupation.

An Emergency Medical Technician will be able to see and compare vital signs, vital signs charts, and graphs.

The ability to move around easily will be important in this occupation.

- An Emergency Medical Technician will be able to climb, lift, hear, see and handle loads up to 100 pounds.
- The ability to tell colors from one another will be important in this occupation.
- An Emergency Medical Technician will be able to work with people in stress situations.
- The ability to make decisions based on experience and medical facts will be important in this occupation.
- An interest in work that uses scientific and technical methods to help others will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Emergency Medical Technician will administer basic emergency medical care, and transport sick or injured people to medical facilities.
- Emergency Medical Technicians may respond to instructions from an emergency medical dispatcher or a physician.
- Emergency Medical Technicians will become familiar with emergency and disinfecting procedures.
- An Emergency Medical Technician may drive the emergency vehicle to specified locations.



OCCUPATIONAL BRIEFS

Career Information

*Iowa Dept. Of Health
Grimes State Office Building
Des Moines, IA
Phone (515) 281-1234*

RELATED OCCUPATIONS:

• Technician (2666)
• Licensed Practical Nurse (8164)
• Medical Assistant (8156)
• Medical Assistant (8121)
• Emergency Medical Technician I
• Emergency Medical Technician II
• Emergency Medical Technician - Paramedic

EDUCATION AND TRAINING:

High school education or its equivalent is usually required.

Applicant must be at least 18 years old and have a valid driver's license.

The training course is based on the program designed by the Department of Transportation and consists of classroom, clinical and field activities. This program or its equivalent is available in Iowa and the District of Columbia.

The training course may be offered with the police, fire and health departments, in hospitals, and as a special course in some medical colleges and universities.

At the end of the training, a written and practical examination must be passed.

Emergency Medical Technicians and paramedics in the field must be certified by the State Board of Medical Examiners.

- Emergency Medical Technicians are certified by the State Board of Health.
- Training program information for EMT-A is available through:
EMS Section
State Department of Health
Lucas State Office Building
Des Moines, Iowa 50319
- Training program information for EMT-A, EMT II, and Paramedic is available through:
Iowa Board of Medical Examiners
Executive Hills West
State Capitol Complex
Des Moines, Iowa 50319

HELPFUL HIGH SCHOOL SUBJECTS:

- Health & Physical Education
 - Health
- Health
 - Medical & Dental Technology
 - Nursing Care
- Home Economics
 - Consumer & Homemaking

PROGRAMS OF STUDY AND TRAINING:

- 3510 - Emergency Medical Technology.



OCCUPATIONAL BRIEFS

Career Information S
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ENGINEER

designs products, systems or processes that are efficient and economical in performance.

2426

008.061-018

05.01

1626

10-Manufacturing (F)

10-Manufacturing (S)

Engineering & Design (F)

Engineering & Design (S)

GENERAL APTITUDES:

An engineer will be able to learn, understand and use the principles of chemistry, physics and related sciences.

The ability to understand complex technical language and the ability to read and explain using this language will be important in this occupation.

An engineer will be able to analyze and measure using the principles of algebra to calculus.

The ability to picture the relationships of objects to each other and the ability to understand how objects use will be important in this occupation.

The ability to notice slight differences in lines and shapes will be important in this occupation.

An engineer will be able to check math and written work without errors.

- An Engineer will be able to move around easily.
- Being able to use feet, arms, hands and fingers to use equipment and carry objects usually not more than 10 pounds will be important in this occupation.
- The ability to tell one color from another will be important in this occupation.
- The ability to do many tasks in one day, changing tasks frequently will be important in this occupation.
- An Engineer will be able to direct the activities of others.
- An Engineer will be able to make decisions based on experimental and measurable facts.
- The ability to do tasks so they will meet a set standard will be important in this occupation.
- An interest in work that makes use of imagination in a technical field will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- As an Engineer, specialization is possible in areas such as Agriculture, Mining, Petroleum, Electrical, Chemical, Industrial or Metallurgical Engineering.
- Nuclear, Computer, Biomedical and Environmental Engineering are emerging as additional disciplines of specialization.



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EMPLOYMENT OUTLOOK:

Engineers are found throughout Iowa and the U.S.

The Department of Employment Services information shows a 1986 employment level of 866 and a 1989 projected employment level of 866 Engineers.

The Department of Employment Services projected in 1988-89 that, although there will be 15 openings due to replacement needs, 20 positions will be created resulting in 5 openings and some layoffs (temporary and permanent).

The Department of Employment Services figures do not include those who are self employed.

Approximately 25 percent of the Nuclear Engineers employed in 1982 worked for the Federal Government. Nearly half of all federally employed Engineers were civilian employees of the Navy Department.

Opportunities for Engineers are related to population growth and expansion to meet the demands for more goods and services. There is an emphasis on solving domestic problems such as environmental pollution, urban redevelopment and new sources of power to create additional job opportunities.

Engineers may be employed by industry; federal, state and local government; colleges and universities; private consulting firms and organizations.

The primary field for Engineers is usually to positions of greater responsibility, to administrative jobs or to a higher rank in a college setting.

- Layoffs of Engineers in some specialties may occur if there are cutbacks in fundings such as defense, aerospace or investment.

MILITARY OCCUPATIONS:

- Engineering and Design Occupations (24000) See Engineering, Science, and Technical Occupations in the Military (CISI 1988-1989 page 294).

RELATED OCCUPATIONS:

- Civil Engineer (2428)
- Electrical Engineer (2432)
- Engineering Technician (2451)
- Industrial Engineer (2434)
- Mechanical Engineer (2436)

PREPARATION AND TRAINING:

- A Bachelor's degree in engineering is the basic education requirement for beginning engineering jobs.
- Graduate training is being emphasized for an increasing number of jobs; it is essential for most beginning teaching and research and desirable for advancement. Some specialties, such as Nuclear Engineering, generally are taught only at the graduate level.
- Training and experience received while in the military service is helpful, particularly in disciplines such as Nuclear Engineering.
- Iowa requires licensing of professional engineers to follow the criteria, as stated in the Iowa Code:
 - 1) Hold a Bachelor's degree from an approved engineering program.



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ENGINEERING TECHNICIAN

the engineer plan and write special instructions
building projects.

2451

007.161-026

05.01

3713

10-Manufacturing (F)

10-Manufacturing (S)

Engineering & Design (F)

Engineering & Design (S)

AL APTITUDES:

Engineering Technician will be able to learn, understand and use
from science and mathematics concerning industrial ma-
and technical processes.

to understand complex technical language and the ability
and discuss using the technical language will be important
ipation.

Engineering Technician will be able to test and measure using the
f advanced math.

to picture relationships of objects to each other and the
use will be important in this occupation.

o compare and notice small differences in lines and
be important in this occupation.

ing Technician will be able to move around easily.

- An Engineering Technician will be able to use arms, h
fingers to use small tools, equipment and delicate instr
- An Engineering Technician will be able to reach and h
to 10 pounds.
- The ability to make decisions using measurable facts w
tant in this occupation.
- An Engineering Technician will be able to do tasks that
standard.
- An interest in working alone with scientific and technica
and machines will help in this occupation.
- An Engineering Technician will be able to get along well
levels of workers as well as management.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Engineering Technicians may use electronic and mechan
ments, experimental lab equipment and drafting instrum
- An Engineering Technician may use engineering, draftin
veying principles.
- Engineering Technicians will use technical handbooks ar
devices such as calculating machines and computers.
- Technicians may draw free hand sketches and rough lay
proposed machinery and other equipment parts.



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RELATED OCCUPATIONS:

Cast Technician (5664)
Engineer (2428)
Inspector (2364)
Mechanics Technician (2461)
Mechanical Engineer (2432)
Mechanical Engineer (2426)
Mechanical Engineer (2434)
Mechanical Engineer (2436)
Production Inspector (2672)

EDUCATION AND TRAINING:

High school education is required.

On-the-job training and apprenticeship programs are available.

Experience gained in the armed forces is also acceptable.

A two-year associate degree from a community college or vocational-technical school is usually sufficient for entry level positions. However, post-training is becoming increasingly necessary for advancement.

HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Advanced Math

Technology
Education

- Communications
- Construction
- Drafting
- Energy/Power Systems
- Manufacturing
- Transportation
- Office
 - Data Processing

PROGRAMS OF STUDY AND TRAINING:

- 3001 - Engineering, General
- 3204 - Civil Technology
- 3211 - Electronic Technology
- 3212 - Laser-Optics Technology
- 3216 - Electromechanical Technology
- 3218 - Robotics Technician
- 3220 - Environmental Control Technology
- 3228 - Industrial Technology
- 3236 - Laboratory Technology
- 3244 - Mechanical Design Technology
- 3901 - Industrial Arts, General
- 7605 - Industrial Electronics
- 7701 - Drafting, General

SOURCES OF ADDITIONAL INFORMATION:

- Instrument Society of America
International Headquarters
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, NC 27709



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ENVIRONMENTAL HEALTH ASSISTANT

Works with environmental engineers, sanitarians, veterinarians and veterinarians in collecting data, making recommendations and evaluating housing.

8157

029.261-014

05.03

389

12-Natural Resources & Environment (F)

14-Public Service (S)

Sanitation & Health (F)

Government (S)

B
ES

PERSONAL APTITUDES:

An Environmental Health Assistant will be able to learn and use technical practices and procedures.

An Environmental Health Assistant will be able to read, understand and write technical language will help in this occupation.

An Environmental Health Assistant will be able to use formulas and do mathematical computations in analyzing samples and performing tests.

An Environmental Health Assistant will be able to compare and notice small differences in lines and shapes which are important in this occupation.

An Environmental Health Assistant will be able to pay close attention to detail in sampling and retesting.

- Being able to tell one color from another will be important in the performance of some tests.
- An Environmental Health Assistant will be able to make decisions based on measurable facts.
- An interest in working with things and using scientific methods with materials will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Environmental Health Assistant works with the public health engineer in the protection and promotion of public health.
- Environmental Health Assistants inspect migrant labor camps, mobile home parks and recreation areas.
- The Environmental Health Assistant must determine whether places are obeying sanitation laws, rules and regulations.
- A fixed or mobile monitoring and/or data collection station may be operated.
- An Environmental Health Assistant collects samples of water and waste water to analyze.
- Reports on the information collected will be required.
- Environmental Health Assistants observe reported violations of pollution rules such as open burning and uncontrolled discharges.



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PLANS OF STUDY AND TRAINING:

Biology

PLANS OF ADDITIONAL INFORMATION:



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ESTIMATOR

Obtains prices from suppliers, jobbers and subcontractors and develops an estimated cost structure for a project.

1618

160.267-018

05.03

149

2-Business & Office (F)

4-Construction (S)

Accounting & Bookkeeping (F)

Materials & Supply (S)

B
S

PERSONAL APTITUDES:

Estimator will be able to learn and use the processes and information to develop an accurate estimate of cost to produce an item or service.

Estimator will be able to make clear detailed written or spoken reports will be required in this occupation.

Estimator will be able to use math to compute time, material and estimated cost of the job using all available information.

Estimator will be able to picture needed materials and the finished product as it is started will be important in this occupation.

Estimator will be able to notice small differences in lines and details.

Estimator will be able to make decisions based on experience and measurable information important in this occupation.

- An Estimator will be able to work within set limits.
- An interest in working alone with technical materials and equipment will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Estimator may prepare cost estimates for the manufacture of products, for construction projects or services requested by clients.
- Estimators may consult with personnel of other departments to solve cost problems.
- An Estimator works with blueprints, special instructions and building materials to determine how much a building project will cost.
- Estimators must list each item in its own group and the quantity, show the amount needed and the cost.
- An Estimator gets the prices either from other similar projects or by asking suppliers and subcontractors what their prices are.
- The estimate is put into a neatly detailed report for the manager.
- Estimators need to keep accurate cost records while the job is being done.
- An Estimator compares their cost estimate to the actual cost of construction and determine profit margins.



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SOURCES OF ADDITIONAL INFORMATION:

Associated General Contractors of America
1100 Connecticut Avenue, N.W.
Washington, D.C. 20006



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MANAGER

s farm supplies and equipment, oversees planting, ration and harvesting of crops and keeps records of activities.

4161

180.167-018

03.01

5522

1-Agriculture/Agri-Business (F)

1-Agriculture/Agri-Business (S)

Production (F)

Production (S)

B
S

AL APTITUDES:

anager will be able to learn and apply suitable procedures ways such as rotating crops so the soil will stay fertile.

to read and understand information as well as share that with others will be important in this occupation.

anager will be able to use math to keep error free financial ion records.

division of land for skillful use each year will be this occupation.

eration, the Farm Manager will be able to handle at und load.

anager will be responsible for many activities and will be e from one activity to another easily.

- A Farm Manager will be able to plan, direct and contr activities of most other workers.
- Being able to get along with others in many different w will be important in this occupation.
- A Farm Manager will be able to affect people's opinions the farm will be run according to the manager's judge past experience and learning.
- An interest in business contact with people earning their be helpful in this occupation.
- With employer assistance, some physical requirements r through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Farm Manager is responsible for the everyday oper farm or farms concerned with raising, harvesting, packin keting farm products for corporations, cooperatives and c
- Farm Managers study market conditions to decide the ar acreage for each crop.
- The Farm Manager meets with bank officials to obtain c the bank.
- A Farm Manager purchases farm machinery, equipment such as tractors, seed, fertilizer and chemicals.
- A Manager may hire and discharge personnel.



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ng from an experienced manager can be done before taking
of your own.

arm Managers begin by farming their own land, gaining
nce and then taking on others to manage.

onal farm manager status can be acquired through certifica-
he American Society of Farm Managers and Rural Apprais-
eral years of farm background and a bachelor's or master's
1 agricultural science plus passing examinations are the
ents for certification.

HIGH SCHOOL SUBJECTS:

Math Skills
gricultural Sciences
ultural Production
ultural Services

COURSES OF STUDY AND TRAINING:

gricultural Business
gricultural Products
gricultural Production
gricultural Production
gricultural Sciences, General
gricultural Sciences, General
lock
omy
ulture Science

- 1804 - Business Administration and Management

SOURCES OF ADDITIONAL INFORMATION:

- American Farm Bureau Federation
225 Touhy Avenue
Park Ridge, IL 60068
- American Society of Farm Managers and Rural Apprais
950 S. Cherry St., Suite G-16
Denver, CO 80222
- Occupational Outlook Handbook
1986-87 edition
pages (329-332)



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WORKER

various jobs connected with operating a farm, including field work and maintaining equipment.

4166

421.683-010

03.04

5612

1-Agriculture/Agri-Business (F)

1-Agriculture/Agri-Business (S)

Production (F)

Production (S)

B
ES

PERSONAL APTITUDES:

Worker will be able to follow directions, learn how to operate machines and learn new ways of doing things.

Quickly and well with your hands will be important in this

Worker will be able to handle 50 to 100 pounds and do a lot of lifting and stooping.

Worker will be able to change tasks several times during the day will be common in this occupation.

Worker will be able to make decisions based on facts and set limits of some tasks.

Worker will be able to complete tasks to meet a set standard.

- An interest in working with things, sometimes in a routine, usually by yourself, will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Farm Worker drives trucks, tractors and other equipment.
- The Farm Worker performs a variety of animal and crop raising/harvesting duties as directed.
- Farm Workers care for livestock and poultry, observe their conditions, and if necessary, give simple medications.
- Farm Workers haul feed to livestock if grass is short or during winter months.
- A Farm Worker operates, repairs and maintains farm irrigation and mechanical equipment.
- The Farm Worker may repair and maintain farm buildings and other structures.
- A Farm Worker may haul livestock and/or other products.
- A Farm Worker will find the duties usually vary from season to season and according to the type of farm production.

WAGES:

Hours per week	60
Average Wage (entry level)	not available
Average Wage (all experience levels)	\$6.39



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OBJECTIVES OF STUDY AND TRAINING:

Agricultural Products
Animal Production
Crop Production
Animal Health
Dairy

SOURCES OF ADDITIONAL INFORMATION:

International Society of Farm Managers and Rural Appraisers
1000 Perry St., Suite G-16
Denver, CO 80222

Illinois Farm Bureau Federation
1000 Perry Avenue
Springfield, IL 60068



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FARMER
Involves responsibility for the entire operation of a farm which may include producing grain, livestock, fibers, etc.; doing things from bookkeeping to field work.

4164

421.161-010

03.01

5512

1-Agriculture/Agri-Business (F)

1-Agriculture/Agri-Business (S)

Production (F)

Production (S)

PERSONAL APTITUDES:

Farmer will be able to learn and apply suitable methods in useful ways such as rotating crops so soil will stay fertile.

Farmer will be able to read and understand information, as well as share that information with other workers, will be important in this occupation.

Farmer will be able to use math with few errors to keep financial and production records.

Farmer will be able to do a lot of climbing, stooping and reaching, and handling loads from 50 to 100 pounds.

Farmer will be responsible for many activities and should be able to switch from one to another often.

- Being able to plan, direct and control an entire activity is important in this job.
- A Farmer will be able to make decisions based on the weather.
- An interest in working with technical things, usually a product that can be seen and touched, will be helpful in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Farmers may raise crops or livestock or both.
- A Farmer determines the kinds and amounts of crops to plant and livestock to be bred and raised, considering the market, weather and size and location of the farm.
- Farmers select and purchase seed, fertilizer, farm machinery, stock and feed.
- Farmers sell the crops and/or livestock that you have produced.
- The Farmer hires people and directs their work as they plant, cultivate and harvest crops or in caring for livestock.
- Farmers set up the equipment to be operated.
- A Farmer may train workers to do specific jobs if they are unskilled or retrain those who have operated different types of equipment.



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EDUCATION AND TRAINING:

Though a high school education is recommended for Farmers, many learn the basics of farming on the job while they are still in school.

Course courses taken at an area school, college or university can be helpful but are not required. Through this education, you may be able to run a more efficient, higher profit farm.

Experience gained growing up on a farm is very important.

(2 or 4 year) is almost necessary for persons who wish to farm who have not had the advantage of living or working on a farm.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Math Skills
Agricultural Production
Physical Sciences

RECOMMENDED COURSES OF STUDY AND TRAINING:

Agricultural Business
Agricultural Mechanics
Agricultural Production
Agricultural Production
Agricultural Sciences, General
Agricultural Sciences, General
Agricultural Health

- 1207 - Dairy
- 1209 - Livestock
- 1220 - Agronomy
- 1221 - Horticulture Science
- 1818 - International Business Management

SOURCES OF ADDITIONAL INFORMATION

- American Farm Bureau Federation
225 Toughey Avenue
Park Ridge, IL 66028
- American Society of Farm Managers and Rural Appraisers
950 S. Cherry St., Suite G-16
Denver, CO 80222
- Future Farmers of America
Bureau of Career Education
Department of Education
Grimes State Office Building
Des Moines, Iowa 50319-0146



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FOOD SERVICE MANGER

...s, coordinates and participates in the ordering of
...ies, preparation of and selling of food items in a
...nised or independent fast food business.

1130

185.137-010

11.11

1351

8-Hospitality & Recreation (F)

8-Hospitality & Recreation (S)

Food Services (F)

Food Services (S)

B
ES

AL APTITUDES:

...od Service Manager will be able to set up, follow and direct
...of operation to prepare and serve food quickly at the lowest

...to give and receive directions and information both by
...l speaking will be important in this occupation.

...d Service Manager will be able to use math in record
...l budgeting income to cover expenses.

...o see small differences in size and shapes and to check the
...e food will be important in this occupation.

...Service Manager will be able to pay attention to detail
...g records.

- A Fast Food Service Manager will be able to reach, he handle loads usually under 10 pounds.
- The ability to do many things in one day with many in be important in this occupation.
- The ability to plan and organize the work of others will in this occupation.
- A Fast Food Service Manager will be able to work with people in many different situations.
- A Fast Food Service Manager will be able to make decis experience.
- An interest in business contact with people, while earning respect, will help in this occupation.
- With employer assistance, some physical requirements n through changes to the work site or equipment.

OCCUPATION PROFILE:

- Fast Food Service Managers will direct, organize and son with preparing, cooking, packing and wrapping the food.
- The Fast Food Service Manager may collect money for t served.
- A Manager will be responsible for hiring, firing, scheduli training of workers.
- The Fast Food Service Manager will keep records of sale and wages with the help of other workers.



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EDUCATION AND TRAINING:

High school education is usually required.
Experience can sometimes be substituted for high school education.
Management experience may be required.
Training is usually on the job. Some fast food chains have several formal training sessions using audio visual aids.

RELEVANT HIGH SCHOOL SUBJECTS:

Language Skills
Economics
Management
Education
Industry Food

Math Skills
Home Education
Business

AREAS OF STUDY AND TRAINING:

Food Management and Production

SOURCES OF ADDITIONAL INFORMATION:

- National Institute for the Foodservice Industry
20 North Wacker Drive
Suite 2620
Chicago, IL 60606
- Guide for Occupational Exploration
1984 edition
pages (566-567)



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CLERK

material into and takes it out of files, locates materials in files and may organize a file system.

1433

206.362-010

07.07

4696

2-Business & Office (F)

2-Business & Office (S)

Secretarial & Clerical (F)

Secretarial & Clerical (S)

AL APTITUDES:

ork will be able to learn and understand the organization of n for each business.

y to read and sort by alphabetical order will be important in ation.

rk will be able to sort by number order also.

o pay close attention to detail when working with written ll be important in this occupation.

will be able to use hands and fingers to handle papers, ng cabinets.

stoop, reach and handle loads up to 10 pounds is this occupation.

will be able to complete tasks to meet a set standard.

- An interest in work that has a routine will help in thi
- With employer assistance, some physical requirement through changes to the work site or equipment.

OCCUPATION PROFILE:

- The File Clerk collects information to be filed.
- File Clerks put material away in a place where it can e
- A File Clerk must be able to find quickly a certain piece when it is requested.
- The File Clerk may make the rounds of all offices and d gather material for filing.
- Material may be filed alphabetically, numerically, chron subject matter or by some other special system.
- Material may be filed loose or in binders, or it may be c stapled to related materials already in the files.
- The File Clerk must keep the information on file curren
- File Clerks may, in smaller offices, perform the duties o clerk.
- File Clerks may enter data on records.

WAGES:

Hours per week	40
Average Wage (entry level)	\$4.46
Average Wage (all experience levels)	\$5.22



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FIGHTER
led worker who helps to protect eople, homes and
esses from fires.

9426

373.364-010

04.02

5123

14-Public Service (F)

14-Public Service (S)

Protection (F)

Protection (S)

B
ES

AL APTITUDES:

ghter will be able to learn and use the methods needed to
rent kinds of fires.

r to understand directions quickly and give clear instruc-
e important in this occupation.

hter will be able to picture objects and space in relationship
ements of a fire fighter.

o move around easily will be important in this occupation.

ter will be able to use hands and feet quickly to handle
rge objects sometimes weighing 100 pounds.

o tell colors from one another will be important in this

- A Fire Fighter will be able to climb, stoop and reach ea-
quickly.
- An ability to do many things in one day will be importa-
occupation.
- A Fire Fighter usually works under the stress of, perso-
and the responsibility for others lives.
- The ability to make decisions based on experience will be
this occupation.
- An interest in working with things and machines using p-
help in this occupation.
- With employer assistance, some physical requirements r-
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Fire Fighters may drive and operate fire fighting vehicle
ment.
- Fire Fighters help protect people and property from a ha-
may take thousands of lives and cost millions of dollars e
- A Fire Fighter must be ready at a moment's notice to go
handle whatever emergency they find.
- Special assignments may be given by a commanding offi
- A Fire Fighter must be able to handle fire hoses, operate
axes, and handle various kinds of fire extinguishers.



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retirement and a lower number of required work hours will
increased need.

ing need to prevent fires will also increase the demand for Fire
s to check buildings and homes for fire hazards.

ement is based on years of service, work record, and a written
ation.

RY OCCUPATIONS:

nter (94260) See Fire Fighters in the Military Career Guide
39 page 122.

Y OCCUPATIONS:

y Medical Technician (8168)
icer (9414)
uard (9476)
per (9416)

TION AND TRAINING:

should be 18-35 years old, have a high school diploma or
nt, pass a written test and medical examination and test
endurance and agility.

pass a Civil Service examination.

partment gives training in fire fighting methods, local
s, fire prevention, first aid, and proper use of all kinds of
equipment.

- Beginning Fire Fighters usually receive six months to
intensive training.
- Experience as a volunteer Fire Fighter or training in tl
Forces is helpful.

HELPFUL HIGH SCHOOL SUBJECTS:

Health & Physical Education
• Physical Education

PROGRAMS OF STUDY AND TRAINING:

- 7011 - Fire Control and Safety Technology
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Fire Protection/Safety
Engineering Technology
Oklahoma State University
Stillwater, OK 74078
- Occupational Outlook Handbook
1986-87 edition
pages (299-301)



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FLIGHT ENGINEER

conducts inspections and adjustments before, during and after a flight to make sure the operation of the airplane is safe and efficient.

6186

621.261-018

05.03

825

15-Transportation (F)

15-Transportation (S)

Air & Space Transportation (F)

Air & Space Transportation (S)

BS

PERSONAL APTITUDES:

A Flight Engineer will be able to learn, understand and use the principles of flight, the principles of the engine, flight instruments and

to understand written and spoken instructions as well as to read and interpret information clearly will be important in this occupation.

A Flight Engineer will be able to use math to read gauges and solve simple mathematical formulas.

The ability to picture objects, their relationship to each other and the ability to use these relationships will be important in this occupation.

A Flight Engineer will be able to compare and see slight differences in measurements.

- A Flight Engineer will be able to pay attention to detail in written and number work.
- A Flight Engineer will be able to move around in a small space using arms, hands and fingers to manipulate large and small objects.
- The ability to do many different things in the same day will be important in this occupation.
- A Flight Engineer will be able to work under the stress and responsibility for others safety and emergencies that sometimes happen.
- A Flight Engineer will be able to make decisions based on facts.
- An ability to complete tasks to meet a set standard will be important in this occupation.
- An interest in working alone with things and having the satisfaction of showing a job well done will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Flight Engineers make adjustments before, during and after a craft's flight.
- The Flight Engineer first checks the outside of the airplane for leaks, cut or bruised tires and possible engine and brake problems.
- The Flight Engineer may keep records of all inspections.



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Complete three years of maintenance experience, one year of which must be maintenance of multi engine aircraft of at least 300 hp each engine, five hours of flight training in the duties of flight engineer and a passing score (70 or above) on a written test.

Graduate from a two year course on airframe and aircraft engine maintenance with training for multi engine aircraft of 300 hp and pass a written test.

Log 200 hours of flight time as pilot-in-command or second-command of aircraft with two or more engines of 800 hp or more and pass a written test

Log 100 hours flight experience in the duties of a Flight Engineer and a passing grade on a written test

Complete an approved course of instruction adequate for the training of a Flight Engineer and pass a written test within 90 days of completion of an approved course

Hold a commercial pilot certificate with an instrument rating, 100 hours of flight training in the duties of a flight engineer and a passing score on a written test.

Most U.S. air carriers now require Flight Engineers to have a valid Medical Certificate and a commercial pilot's license with instrument rating.

HIGH SCHOOL SUBJECTS:

Education
English
Mathematics

PROGRAMS OF STUDY AND TRAINING:

- 7642 - Aircraft Mechanics
- 7907 - Aircraft Piloting
- 7904 - Aviation Management

SOURCES OF ADDITIONAL INFORMATION:

- Flight Engineers International Association
905 16th Street, N.W.
Washington, D.C. 20006
- Air Transport Association of America
1709 New York Avenue, NW
Washington, D.C. 20006
- Occupational Outlook Handbook
1986-87 edition
pages (449-452)



OCCUPATIONAL BRIEFS

Career Information
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Phone (515) 28

FLOOR COVERING INSTALLER

installs, replaces and repairs tile, linoleum and vinyl sheet goods and lays carpeting on the floors of various buildings.

4276

864.481-010

05.10

6462

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

PERSONAL APTITUDES:

A Floor Covering Installer will be able to learn and use the methods for installing each type of flooring.

Following written and spoken directions will be important in this occupation.

A Floor Covering Installer will use math to compute the amount of material needed and for measurement.

Being able to picture the finished product before the work begins will be important in this occupation.

Being able to compare and notice small differences in line and shape will be important in this occupation.

A Floor Covering Installer will be able to move around easily and use their hands and fingers to use medium to small tools and materials.

- An ability to reach, stoop and handle loads sometimes up to 50 pounds will be important in this occupation.
- A Floor Covering Installer will be able to do many different tasks in one day.
- The ability to complete a task to meet a set standard will be important in this occupation.
- An interest in working alone with things using processes and machinery in a product that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Floor Covering Installer installs, replaces and fixes carpet, tile, linoleum and vinyl sheet goods and lays carpeting on the floors of various buildings.
- Floor Covering Installers measure every floor to be covered.
- A Floor Covering Installer makes a working plan like a blueprint to help you lay the covering neatly.
- The Floor Covering Installer cuts and lays the carpet, linoleum and vinyl blocks.
- Floor Covering Installers may read the blueprints.
- The Floor Covering Installer checks the condition of the floor before covered so they are firm, dry, smooth and free of dust.
- A Floor Covering Installer must sand a rough or painted floor and fill cracks and dents with a filler material.



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RELEVANT HIGH SCHOOL SUBJECTS:

Technical Education
Construction & Maintenance

RELEVANT COURSES OF STUDY AND TRAINING:

Carpentry
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Carpet Rug Institute
1000 North Drive, Box 2048
Des Moines, IA 50320

Annual Outlook Handbook
1988-89 Edition
(OS-2-384)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-2800

ST

owns or manages a flower shop and is responsible for purchasing, selling and advertising many different types of decorative items.

4746

142.081-010

01.02

322

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Buying & Selling (S)

ADDITIONAL ABILITIES:

will be able to learn the principles of design and the characteristics of the different plants and flowers.

will be able to understand spoken and written directions as well as give directions. Understanding directions will be important in this occupation.

will be able to use math to keep records and decide on prices and merchandise.

will be able to picture the arrangement needed and build it with the materials available.

will be able to compare and notice small differences in line and shape and color. Attention to detail is important in this occupation.

will be able to pay attention to detail in working with numbers and in record keeping.

- A Florist will be able to move around easily.
- The ability to use arms, hands and fingers to handle small objects weighing less than 10 pounds will be important in this occupation.
- A Florist will be able to tell one color from another even when the colors are very much alike.
- A Florist will be able to make decisions based on experience, personal feelings as well as the feelings of the customer.
- An interest in working with things and producing a product that can be seen and touched is important to this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Florist may be responsible for managing the floral department, including work loads and deliveries.
- The Florist may supervise the other employees in the shop.
- Florists order cut flowers, gifts, potted plants, vases, pots and other items to be sold.
- Florists check to see if the right amount of the supplies are on hand.
- The Florist must anticipate the needs of your customers and place orders and schedule deliveries considering these needs.
- A Florist may supervise the bookkeeping work as well as maintain records of orders, etc.



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EDUCATION AND TRAINING:

- High school education or its equivalent is recommended.
- Flower shops will train a beginner on the job.
- Courses in horticulture and floriculture offered by community colleges are helpful.
- A short course at high school or post high school will be helpful.
- A trainee can become a fully qualified floral designer after 6 months of on-the-job training.

RELEVANT HIGH SCHOOL SUBJECTS:

- Home Arts & Crafts
- Home Economics Education
- Commercial Art/Graphic Art/Photography
- Home Economics Education
- Retail Merchandising & Marketing

REQUIREMENTS OF STUDY AND TRAINING:

- Horticulture
- Floriculture

SOURCES OF ADDITIONAL INFORMATION:

- National Association of Trade and Technical Schools
2251 Wisconsin Ave. NW, Suite 200
Washington, D.C. 20007
- Occupational Outlook Handbook
1986-87 edition
pages (218-220)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

COUNTER WORKER

orders in a restaurant specializing in fast service, takes the order and brings it to the counter for payment.

7858

319.467-010

05.09

5219

8-Hospitality & Recreation (F)

8-Hospitality & Recreation (S)

Food Services (F)

Food Services (S)

B
S

PERSONAL APTITUDES:

A Counter Worker will be able to learn quickly the routine of working fast, correctly and courteously.

In communication, a worker will be able to write clearly so others can understand.

In mathematics, businesses you will use simple math and add up checks for customers.

A Counter Worker will be able to handle medium to small food items and utensils while working in a confined space.

Interpersonal skills you will need to be able to work with people in a team setting.

Repeating the same tasks daily will help in this occupation.

- A Food Counter Worker will be able to work as a member of a team.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Food Counter Worker may take customers' orders.
- A Food Counter Worker may call out food orders to cooks and other kitchen help.
- Food Counter Workers may serve the completed food orders.
- Food Counter Workers may review orders for accuracy and cash checks.
- A Worker may prepare foods that can be completed in a short time such as drinks, ice cream dishes and salads.
- The Food Counter Worker may take payments and make change.
- A Food Counter Worker may also do odd jobs such as clean kitchen equipment, sweeping and mopping floors, and carrying out trash.

WAGES:

Hours per week	35-40
Average Wage (entry level)	\$3.69
Average Wage (all experience levels)	\$4.12
Average Range	\$3.57-\$4.50
	\$7,425-\$9,360

(Wages courtesy of Iowa Dept. of Employment Services.)



OCCUPATIONAL BRIEFS

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Phone (515) 28.*

SOURCES OF ADDITIONAL INFORMATION:

Primary Institute of America
Park
ork, NY 12538



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ed
Grimes State Off.
Des Moines, IA
Phone (515) 28.

FOREST TECHNICIAN

Forest Technicians provide information about the forest, helps control fires, keeps up recreation areas and answers questions about forests.

4128

452.364-010

03.01

572

12-Natural Resources & Environment (F)

12-Natural Resources & Environment (S)

Resource Regulation & Control (F)

Resource Regulation & Control (S)

B
ES

PERSONAL APTITUDES:

Forest Technician will be able to learn and understand the techniques and methods of protecting, replanting and caring for the trees.

Forest Technicians may be employed as an Occupational Therapist or Occupational Therapist Assistant in Iowa, a license is required. To become licensed, graduate from an occupational therapy educational program approved by The American Occupational Therapy Association, and successfully completed the certification examination administered by the American Occupational Therapy Association.

Forest Technicians who can pass on information easily by speaking or writing will be successful in this occupation.

Forest Technicians will be able to use math to keep inventories, measure and map.

- The ability to picture objects in relationship to other objects and the space they use will be important in this occupation.
- A Forest Technician will be able to pay attention to detail when working with both objects and written material.
- A Forest Technician will be able to move around easily, climb, stoop and reach.
- The ability to use feet, arms, hands and fingers to handle large and small objects, lifting up to 50 pounds will be important in this occupation.
- A Forest Technician will be able to tell one color from another.
- The ability to do many tasks in one day will be important in this occupation.
- A Forest Technician will be able to work with many different people in enforcing forest rules and regulations and cooperating with other employees.
- The ability to make decisions based on measurable facts will be important in this occupation.
- An interest in working with things using scientific and technical methods will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



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Department of Employment Services figures do not include
those who are self employed.

Employment may be with state government, federal government,
business firms, or private industry.

For more education, advancement may be to Forester (4124).

RELEVANT OCCUPATIONS:

Includes related military occupations.

RELATED OCCUPATIONS:

Forest Technician (2643)
Forest Technician (4164)
Forest Technician (4124)
Wildlife Observationist (2644)
Wildlife Observation Aide (4134)

EDUCATION AND TRAINING:

High school education or its equivalent is required to become a
Forest Technician.

Training may be done on the job.

Through the Society of American Foresters, completion of a
course leading to a technical degree in forestry is now
required for employment as a Forest Technician.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Basic Math Skills
- Agriculture
 - Agricultural Production
 - Agricultural Services
- Science
 - Biological Sciences

PROGRAMS OF STUDY AND TRAINING:

- 1030 - Horticulture
- 1036 - Turf Management
- 1301 - Renewable Natural Resources, General
- 1317 - Forestry Science
- 4901 - Biology, General

SOURCES OF ADDITIONAL INFORMATION:

- Department of Forestry
Iowa State University
251 Bessey Hall
Ames, IA 50011-1021
Telephone 515 294 1166
- Society of American Foresters
5400 Grosvenor Lane
Bethesda, MD 20814
- Society of Wood Science and Technology
P.O. Box 5062
Madison, WI 53705



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

FORESTER

manages, develops and protects forests and their resources including timber, water, wildlife preserves and recreational areas.

4124

040.061-034

03.01

1852

12-Natural Resources & Environment (F)

12-Natural Resources & Environment (S)

Resource Regulation & Control (F)

Resource Regulation & Control (S)

B
S

PERSONAL APTITUDES:

Forester will be able to learn, understand and direct the many tasks needed to protect, care for and restock forest land, animals and other resources.

Forester will give directions and information so others will understand and learn will be important in this occupation.

Forester will use math for things like estimating and recording the number of animals, trees and other resources.

Forester will picture objects in relationship to other objects and the space they occupy will be important in this occupation.

Forester will be able to pay attention to detail in both objects and tasks.

- A Forester will be able to handle loads not weighing more than 50 pounds. Good sight and hearing will help in this occupation.
- The ability to do many tasks in one day and to change from one task to another will be important in this occupation.
- The ability to plan entire activities and see that they are completed will be important in this occupation.
- A Forester will be able to work with many different people enforcing the rules and regulations, supervising camping and cooperating with other employees.
- An interest in working with things using scientific and technical skills will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Forester is responsible for the supervision, development and protection of wooded areas and other resources like animals, water, forage and recreation areas.
- A Forester may estimate figures for the standing timber and its growth.
- Foresters plan and supervise the pruning, cutting, selection and planting of trees.
- Foresters may, in addition, supervise the sale of trees and the processing, marketing and use of forest products.



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colleges require Forestry students to spend time in a field camp
encourage these students to seek summer jobs which offer first-
experiences in forest or conservation work.

Madison, WI 53705

- Occupational Outlook Handbook
1986-87 edition
pages (91-93)

COLLEGE HIGH SCHOOL SUBJECTS:

Biological Sciences
Chemistry
Agriculture
Agricultural Production
Agricultural Services

Basic Math Skills

DEGREE REQUIREMENTS AND TRAINING:

Forestry Science
Wildlife Management

SOURCES OF ADDITIONAL INFORMATION:

Department of Forestry
University
Forest Hall
011-1021
515 294-1166

American Foresters
Senior Lane
D 20014

Food Science Technology
12



OCCUPATIONAL BRIEFS

Career Information Service
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Grimes State Office
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Phone (515) 281-1234

FORKLIFT DRIVER

Operates various kinds of power trucks with hydraulic lifts which carry materials from place to place.

6158

921.683-050

06.04

8318

11-Marketing & Distribution (F)

10-Manufacturing (S)

Packaging & Delivery (F)

Raw Material & Supply (S)

PERSONAL APTITUDES:

Forklift Driver will be able to understand and follow spoken and written directions.

Ability to picture space to be used and the amount and kind of material that will fit in the space will be important in this occupation.

Forklift Driver will be able to use eyes, feet, arms, hands and fingers to control the directions of the machines.

Ability to reach and lift up to 50 pounds will be important in this occupation.

Ability to do the same task in the same way many times will be important in this occupation.

Forklift Driver will be able to complete tasks to meet a set schedule.

- An interest in working alone with things repeating the same many times will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Forklift Driver moves materials from place to place in a warehouse.
- A Forklift Driver operates self-powered trucks which are equipped with forks to lift with, tow bars and scoops.
- A Driver must learn to work the lifting mechanisms, foot pedals and hand levers on the forklifts.
- A Forklift Driver must learn to judge distances accurately.
- Forklift Drivers should become familiar with the industry regulations.
- A Forklift Driver also keeps records of the materials to be lifted, does some hand loading and unloading, and makes minor adjustments on the forklift.
- The Forklift Driver must use skill and care in driving in tight spaces, loading and removing materials from stock, and figuring out how materials should be stacked.
- A Forklift Driver may move around to different areas of the warehouse during one shift.



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(457-458)



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Career Information

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FORKLIFT MECHANIC

knowledge of engines and hydraulic systems, main-
and repairs industrial forklift trucks.

3145

620.281-050

05.05

6112

9-Maintenance and Repair (F)

10-Manufacturing (S)

Vehicle Maintenance (F)

Raw Material & Supply (S)

ESSENTIAL APTITUDES:

Forklift Mechanic will be able to learn and understand the princi-
maintenance of different forklifts.

Ability to follow written and spoken directions will be important
in this occupation.

Forklift Mechanic will be able to use shop math to figure dimen-
the amount of materials or parts needed.

Ability to picture a working forklift parts system by comparing
size and shape to identify and locate problems, will be
important in this occupation.

Forklift Mechanic will be able to use eyes, arms, hands and fingers
to handle small and large parts in cramped work space.

Ability to stoop, reach and lift up to 100 pounds will be important
in this occupation.

- A Forklift Mechanic will be able to do a variety of tasks.
- The ability to make decisions based on measurable facts is
important in this occupation.
- A Forklift Mechanic will be able to complete tasks to meet
standard.
- An interest in working alone with things and processes
will result that can be seen or recorded will help in this occupa-
tion.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Forklift Mechanics quickly fix anything that goes wrong
with a forklift.
- A Forklift Mechanic does what is called preventative main-
tenance by checking for loose or worn parts, changing the oil and
checking hydraulic fluids, gaskets and tires.
- The Forklift Mechanic should learn the industry's safety
rules.
- A Forklift Mechanic must have a good and complete work-
ing knowledge of gasoline, diesel and electric motors, hydraulic sys-
tems and general truck or tractor repair.
- Forklift Mechanics take apart, repair and completely re-
assemble the equipment and hoisting mechanism.
- A Forklift Mechanic may lubricate moving parts and drive
forklifts to test the repair work.



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Career Information S
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Phone (515) 28

FOUNDRY WORKER

one or more of the operations involved in making metal castings for things such as car parts, bathtubs, and electrical fixtures.

5426

519.687-022

06.04

8769

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

B
ES

PHYSICAL APTITUDES:

Foundry Worker will be able to use eyes, arms, hands and fingers to work with both large and small objects.

Strength to reach and lift up to 100 pounds will be important in this occupation.

Foundry Worker will be able to do the same task, the same way, every day.

Experience in working with things following a fixed process will help in this occupation.

Without special assistance, some physical requirements may be met on the job or at the work site or equipment.

OCCUPATION PROFILE:

- A Foundry Worker will work in metal-working industries such as iron, steel, aluminum, copper, magnesium and lead.
- The Foundry Worker will produce metal castings for machinery by preparing molds into which molten metal is poured to form the casting.
- A Patternmaker makes a wood, metal, plastic or even wax pattern of the shape of the casting desired.
- A Hand Molder makes molds by packing and ramming sand around the pattern.
- A Machine Molder runs the machine that makes molds for a large number of identical castings.
- A Coremaker shapes sand, prepared by a sand mixer, into cores (bodies of sand designed to create hollow spaces in castings).
- A Melter or Cupola Tender runs the furnace that melts metal.
- A Pourer pours the molten metal into the molds to make castings.
- A Shakeout person removes the castings from the molds.
- A Shotblastery runs the machine which cleans the castings by blasting them with air mixed with shot or grit.
- A Tumbler Operator controls the barrel that is filled with water and the castings. This method also removes sand, scale from castings.
- A Chipper and Grinder removes excess metal to finish the castings.



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PLANS OF STUDY AND TRAINING:

Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Company of Scrap Iron and Steel, Inc.
1000 North Street, N.W.
Washington, D.C. 20006



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Des Moines, IA
Phone (515) 28.

FUNERAL DIRECTOR

Manages and directs all aspects of a funeral; may be involved with embalming bodies for burial.

8282

187.167-030

11.11

1359

13-Personal Services (F)

13-Personal Services (S)

Special Human Services (F)

Special Human Services (S)

PERSONAL APTITUDES:

A Funeral Director will be able to learn the funeral and burial customs of different religious faiths. If an embalmer, a Funeral Director will be able to learn some principles of chemistry, biology and anatomy.

The ability to talk with and help people make reasonable plans in times of stress and sorrow will be important.

A Funeral Director will be able to picture the use of space available to provide the most pleasant setting possible following the wishes of each client.

The ability to pay attention to detail and fill out error free written forms and sheets will be important in this occupation.

A Funeral Director will be able to use eyes, arms, hands and fingers to handle both large and small objects.

- The ability to reach, hear, see and lift up to 50 pounds will be important in this occupation.
- A Funeral Director will be able to do many different tasks.
- The ability to plan and direct the activities of others will be important. Working with people in many different situations will be important in this occupation.
- A Funeral Director will be able to make decisions based on the client's feelings, the feelings of others and measurable facts.
- An interest in business contacts with people resulting in sales will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Funeral Director must be familiar with the funeral and burial customs of various religious faiths.
- The Funeral Director arranges for the body to be picked up and taken to the funeral home.
- The Funeral Director must obtain all the necessary life insurance information for the death certificate, is responsible for the completion of the death certificate with the doctor involved and its legal filing.
- Funeral Directors gather information for and write the obituary notice.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Four years of school in a college, university or junior college is required. A certain number of courses in English, natural science and mathematics are required by the state.

Applicants must be approved by the Funeral Director and Embalmer Examination Board. If approved, the applicant must study for one year at an approved college.

Written and oral tests must be passed before the applicant begins a one-year internship. The fee is \$5.00.

Funeral Directors and Embalmers must be licensed by the State Department of Health.

The license term is two years, expiring on June 30 of every odd-numbered year, and a \$60 Funeral Director renewal fee is required.

There is also a \$15 renewal fee for the funeral home each July.

HIGH SCHOOL SUBJECTS:

Language Skills
Math Skills
Education
Social Studies

PROGRAMS OF STUDY AND TRAINING:

- There were no training programs reported in Iowa for 1988-89. Contact the Director.

SOURCES OF ADDITIONAL INFORMATION

- National Funeral Directors Association
135 West Wells Street
Milwaukee, WI 53203
- Guide for Occupational Exploration
1984 edition
pages (566-568)



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ec
Grimes State Offi
Des Moines, IA
Phone (515) 281

GE COLLECTOR

ts refuse on a designated route within a municipi-
and dumps refuse from containers onto a truck.

6164

909.687-010

05.12

8722

12-Natural Resources & Environment (F)

14-Public Service (S)

Sanitation & Health (F)

Utilities & Services (S)

B
ES

AL APTITUDES:

e Collector will be able to move around and use hands and
andle large objects.

r to reach, stoop and sometimes lift over 100 pounds will be
in this occupation.

Collector will be able to do the same task in the same way
s during one day.

in working with things using a repeated process will help
pation.

ver assistance, some physical requirements may be met
nges to the work site or equipment.

OCCUPATION PROFILE:

- Garbage Collectors may work alone with little supervision.
- The Garbage Collector may drive the truck.
- A Garbage Collector may need to be able to make simple repairs.
- Garbage Collectors dump containers and/or refuse onto a
- Garbage Collectors collect refuse, empty cans or trash ba
- side or inside at a special place on the route.
- The Garbage Collector may start the lifting device that r
- refuse bin attached to the rear of the truck and dump the
- into the enclosed truck body.
- Garbage Collectors may pick up a full refuse container a
- empty container.

WAGES:

Hours per week	40
Average wage (entry level)	not available
Average wage (all experience levels)	\$7.25
Average range	\$6.60-\$8.45
	\$13,728-\$17,57

(Wages are national information.)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. of Economic Development
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

GENERAL OFFICE CLERK

maintains records, files, distributes mail and performs various other duties in all types and sizes of business and government agencies.

1418
219.362-010
07.01
463
2-Business & Office (F)
2-Business & Office (S)
Secretarial & Clerical (F)
Secretarial & Clerical (S)

B
ES

GENERAL APTITUDES:

General Office Clerk will be able to quickly learn to follow the office instructions with little supervision.

The ability to follow written and spoken instructions will be important in this occupation.

General Office Clerk will be able to use math for computation and accounting.

The ability to pay close attention to detail in written material and to read will be important in this occupation.

General Office Clerk will be able to use eyes, arms, hands and feet together to handle both small and medium objects.

The ability to reach, hear and see as well as handle loads under 10 pounds will be important in this occupation.

- The ability to do many tasks in one day will be important in this occupation.
- A General Office Clerk will be able to talk and work with people in many situations.
- A General Office Clerk will be able to complete tasks that meet the standard.
- An interest in sharing ideas with people in a business setting will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A General Office Clerk answers the telephone, keeps the cash counts and records the money received during the day, greets customers and may manage the office of a small business while the boss is gone.
- The General Office Clerk checks figures for arithmetic errors in files and records of work now being done, and/or takes telephone orders in a large company.
- General Office Clerks may learn about abstracts and how to use them for abstractors, may learn insurance terms and rates and how to type insurance forms for insurance agents.
- A General Office Clerk may learn to copy blueprints for a variety of other special tasks.
- This work may be done alone or with several others.



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of E
Grimes State Of
Des Moines, IA
Phone (515) 28

COLLEGE HIGH SCHOOL SUBJECTS:

Language Skills
Basic Math Skills
Civics Education
Languages
General Clerical
Secretarial/Typing

Washington, D.C. 20006

- Insurance Information Institute
110 William Street
New York, NY 10038
- Professional Secretaries International
301 East Armour Blvd
Kansas City, MO 64111-1299

WAYS OF STUDY AND TRAINING:

Bookkeeping
Secretarial
Word Processing
Tourism and Travel
Clerical
Receptionist/Communications Systems Operation
Word Processing

SOURCES OF ADDITIONAL INFORMATION:

Health Care Association
Street
Washington, D.C. 20005

Employees Association International
Central Avenue
60638

Secretariat Association
Washington Avenue, N.W.



OCCUPATIONAL BRIEFS

Career Information Series

Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

GENERAL PRACTITIONER

provides comprehensive medical services by diagnosing and treating disease and injuries, and also works to prevent illness by advising patients on self-care.

8112

070.101-022

02.03

261

6-Health (F)

6-Health (S)

Doctor (F)

Doctor (S)

BS

GENERAL APTITUDES:

A General Practitioner will be able to learn and understand the systems of the body as well as its chemistry.

The ability to understand difficult ideas and to explain those ideas to others who do not understand will be important in this occupation.

The ability to use math formulas for testing and prescribing will be important in this occupation.

A General Practitioner will be able to picture the systems and parts of the body in detail to compare and discover problems.

A General Practitioner will be able to pay close attention to detail in order to keep an exact record of an illness and treatment.

- The ability to use eyes, arms, hands, and fingers together in handling delicate instruments and in diagnosing by touch will be important in this occupation.
- A General Practitioner will be able to reach, hear and see, and will be able to handle loads under 10 pounds.
- The ability to tell one color from another will be important in this occupation.
- The ability to plan and direct the activities of others will be important in this occupation.
- A General Practitioner will be able to talk and work with people, as well as supervise their activities.
- A General Practitioner will be able to make decisions based on experience and measurable facts.
- An interest in working with people, using scientific and technical ideas which result in earning the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A General Practitioner attends a variety of medical cases in a medical practice.
- A General Practitioner may use a stethoscope, sphygmomanometer (instrument for measuring blood pressure) and other medical instruments.



OCCUPATIONAL BRIEFS

Career Information
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ED OCCUPATIONS:

t (8172)
al Specialist (8142)
athic Physician (8118)
an Assistant (8121)

ATION AND TRAINING:

is required to practice as a General Practitioner in all states
District of Columbia.

to qualify for a Doctor of Medicine (M.D.) license, a candidate
duate from an approved school of medicine, pass a licensing
tion, and in many states including Iowa, serve one year of
nternship.

to practice surgery or a specialty for M.D.s and D.O.s
dditional training, a period of residency and an additional
on.

he minimum requirement for entrance into schools of
r Osteopathy is three years of college education including
chemistry, physics, biology and English, many of the
to these schools complete a Baccalaureate degree.

rofessional program for Physicians lasts four years with
o years emphasizing the basic sciences such as anatomy,
pathology, etc.

y years are devoted primarily to work in hospitals and
the supervision of experienced General Practitioners.
s learn to take case histories, perform examinations and
ases.

- Most new General Practitioners acquire training beyo
one-year hospital internship. Those who plan to be Ge
tioners or 'family doctors' often spend one or two addi
interns or residents in hospitals.
- Specialty areas require two to four years, depending o
in advanced hospital training, followed by two years o
practice in the area.
- Some General Practitioners who want to teach or do res
graduate work leading to the Master's or Ph.D. degree i
a biochemistry or microbiology.

HELPFUL HIGH SCHOOL SUBJECTS:

Health & Physical Education

- Health
- Science
- Biological Sciences
- Chemistry
- Physics

PROGRAMS OF STUDY AND TRAINING:

- 3630 - Medicine
- 3668 - Osteopathic Medicine

SOURCES OF ADDITIONAL INFORMATION

- American Medical Association
535 N. Dearborn Street
Chicago, IL 60610
- Occupational Outlook Handbook



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ec
Grimes State Offi
Des Moines, IA
Phone (515) 281

GIST

es the make-up, structure and history of the
's crust for use in the construction, petroleum and
g industries.

2635

024.061-018

02.01

1847

12-Natural Resources & Environment (F)

12-Natural Resources & Environment (S)

Research (F)

Research (S)

B
ES

AL APTITUDES:

st will be able to learn and understand the scientific meth-
lying the formations, processes and history of the earth.

to understand technical language and ex-plain that lan-
spoken or written form so others can understand will be
in this occupation.

will be able to use basic math as well as advanced math
ntific research.

o picture a whole system, such as ocean tides, and its
to other systems will be important in this occupation.

will be able to see very small differences in size, shape

- An ability to pay attention to detail in written work to correct errors will be important in this occupation.
- A Geologist will be able to move around easily even in using hands to handle small and large equipment.
- An ability to reach, see and lift up to 10 pounds will be this occupation.
- An ability to change from task to task many times in or important in this occupation.
- A Geologist will be able to plan and direct the work of ot
- An ability to make decisions based on experience and me will be important in this occupation.
- A Geologist will be able to complete tasks to meet a set s
- An interest in scientific work involving things rather tha be important in this occupation.
- With employer assistance, some physical requirements m through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Geologist does research and study on what the earth is how it got that way, and when it happened.
- Geologists may search for raw materials such as water, chemicals and energy sources to meet personal and indus



OCCUPATIONAL BRIEFS

Career Information
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Grimes State O,
Des Moines, Ia
Phone (515) 28

ARY OCCUPATIONS:

ce and Laboratory Occupations (26000) See Engineering, Sci-
and Technical Occupations in the Military Career Guide
1989 page 76.

ED OCCUPATIONS:

ientist (2611)
ologist (2633)
l Scientist (2624)
ity/College Teacher (8454)

ATION AND TRAINING:

or's degree is the minimum requirement for a beginning
ial Geologist or a specialty.

ced degree is helpful for promotion in many types of work
sary in other fields.

al jobs in teaching and research require Masters level or
l graduate work.

ogists will almost always require a Ph.D.

HIGH SCHOOL SUBJECTS:

l/Geometry
ed Math
s
hy

Science

- Chemistry
- Physics
- Earth/Space Sciences

PROGRAMS OF STUDY AND TRAINING:

- 6712 - Geology

SOURCES OF ADDITIONAL INFORMATION:

- American Association of Petroleum Geologists
Box 979
1444 S. Boulder Avenue
Tulsa, OK 74101
- Occupational Outlook Handbook
1986-87 edition
pages (82-83)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. of Economic Development
Grimes State Office Building
Des Moines, IA
Phone (515) 281-1234

DESCRIPTION:
fits and installs glass and/or similar materials in place of glass in windows, walls and doors.

4248

865.381-010

05.10

6464

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

PERSONAL APTITUDES:

will be able to learn the methods of installing different glass and glass products.

will be able to picture the space to be used and what material will fit in that space will be important in this occupation.

will be able to compare and see slight differences in size and shape of objects important in this occupation.

will be able to use eyes, arms, hands and fingers together to assemble broken materials.

will be able to climb, reach, stoop and see as well as lift up to 100 pounds.

many of the different tasks in one day will be important in this occupation.

- The ability to make decisions based on measurable facts is important in this occupation.
- A Glazier will be able to complete tasks to meet a set list of requirements.
- An interest in working alone with processes resulting in products that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Glaziers fit and install plate glass, ordinary window glass and special effects.
- A Glazier may need to read blueprints.
- Glaziers construct and install a variety of glass and glass products with a variety of different methods to have a water-tight installation.
- Glaziers also construct, assemble and install framing panels of less steel or aluminum into which the glass will be installed.
- Glaziers build, assemble and install commercial entrance doors either the manual or automatic type.
- Glaziers work for a contracting company in the construction of a factory that manufactures windows and/or doors.
- A Glazier also installs structural glass which is used to do building fronts, walls and ceilings.



OCCUPATIONAL BRIEFS

Career Information S
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Des Moines, IA
Phone (515) 281

ED OCCUPATIONS:

yer (4264)
ter (4254)
(4242)
lason (4247)

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (389-391)

ATION AND TRAINING:

ional Joint Glazier and Glassworker Apprenticeship Commit-
mends a four-year apprenticeship.

ts must be 18 and have a high school diploma or equivalent.

n instruction is given on tools, machines, materials, safety
, first aid, blueprint reading and scaffolding.

y learn the trade informally on the job by assisting exper-
kers.

HIGH SCHOOL SUBJECTS:

ysics
Education
uction & Maintenance

S OF STUDY AND TRAINING:

nticeship



OCCUPATIONAL BRIEFS

Career Information S
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Des Moines, IA
Phone (515) 28.

ELEVATOR SUPERINTENDENT

vises and organizes all of the activities and does s like inspect grain and write orders.

1156

529.137-022

06.01

71

11-Marketing & Distribution (F)

1-Agriculture/Agribusiness (S)

Management & Research (F)

Sales & Delivery (S)

- Being able to get along well with people in many differ situations is important in this occupation.
- The ability to perform duties according to set standard in this occupation.
- An interest in working with things, machines and peopl contacts will be helpful in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Grain Elevator Superintendent must inspect samples the elevator receives to see that it matches the shipping then choose a storage bin that matches the variety and content of the grain.
- Grain Elevator Superintendents give orders to the train them in switching trains that move grain and watch the elevators and conveyers move the grain to the storage ta
- The Grain Elevator Superintendent inspects grain for cle and supervises the preparation of the grain for grinding.
- The Grain Elevator Superintendent must keep the elevat possible from the dangers of fire, accidents and other haz
- Grain Elevator Superintendents buy and sell grain, keep customers' grain, costs of grinding and storage of grain a made to the elevator.

AL APTITUDES:

Elevator Superintendent will be able to judge grain quality, elevator operations and safety rules.

to pass on the information learned to other workers by talking or writing will be important.

Elevator Superintendent will be able to use math to keep and work employee, storage and sales records with few errors.

to climb, reach, stoop and handle at least 10 pound loads important in this occupation.

to do a variety of tasks will be important in this occupa-

Elevator Superintendent will be able to plan, direct and tire activity involving other workers.



OCCUPATIONAL BRIEFS

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Phone (515) 28

GRAPHIC DESIGNER

prepares the artwork for newspapers, magazines, billboards, brochures and catalogs by beginning with an idea and drawing it.

4724

141.061-022

01.02

325

3-Communications & Media (F)

11-Marketing & Distribution (S)

Advertising/Public Relations (F)

Public Relations & Advertising (S)

PERSONAL APTITUDES:

A Graphic Designer will be able to learn the principles of design and how line and color can influence attitudes and feelings.

The ability to understand spoken and written ideas and turn those into drawings will be important in this occupation.

A Graphic Designer will use math to measure and figure dimensions.

The ability to picture a finished product from a rough sketch, drawing and shading will be important in this occupation.

A Graphic Designer will pay close attention to detail in objects, drawings and written materials.

The ability to use eyes, arms, hands and fingers to draw, paste, cut and glue materials will be very important in this occupation.

- A Graphic Designer will be able to tell one color from another and know the effect of color on moods, feelings and attitudes.
- A Graphic Designer will be able to sit for long periods of time and reach and to hear.
- The ability to make decisions based on experience and the feelings and the feelings of others will be important in this occupation.
- An interest in sharing ideas with others and working with things that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Graphic Designer may work on newspaper and magazine, booklets, folders, T.V. commercials, billboards, displays, labels and other printed materials.
- Specialization may be in certain areas such as computer graphics, illustrating, or designing for advertisement, book or magazine illustrations.
- Estimating the amount of time needed to complete a project.
- A Graphic Designer may work as a designer, illustrator or artist.
- A Graphic Designer will work with customer's ideas to develop a rough layout which shows what the finished artwork will be.



OCCUPATIONAL BRIEFS

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EDUCATION AND TRAINING:

High school education or its equivalent is usually required.

Community colleges or institutes offer programs for persons interested in commercial and applied art.

Advanced degrees in art & design are becoming increasingly emphasized especially for advancement.

A degree in Commercial Art may be received from high school vocational programs and experience on the job.

Community, technical or vocational schools offer commercial art education.

Education in computer graphics is becoming more important in this field.

Training beyond high school usually is needed for advancement.

HIGH SCHOOL SUBJECTS:

Arts & Crafts
Education
Commercial Art/Photography/Graphic art

PROGRAMS OF STUDY AND TRAINING:

- 2002 - Fashion Merchandising
- 3727 - Textiles and Clothing
- 3728 - Fashion Design
- 7709 - Commercial Art
- 8011 - Graphic Design
- 8024 - Fine Arts, General

SOURCES OF ADDITIONAL INFORMATION

- American Association of Advertising Agencies
666 3rd Avenue
New York, NY 10017
- National Association of Trade and Technical Schools
2251 Wisconsin Ave.
Washington, D.C. 20007
- Occupational Outlook Handbook
1986-87 edition
pages (221-223)



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of E
Grimes State Off
Des Moines, IA
Phone (515) 28

GRASS MAINTENANCE WORKER

responsible for and maintains lawns, trees, shrubbery and flower beds and may maintain fences, gates, walls and structures on the grounds.

4143

406.684-014

03.04

5622

9-Maintenance & Repair (F)

12-Natural Resources & Environment (S)

Building Materials (F)

Environmental Planning (S)

PERSONAL APTITUDES:

Grass maintenance worker will be able to learn ways of caring for different types of lawns, gardens and sports areas.

Grass maintenance worker will be able to picture the way something will look and make it look that way. This will be important in this occupation.

Grass maintenance worker will be able to use hands to handle machine controls and to handle medium objects.

Grass maintenance worker will be able to climb, reach and stoop, as well as lift 50 pounds will be important in this occupation.

Grass maintenance worker will be able to do the same task the same way every time in one day.

Grass maintenance worker will be able to complete tasks to meet a set schedule.

- An interest in working with things and repeating procedures in this occupation.
- With employer assistance, some physical requirements may be necessary through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Groundskeeper cares for and maintains grounds, trees, lawns, gardens, shrubbery or other greenery.
- A Groundskeeper must be familiar with the life cycles of insects, weeds, etc. to control their spread.
- Groundskeepers must be innovative to be able to correct problems easily, quickly and economically.
- The Groundskeeper must be able to direct employees in a proper manner.
- A Groundskeeper will be familiar with basic budgeting, and cost accounting procedures.
- Keeping the equipment in good working condition will be important in this occupation.
- A Groundskeeper must know the water needs of plants and know how to use an irrigation system which would meet those needs.
- A Groundskeeper must have the ability learn new skills and be able to easily adapt to different equipment, greenery, and procedures.
- The Groundskeeper is responsible for keeping ice and snow off sidewalks, steps and driveways in the winter.



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Career Information S
Iowa Dept. Of Ed
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Des Moines, IA
Phone (515) 28.

Professional Grounds Management Society recommends ten
of on-the-job training; eight years of experience and a certificate
m; six years of experience and an associate degree; or a
or's of Science with four years of experience to achieve ad-
ment to management.

IL HIGH SCHOOL SUBJECTS:

ure
gricultural Production

MS OF STUDY AND TRAINING:

orticulture
urf Management
ilding Maintenance

OF ADDITIONAL INFORMATION:

Association of Nurserymen
eet, Suite 500
n, D.C. 20005

Institute
e Road, P.O. Box 108
le, Tennessee 38578-0108



OCCUPATIONAL BRIEFS

Career Information
Iowa Dept. Of E
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Des Moines, IA
Phone (515) 28

HEATING/COOLING MECHANIC

installs, services and repairs home and commercial heating units, air conditioning and refrigeration equipment.

3146

637.261-014

05.05

616

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Building Maintenance (F)

Building Maintenance (S)

PERSONAL APTITUDES:

A Heating/Cooling Mechanic will be able to learn, understand and use the principles of heating and cooling.

The ability to follow spoken, written and drawn instructions will be important in this occupation.

A Heating/Cooling Mechanic will be able to use math to measure and use scales and dials.

The ability to picture three-dimensional objects in detail and their relationship to other objects will be important in this occupation.

A Heating/Cooling Mechanic will be able to move around and use their hands and fingers together to handle small to large objects.

- The ability to climb, stoop, reach as well as be able to lift heavy objects over 100 pounds will be important in this occupation.
- A Heating/Cooling Mechanic will be able to do many different tasks in one day, changing tasks often.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Heating/Cooling Mechanic will be able to complete tasks to a set standard.
- An interest in working with processes that produce something that can be seen and felt will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Heating/Cooling Mechanic may work on many kinds of heating and cooling equipment.
- A Heating/Cooling Mechanic may install and repair furnaces and boilers of many types.
- Heating/Cooling Mechanics use blueprints to assemble and install units.
- A Commercial Mechanic installs, services and repairs heating and air conditioning units such as those found in office buildings, department stores and other places of business.



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Des Moines, IA
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ED OCCUPATIONS:

nce Repairer (3169)
ian (5626)
Machine Servicer (3164)
r/Pipefitter (4274)

ATION AND TRAINING:

chool diploma or its equivalent is needed.
eating/Cooling Mechanics learn their trade as apprentices.
stallations can be learned on the job.
nce service requires special training.
at a community college in heating and cooling systems is
ul.

HIGH SCHOOL SUBJECTS:

Education
onditioning & Refrigeration
nce Repair/Small Engine Repair
uction
y & Power Systems
t Services

Math Skills
Technology

PROGRAMS OF STUDY AND TRAINING:

- 3223 - Solar Heating and Cooling Technology
- 7522 - Plumbing, Pipefitting and Steam Fitting
- 7611 - Heating and Air Conditioning
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Mechanical Contractors Association of America, Inc.
5410 Grosvenor Lane
Suite 120
Bethesda MD. 20814
- National Assoc. Plumbing-Heating-Cooling Contractors
P.O. Box 6808
Falls, Church, VA 22046
- Occupational Outlook Handbook
1986-87 edition
pages (364-365)



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Des Moines, IA
Phone (515) 28

HEAVY EQUIPMENT MECHANIC

Assembles, repairs, rebuilds and maintains trucks and other heavy equipment such as bulldozers and cranes by using many instruments, tools and shop machines.

3114

620.261-022

05.05

6117

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Vehicle Maintenance (F)

Vehicle Maintenance (S)

FB
ES

PHYSICAL ABILITIES:

Heavy Equipment Mechanic will be able to learn, understand and apply the principles of the diesel engine and general construction equipment maintenance and repair.

Heavy Equipment Mechanic will be able to follow spoken, written and drawn instructions will be able to do so in this occupation.

Heavy Equipment Mechanic will be able to use math and shop equipment to figure dimensions and materials needed.

Heavy Equipment Mechanic will be able to picture three-dimensional objects and their relationships. Spatial concepts will be important in this occupation.

Heavy Equipment Mechanic will be able to move around, stoop and

- The ability to use eyes, arms, hands and fingers will be necessary to do this job.
- A Heavy Equipment Mechanic will be able to stoop, reach and lift up to 100 pounds or more.
- The ability to do many different tasks in one day will be necessary in this occupation.
- A Heavy Equipment Mechanic will be able to make decisions based on measurable facts.
- A Heavy Equipment Mechanic will be able to complete tasks to meet set standards.
- An interest in working alone with things using processes and tools something that can be seen or touched will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Heavy Equipment Mechanics may repair diesel engines and other transportation equipment, construction equipment, cranes and other heavy machinery.
- A Heavy Equipment Mechanic should have a good knowledge of engines, transmissions, brakes, clutches, engines, hydraulic and electrical systems.
- A complete check to test for problems and diagnose problems. To decide on the necessary repairs will be part of this occupation.



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ED OCCUPATIONS:

Mechanic (3112)
t Mechanic (3145)
Equipment Operator (6151)
ial Maintenance Mechanic (3144)

SOURCES OF ADDITIONAL INFORMATIC

- International Association of Machinists and Aerospace Workers
1300 Connecticut Avenue, N.W.
Washington, D.C. 20036

RATION AND TRAINING:

school diploma or the equivalent is desirable.
al-technical schools and community colleges offer training in
echanics.
pation may be learned through an apprenticeship program
o four years. This program usually includes 8,000 hours of
ing and at least 576 hours of classroom instruction.

HIGH SCHOOL SUBJECTS:

Education
omotive Services & Diesel
gy & Power Systems
ict Services
of Technology

S OF STUDY AND TRAINING:

cultural Power Machinery
strial Machinery Maintenance and Repair
l Engine Mechanics
ruction Equipment Operator
enticeship



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HEAVY EQUIPMENT OPERATOR

inspects, repairs and maintains construction machinery such as cranes, bulldozers and derricks.

6151

859.683-010

05.11

8312

4-Construction (F)

4-Construction (S)

Heavy Equipment Operating (F)

Heavy Equipment Operating (S)

PERSONAL APTITUDES:

Equipment Operator will be able to learn, understand and apply principles each different machine uses in accomplishing its job.

Ability to understand and follow spoken, written and hand signals will be important in this occupation.

Equipment Operator will be able to use basic math in record keeping and in estimating reserves of fuel, oil and parts.

Equipment Operator will be able to judge distances.

Ability to move eyes, hands and feet together to control movement of equipment will be important in this occupation.

Ability to reach and stoop as well as handle loads up to 50 pounds will be important in this occupation.

- A Heavy Equipment Operator will be able to do many tasks in one day.
- A Heavy Equipment Operator will be able to make decisions based on experience as well as measurable facts.
- The ability to complete tasks that meet a set standard is very important in this occupation.
- An interest in working alone with things using processes and in something that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Heavy Equipment Operator must know how to operate and maintain machinery and equipment.
- A Heavy Equipment Operator may sometimes operate with only hand or flag signals from another worker for control.
- Heavy Equipment Operators use different pedals and levers to control the crane on its chassis.
- A Heavy Equipment Operator develops a knowledge of the characteristics of dry and wet soil to avoid excess strain on the machine.
- A Heavy Equipment Operator may use the buckets, pile drivers and wrecking balls on the crane boom for special jobs.



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ed
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Des Moines, IA
Phone (515) 28.

EDUCATION AND TRAINING:

Most is learned by on-the-job training or apprenticeship programs.

On-the-job training can begin while you are still in high school.

Full-time and part-time jobs will give you experience.

Apprenticeship programs usually last three years. Training may be in the operation and maintenance of hoists, shovels, cranes and other heavy equipment, plus related classroom instruction in blueprint reading, electricity, welding and automotive servicing.

Apprenticeship programs require trainees to have a high school diploma.

Additional college courses in truck driving and construction equipment operation would be very helpful toward employment.

HIGH SCHOOL SUBJECTS:

Education
Transportation

DURATION OF STUDY AND TRAINING:

Construction Equipment Operation

SOURCES OF ADDITIONAL INFORMATION:

National Association of Machinists and
Aerospace Workers
1400 Connecticut Avenue, N.W.
Washington, D.C. 20036

- National Association of Trade and Technical Schools
2251 Wisconsin Ave.
Washington, D.C. 20007
- Occupational Outlook Handbook
1986-87 edition
pages (455-457)



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Phone (515) 28

7AY MAINTENANCE WORKER

s the highway and roads in safe condition by con-
ting and maintaining signs, guard-rails or other
ers May also operate snow removal equipment.

4282

899.684-014

05.12

871

9-Maintenance & Repair

15-Transportation

Highway Transportation (F)

Highway Transportation (S)

AL APTITUDES:

ty Maintenance Worker will be able to learn work and
t operating practices for each type of road or highway
d.

ne same tasks will be repeated many times in this occupa-

r Maintenance Worker will be able to complete tasks to
standard.

in processes that are repeated many times will help in
ion.

Maintenance Worker will be able to lift up to 50 pounds
rry 25 pounds.

- There will be stooping, reaching, normal hearing and
for this occupation.

OCCUPATION PROFILE:

- A Highway Maintenance worker may build guardrails,
ferent kinds of highway markers.
- An ability to use hand and power tools will be importan
occupation.
- A Highway Maintenance worker may dump, spread, an
phalt to patch broken pavement.
- An ability to drive trucks, snow removal equipment and
machines will be important in this occupation.
- A Highway Maintenance worker may begin by doing sir
such as unloading trucks and doing some ditch digging v
tools.

WAGES:

Hours per week	40
Average wage (entry level)	\$4.93
Average wage (all experience levels)	\$6.62
Average range	\$4.93-\$8.95
	\$10,254-\$18,6

(Wage information from national information.)



OCCUPATIONAL BRIEFS

Career Information
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234*

HISTOLOGIC TECHNICIAN

Assists the doctor in a hospital or laboratory by cutting and staining tissue samples with dye in preparation for microscopic examination.

2662
078.361-030
02.04
362
6-Health (F)
6-Health (S)
Health Technicians (F)
Health Technicians (S)

PERSONAL APTITUDES:

A Histologic Technician will be able to learn, understand and use laboratory methods to perform tests in chemistry, biology and physics.

Reading, understanding, speaking and writing using scientific and mathematical languages and symbols will be important in this occupation.

A Histologic Technician will be able to use math formulas needed to work in the fields of chemistry, biology and physics.

The ability to recognize slight differences in the size, shape and color of objects will be important in this occupation.

A Histologic Technician will be able to pay attention to detail in order to obtain accurate information to avoid or correct errors.

- A Histologic Technician will be able to use eyes, hands and fingers together to handle delicate equipment for exact test results.
- An ability to reach and see, as well as handle loads up to 25 pounds, will be important in this occupation.
- A Histologic Technician will be able to do many different tasks every day.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Histologic Technician will be able to complete tasks to meet established standards.
- An interest in scientific or technical work using processes and machines will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Histologic Technician works most of the day inside the laboratory.
- A Histologic Technician will move around in the lab to operate different machines.
- A Histologic Technician may make several trips daily in a hospital to pick up tissue samples from surgery.
- Histologic Technicians must be familiar with medical terminology.
- A Histologic Technician prepares the tissue sample for study by the pathologist.



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RELATED OCCUPATIONS:

Medical Lab Assistant (2659)
Medical Technologist (2652)
Histology Technician Assistant (8121)

EDUCATION AND TRAINING:

High school education or its equivalent is required.
Hospitals give specialized training in histologic technology.
Training lasts 12 months and includes much lab work.
Graduates of AMA accredited schools may take an exam to qualify for certification.
All schools require a year's training in an American Medical Association approved school of technology before entering histologic technology training.

HIGH SCHOOL SUBJECTS:

Biological Sciences
Chemistry
Math/Geometry
Medical-Dental Technology

LEVELS OF STUDY AND TRAINING:

Medical Laboratory Technology

SOURCES OF ADDITIONAL INFORMATION:

- American Medical Association
535 North Dearborn Street
Chicago, IL 60610
- American Society For Medical Technology
3 Metro Center, Suite 750
Bethesda, MD 20814
- American Society of Clinical Pathologists
2100 West Harrison Street
Chicago, IL 60612
- National Society for Histotechnology
5900 Princess Garden Parkway, Suite 805
Lanham, MD 20706
- Occupational Outlook Handbook
1984-85 edition
pages (138-140)



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of E
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Des Moines, IA
Phone (515) 28

ECONOMIST

s to improve products, services and ractices that
t the comfort and well-being of the family.

8472

096.121-014

11.02

239

7-Home Economics (F)

7-Home Economics (S)

Consumer Management (F)

Consumer Management (S)

AL APTITUDES:

Economist will be able to learn the principles of different
h as consumer education.

important to be able to present these principles to others in
n and written form.

conomist will be able to use basic math with few errors.

conomist will be able to work in many areas. In some
will be able to:

ships in one object to another.

objects or tables to conduct accurate tests of products.

hands and arms together to handle both small and large
ing under 10 pounds will be important.

- Normal reach, sight and hearing will help in this occu
- A Home Economist will be able to be flexible and adjus
different conditions.
- It is important to be able to take responsibility for plan
that affect people of different income levels and backgr
- A Home Economist will be able to work under pressure.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Home Economics occupations include the following clust
 - Administrators and Managers: people with skill an
in a Home Economics field along with managerial a
istrative skills. Examples of positions in this cluste
Financial Consultant, Administrative Analyst, Fan
Center Director, Marketing Manager, Hotel Caterin
and Housing Manager.
 - Design, Manufacturing and Processing Specialists:
concerned with developing and applying new techn
knowledge to increase product performance, lower
costs and satisfy production standards. This may in
areas of toys, household equipment and furnishings
of the unique purchasing wants and needs of specia
society such as the disabled, elderly, ethnic groups
parent families is increasingly important. Example
in this cluster area are, Meat Specialist, Commerci
Health Inspector, Material Analyst, and Furniture



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By 1990 the average annual supply of U.S. college graduates is expected to be 7,035 individuals short of meeting the demand for individuals trained in Home Economics and related fields, according to a USDA study.

PRIMARY OCCUPATIONS:

Selected military occupations.

SECONDARY OCCUPATIONS:

Teacher (1634)
Counselor (7842)
Child-Care Worker (8449)
Manager (1638)
(8136)
Retail Manager (1132)
Designer (2377)
Teacher (1636)
Consumer's Representative (7414)
Administrator/Official (1138)
Communications Specialist (1195)
Control Technician (2673)
Plant Manager (1131)
Sales Manager (1149)

PREPARATION AND TRAINING:

- Most entry level jobs in Home Economics require a Bachelor's degree in Home Economics.
- Teaching at the college or university level requires a Master's or Doctor's (Ph.D.) degree.
- As a Home Economics major, you will study sciences as well as specialized courses in Home Economics. At the college level you will have the opportunity to do additional work in order to open up more job possibilities.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Speech
- Social Studies
 - Sociology
- Math
 - Basic Math Skills
- Home Economics
 - Food Management
 - Clothing, Textiles, Home Furnishings
 - Institutional & Home Management
- Science
 - Chemistry

PROGRAMS OF STUDY AND TRAINING:

- 2941 - Secondary Education
- 3701 - Economics, General
- 3703 - Family and Community Services
- 3712 - Food/Food Science



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HEALTH AIDE

works in the homes of people who require help with
personal needs.

8158

354.377-014

10.03

5236

7-Home Economics (F)

7-Home Economics (S)

Family Management & Child Care (F)

Family Management & Child Care (S)

PERSONAL APTITUDES:

Health Aide will be able to learn and use basic nursing and
cleaning skills.

It is important to be able to speak and write to express the needs
and reports on care given.

Health Aide will be able to do both medium and light
work. The aide will be able to handle small objects as in the
handling of food and large objects as in helping a bed patient turn.

Strength and endurance to be able to assist disabled people
is important in this occupation.

Ability to accomplish many different tasks will help in this

- A Home Health Aide will be able to have a warm, sincere attitude towards people including those who are ill and depressed.
- Being able to make decisions alone concerning the care of the people will be important in this occupation.
- An interest in helping others as a result of work will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Home Health Aides go into homes of people who have special needs.
- A Home Health Aide will do all of the homemaking services for the household head or for those unable to maintain their own home.
- Home Health Aides help temporarily or permanently handicapped family heads find new ways of running a home.
- A Home Health Aide may purchase, prepare and serve meals for the patient and other family members.
- Home Health Aides give support and encouragement to the patient and to any family members who may be living in the home.
- The Home Health Aide must be able to change bed linens, wash laundry, do light housekeeping and make the home a safe and comfortable environment.



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Phone (515) 28.

ARY OCCUPATIONS:

ated military occupations.

ED OCCUPATIONS:

aycare Worker (8449)
d Practical Nurse (8164)
aide/Orderly (8166)
Therapy Attendant (8153)
Day Care Worker

ATION AND TRAINING:

chool education or its equivalent is preferred by most employ-

l health training opens up more chances for advancement.

ancies offer training courses of their own.

regular in-service training is usually required.

ancies require previous training as a nurse's aide.

HIGH SCHOOL SUBJECTS:

1g Care
omics
ner & Homemaking
tional & Home Management

PROGRAMS OF STUDY AND TRAINING:

- 3703 - Family and Community Services
- 3713 - Dietetics/Human Nutritional Services
- 3849 - Homemaker Aide
- 7202 - Community Services

SOURCES OF ADDITIONAL INFORMATION

- National Council for Homemaker/Health Aide Service, I
67 Irving Place 6th Floor
New YHork, NY 10003.
- National Health Council, Inc.
622 3rd Ave., 34th Floor
New York, NY 10017-6765
- Guide for Occupational Exploration
1984 edition
pages (519-521)



OCCUPATIONAL BRIEFS

Career Information S
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Grimes State Offi
Des Moines, IA
Phone (515) 281

SHOER

s and/or makes metal shoes and fits, shapes and shoes to animals' hooves.

5489

418.381-010

03.03

5624

13-Personal Services (F)

13-Personal Services (S)

Domestic Animal Care (F)

Domestic Animal Care (S)

- An interest in working with things using processes and help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- Horseshoers use a wide assortment of tools, most opera few are machine operated.
- Some Horseshoers reshape and apply machine made sho make (forge) the shoe from metal bar stock, especially in ment of injured horses or for 'gauled' horses requiring sl ferent weights and balances.
- A Horseshoer must know and understand the anatomy o and the need and/or the result of the work done.
- The Horseshoer must be able to read radiographs and be with medical terminology to be able to work with the Ve
- One must be able to handle the horse.
- A Horseshoer may examine the hoof to detect bruises, cr amount of trimming necessary.
- The Horseshoer selects shoes according to hoof measure animal usage.
- A Horseshoer keeps records of expenses, sales and other activities.
- A Horseshoer may be called a farrier or blacksmith.

AL APTITUDES:

hoer will be able to learn the characteristics of a horse's hoof materials that are used.

to picture the finished product will be important in this

oer will be able to see slight differences in shapes and sizes.

oer will be able to use eyes, hands and fingers at the same idle objects.

to stoop, reach, see and handle loads up to 50 pounds will it in this occupation.

er will be able to make decisions based on measurable

er will be able to complete tasks to meet a set standard.



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Phone (515) 28.

PLANS OF STUDY AND TRAINING:

ing for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:

American Horse Council
St. N.W.
Washington, D.C. 20006

Center for Occupational Exploration
Washington, D.C.
(202) 777-5800



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
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Phone (515) 281-1234

HOSPITAL ADMINISTRATOR

Plans and coordinates the activities of the hospital and is responsible for the hospital's personnel, facilities, finances and services.

1134

187.117-010

11.07

121

6-Health (F)

6-Health (S)

Health Care Administration (F)

Health Care Administration (S)

B
ES

PERSONAL APTITUDES:

A Hospital Administrator will be able to learn and understand the operation of the institution so good program planning and policy can be done.

The ability to understand technical and financial language, government systems and third party relationships is important in this occupation.

A Hospital Administrator will be able to use math skills to interpret measurements and statistics.

The ability to pay attention to detail in written information in reading and writing information about the current health care will be important in this occupation.

A Hospital Administrator will sit for long periods of time and sometimes lift loads up to 10 pounds.

- The ability to deal with many different tasks during the day is important in this occupation.
- A Hospital Administrator will be able to coordinate the activities of others.
- The ability to work with all kinds of people will be important in this occupation.
- A Hospital Administrator will be able to make judgment calls based on experience.
- An interest in business contacts, communicating ideas and a desire for opportunity to earn the respect of others will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Hospital Administrator directs the many activities of the hospital. The kind and range of activities will depend on the size of the hospital.
- The Hospital Administrator coordinates many administrative activities with the medical staff.
- Hospital Administrators consult regularly with the professional staff to insure they can efficiently operate their respective departments.
- The Hospital Administrator prepares and administers the budget, including the set up of accounting procedures.



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ancement for Hospital Administrators usually means moving to a hospital with more responsibility and higher pay.

PRIMARY OCCUPATIONS:

Services Administrators (11340)
Management Analysts (11001) See Health Services Administrators
11340 and Management Analysts page 256 in the Military Career
Information Handbook 1988-1989.

SECONDARY OCCUPATIONS:

Medical Administrator (1136)
Nurse Practitioner (8112)
Home Administrator (1135)
Hospital Administrator (1186)

EDUCATION AND TRAINING:

In a program in Hospital Administration, applicants must have a Bachelor's degree.

Administration programs usually last about two years with typically one year spent in academic study and about one year as an administrative resident at an approved hospital under the supervision of the chief administrator. The successful completion of the program will yield a Master's degree in Hospital Administration.

Work experience gained in a hospital would be beneficial.

Advanced degrees are usually required for teaching and research.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Social Sciences
 - Sociology
- Math
 - Basic Math Skills
- Health & Physical Education
 - Health

PROGRAMS OF STUDY AND TRAINING:

- 3624 - Health Care Administration

SOURCES OF ADDITIONAL INFORMATION:

- American Health Care Association
1200 15th Street NW
Washington, D.C. 20005
- Association of University Programs in Health Administration
1911 North Fort Myer Drive
Arlington, VA 22209
- American College of Health Care Administrators
4650 E. West Highway, Box 5890
Bethesda, MD 20814
- Occupational Outlook Handbook
1986-87 edition
pages (28-32)



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Career Information Service
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HOSPITAL SUPPLY TECHNICIAN

Responsible for the storage and distribution of medical and surgical supplies and equipment in a hospital.

2665

381.687-010

05.12

4754

6-Health (F)

6-Health (S)

Medicine & Supply (F)

Medicine & Supply (S)

IB
ES

PHYSICAL APTITUDES:

Hospital Supply Technician will be able to use hands and fingers to handle small objects carefully.

Ability to reach, see and handle loads usually under 10 pounds is important in this occupation.

Ability to do many tasks in one day will be important in this occupation.

Hospital Supply Technician will be able to complete tasks to meet a deadline.

Experience in working with things using machines and processes that are not helpful in this occupation.

Without supervisor assistance, some physical requirements may be met. Some changes to the work site or equipment.

OCCUPATION PROFILE:

- A Hospital Supply Technician performs a variety of duties to ensure the health and safety of both patients and medical staff.
- A Hospital Supply Technician collects used materials from various areas in the hospital and gets them ready to use again by sterilizing and packaging.
- The Hospital Supply Technician also assembles and prepares materials or packs such as blood transfusion sets, surgical dressings, and intravenous infusion sets.
- A Hospital Supply Technician may also store replacement materials and take inventory.
- Automatic monorail and elevator systems may aid in the movement of supply carts to the various wards of the hospital.
- A Hospital Supply Technician may fill requisitions and work orders.
- A Hospital Supply Technician may be assigned to such locations as surgery and delivery.
- The Hospital Supply Technician may learn to operate and maintain various types of equipment.

WAGES:

Hours per week	40
Average wage (entry level)	not available
Average wage (all experience levels)	\$4.77
Average range	\$4.29-\$5.11
	\$8,915-\$10,620

(Wage information from national sources.)



OCCUPATIONAL BRIEFS

Career Information Series

Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

HOTEL/MOTEL CLEANER

Hotel/Motel Cleaners clean and provides necessary supplies to an assigned area such as a guest room, meeting room, office or other occupational area.

3454

323.687-014

05.12

5242

9-Maintenance & Repair (F)

8-Hospitality & Recreation (S)

Building Maintenance (F)

Housing Services (S)

PHYSICAL APTITUDES:

Hotel/Motel Cleaner will be able to use their hands and arms as well as to climb, stoop and carry 25 pound loads and sometimes lift up to 50 pounds.

During the occupation the tasks may change often during a day but those tasks will be repeated the following day.

Occupation may interest someone who would rather work with people and doesn't mind, or likes to do the same things.

Hotel/Motel Cleaner will need to be cooperative and courteous.

Hotel/Motel Cleaner will be able to work alone or as part of a team.

For further assistance, some physical requirements may be met at the work site or equipment.

OCCUPATION PROFILE:

- Hotel/Motel Cleaners clean rooms, halls and/or pool areas and perform a variety of cleaning duties.
- A Hotel/Motel Cleaner may sort, count, fold, mark or clean linens.
- The Hotel/Motel Cleaner makes beds and turns mattresses.
- The Hotel/Motel Cleaner may prepare conference rooms and other types of meetings.
- A Hotel/Motel Cleaner may deliver television sets, ironing boards, baby cribs, and rollaway beds to guest rooms.
- Sweeping, mopping and waxing the floors, dusting and cleaning furniture and equipment will be part of this occupation.
- Hotel/Motel Cleaners clean the guest rooms by removing trash, changing linens, hanging drapes, vacuuming and sweeping rugs, cleaning furniture and woodwork, cleaning bathrooms, emptying trash and replacing stationery and bathroom supplies.

WAGES:

Hours per week	40
Average wage (entry level)	not available
Average wage (all experience levels)	\$4.08
Average range	\$3.63-\$4.77
	\$7,557-\$9,930

(Wage information from national information.)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Economic Development
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

MOTEL MANAGER

Manages all departments of the hotel or motel to run a profitable business, and to provide comfortable lodging for guests.

1132

187.117-038

11.11

1351

8-Hospitality & Recreation (F)

8-Hospitality & Recreation (S)

Housing Services (F)

Housing Services (S)

B
ES

PERSONAL APTITUDES:

A Motel Manager will be able to learn to make plans and to carry them out.

It is important to be able to understand and present information in both written and spoken form.

It is a requirement to be able to work well with numbers and keep accurate records, paying attention to all details.

A Motel Manager is usually required to have good hearing and vision.

There are many changes for a Hotel/Motel Manager and they change often.

There is a great deal of responsibility for directing the activities of

- Problems often happen that require the manager to use good judgment, concern and sincerity to the people who are workers.
- An interest in earning the respect of others in a business would help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Hotel/Motel Manager may establish standards for personnel administration and performance, service to patrons, room advertising, credit, food selection and service.
- The Hotel/Motel Manager may also adjust guests' complaints.
- Hotel/Motel Managers are responsible for planning, organizing and controlling the operation of a hotel or motel.
- The Hotel/Motel Manager hires personnel and directs, supervises and evaluates their work.
- A Hotel/Motel Manager may keep the books, organize the payroll and determine salaries for other employees.
- The Hotel/Motel Manager must make sure the cleaning and maintenance of the building is satisfactory.
- The Hotel/Motel Manager may provide information on reservations, travel, mail delivery and an answering service.



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Phone (515) 281-1234

RELATED OCCUPATIONS:

Motel Cleaner (3454)
Hotel Administrator (1186)
Restaurant Manager (1131)
Store Manager (1149)

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Management training in management offered by community colleges and vocational schools are helpful.

Hotel/motel chains offer special on-the-job management training. Trainees spend time in each of the hotel's departments.

A college degree, with a major in Hotel and Restaurant Administration, is becoming more important to many employers.

Work experience is desirable.

HIGH SCHOOL SUBJECTS:

Language Skills
Math Education
English

Math Skills

PROGRAMS OF STUDY AND TRAINING:

- 1811 - Hotel/Motel Management
- 3827 - Food Management and Production

SOURCES OF ADDITIONAL INFORMATION:

- American Hotel & Motel Association
888 7th Avenue
New York, NY 10019
- Council on Hotel, Restaurant & Institutional Education
S-208 Henderson Building
University Park, PA 16802
- National Executive Housekeeper's Association, Inc.
Business and Professional Building
1001 Eastwind Dr.
Westerville OH 43081
- American Culinary Federation, Inc.
P.O. Box 3466
St. Augustine, FL 32084
- Occupational Outlook Handbook
1986-87 edition
pages (32-34)



OCCUPATIONAL BRIEFS

Career Information S

Iowa Dept. Of E
Grimes State Off
Des Moines, IA
Phone (515) 28

INDUSTRIAL DESIGNER

Industrial Designers use their creative talents with the knowledge of market- materials and methods of production to improve the appearance and function of a product.

2375

142.061-026

01.02

322

10-Manufacturing (F)

10-Manufacturing (S)

Engineering & Design (F)

Engineering & Design (S)

PERSONAL APTITUDES:

An Industrial Designer will be able to learn, understand and use the principles of design in working with line, form and color as well as mechanical and electronic principles.

The ability to understand technical terms and visual ideas and translate them into presentations will be important in this occupation.

An Industrial Designer will be able to use basic math formulas, and material needed.

An Industrial Designer will be able to picture objects and their relationships to other objects and the space they use.

The ability to see small differences in form, shape and line will be important in this occupation.

- An Industrial Designer will be able to pay attention to written information and graphs to avoid or correct errors.
- The ability to use eyes, arms, hands and fingers together in presentations and make three dimensional models will be important in this occupation.
- An Industrial Designer will be able to tell one color from another as well as understand the affect of color on attitudes and feelings of people.
- An Industrial Designer will be able to reach, hear and stand for long periods of time.
- The ability to work with different kinds of people in many situations will be important in this occupation.
- An Industrial Designer will be able to make decisions based on experience and personal feelings and the feelings of others.
- An interest in sharing ideas that are difficult to explain and illustrated by objects that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



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opportunities should be for college graduates with degrees in
Industrial Design.

Experience is gained, advancement may be to a supervisor with
responsibilities for the design of a product or a group of
products.

PRIMARY OCCUPATIONS:

Selected military occupations.

RELATED OCCUPATIONS:

Marketing Account Executive (1196)
Industrial Designer (4724)
Mechanical Engineer (2434)
Video Display Operator (2372)

EDUCATION AND TRAINING:

High school diploma or its equivalent is required.

Additional courses in industrial design in an art school, college,
or community college is highly recommended.

Industrial design programs last four to five years.

Working in engineering, architecture, and fine arts may
attract Industrial Designers if they have the proper experience and
knowledge.

Manufacturing firms hire only Industrial Designers who
hold a bachelor's degree in the field.

- New graduates of Industrial Design programs frequently receive assignments for experienced designers.

HELPFUL HIGH SCHOOL SUBJECTS:

Art

- Studio Arts & Crafts
- Industrial Education
- Art/Photography
- Commercial Art/Graphics
- Manufacturing

PROGRAMS OF STUDY AND TRAINING:

- 3218 - Robotics Technology
- 3244 - Mechanical Design Technology
- 7701 - Drafting
- 7605 - Industrial Electronics

SOURCES OF ADDITIONAL INFORMATION:

- American Textiles Manufacturers Institute
1101 Connecticut N.W.
Washington, D.C. 20036
- Human Factors Society, Inc.
P.O. Box 1369
Santa Monica, CA 90406
- Occupational Outlook Handbook
1986-87 edition
pages (218-220)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

INDUSTRIAL ENGINEER

Efficient utilization of products, facilities and/or personnel to improve and prove efficiency of operations in an industry.

2434

012.167-030

05.01

1634

10-Manufacturing (F)

10-Manufacturing (S)

Engineering & Design (F)

Engineering & Design (S)

PERSONAL APTITUDES:

Industrial Engineer will be able to learn, understand and use technical language of business organization and personnel management.

Ability to read, understand and use technical language in several languages will be important in this occupation.

Industrial Engineer will be able to use complex math formulas in physics, data processing and other related sciences.

Ability to picture space and different arrangements of space and objects in that space will be important in this occupation.

Industrial Engineer will be able to see small differences in shape, size, and color.

Ability to pay attention to detail in written information and to detect errors will be important in this occupation.

- An Industrial Engineer will be able to use eyes, arms, and fingers at the same time.
- An ability to sit for long periods of time and an ability to stand for long periods of time will be important in this occupation.
- An Industrial Engineer will be able to do many tasks in a short period of time.
- An Industrial Engineer will be able to plan and direct the work of others.
- An ability to make decisions based on measurable facts will be important in this occupation.
- An Industrial Engineer will be able to complete tasks to a high standard.
- An interest in scientific and technical machines and processes will result in activities that can be recorded will be helpful in this occupation.
- With employer assistance, some physical requirements such as climbing through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Industrial Engineer decides the most effective way for an organization to use the basic features of production - people, equipment, and materials.
- The Industrial Engineer will deal more with people, organization, and business methods than other kinds of engineers.



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Phone (515) 28.

EDUCATION AND TRAINING:

A Bachelor's Degree in Industrial Engineering is required for employ-

ment. Engineering positions are filled by people trained in natural sciences or in mathematics.

Continuing education is becoming more important for advancement.

One does not need to obtain a license to gain employment as an engineer. However, to be a Registered Professional Engineer, one must meet the state requirements for licensure.

For an Engineer license, several combinations of experience and educational training are possible.

Engineers must pass two written examinations in the fundamentals, principles and practice of Engineering. After the first year of practice as a Registered Professional Engineer, Continuing Education is required for license renewal. The number of hours of Continuing Education required varies with work experience.

HIGH SCHOOL SUBJECTS:

Science/Geometry
Advanced Math

Science
Education
Engineering
Mechanical/Electronic
& Power Systems

- Manufacturing Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- 3001 - Engineering, General

SOURCES OF ADDITIONAL INFORMATION

- American Institute of Industrial Engineers
25 Technology Park/Atlanta
Norcross, GA 30092
- American Textiles Manufacturers Institute
1101 Connecticut N.W.
Washington, D.C. 20036
- Occupational Outlook Handbook
1986-87 edition
pages (65-66)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-2800

INDUSTRIAL MAINTENANCE MECHANIC

Industrial Maintenance Mechanics are sometimes called an industrial repairer, keeps up and repairs all the machines and equipment used in a particular industry.

3144

638.281-014

05.05

6178

9-Maintenance & Repair (F)

10-Manufacturing (S)

Machine Maintenance (F)

Assembly & Production (S)

PERSONAL APTITUDES:

An Industrial Maintenance Mechanic will be able to learn the operation and maintenance needs of many different types of industrial machinery.

An Industrial Maintenance Mechanic will be able to use, understand and read technical language, processes, blueprints and drawings.

The ability to use gauges, measurement tools and the math formulas will be important in this occupation.

An Industrial Maintenance Mechanic will be able to picture the parts and how they fit into the whole machine and its working operation.

The ability to pay close attention to small differences in forms, shapes and sizes will be important in this occupation.

- An Industrial Maintenance Mechanic will be able to use their hands and fingers together to handle small and large parts.
- The ability to climb, stoop, reach, hear, see and lift objects weighing 100 pounds will be important in this occupation.
- The ability to do many different tasks in one day will be important in this occupation.
- An Industrial Maintenance Mechanic will be able to make decisions based on measurable facts.
- An Industrial Maintenance Mechanic will be able to compare work to meet a set standard.
- An interest in working alone with machines and processes in products that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Industrial Maintenance Mechanic keeps machinery and equipment used in industry in good working condition.
- Industrial Maintenance Mechanics find out what is wrong with equipment breaks down and repair it as quickly as possible.
- The Industrial Maintenance Mechanic checks the machinery to make sure it is in good working order after it is fixed.
- Industrial Maintenance Mechanics check oil, grease, clean and replace worn parts in machinery or perform preventive maintenance.



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Phone (515) 281-1234*

COLLEGE HIGH SCHOOL SUBJECTS:

Basic Math Skills
Science
Mechanics
History of Technology
Physical Education
Automobile Repair & Small Engine Repair
Instruction
Electrical/Electronic
Energy/Power Systems
Manufacturing
Product Services

COURSES OF STUDY AND TRAINING:

Agricultural Power Machinery
Automotive Technology
Industrial Electronics
Industrial Machinery Maintenance and Repair
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

International Association of Machinists and
Workers
1400 Connecticut Avenue, N.W.
Washington, D.C. 20036

1 Outlook Handbook
Edition
(1968)



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of E
Grimes State Off
Des Moines, IA
Phone (515) 28

INDUSTRIAL PRODUCTS SALESPERSON

items necessary for safe and efficient manufacturing operations to industrial customers.

7429

274.257-010

08.01

4235

11-Marketing & Distribution (F)

10-Manufacturing (S)

Buying & Selling (F)

Product Sales (S)

GENERAL APTITUDES:

Industrial Products Salesperson will be able to learn, understand in the special features of the product to be sold.

Ability to speak and write clearly will be important in this occupation.

Industrial Products Salesperson will be able to use math in calculating costs for customers.

Ability to picture objects and their relationship to other objects and how they use will be important in this occupation.

Ability to see small differences in two dimensional or three dimensional drawings will be important in this occupation.

Ability to hear and handle loads weighing 10 pounds will be important in this occupation.

- An Industrial Products Salesperson will be able to work with different people, as well as influence their attitudes and actions.
- The ability to make decisions based on experience as well as on a favorable fact will be important in this occupation.
- An interest in business contact with people sharing ideas will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Industrial Products Salespersons visit industries, factories, and commercial places.
- An Industrial Products Salesperson talks to Engineers, Scientists, professional and technical people.
- An Industrial Products Salesperson must be familiar with the products and many processes used in factories and industries.
- A Salesperson must know a lot about the product or products being sold.
- An Industrial Products Salesperson may sell drills, cutting tools, abrasives, lift trucks, caterpillars, generators, turbine engines and many other factory-used products.
- An Industrial Products Salesperson may give estimates and quotations in order to sell a product.
- A Salesperson could also suggest changes in equipment that would mean higher production and lower costs.



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RECOMMENDED HIGH SCHOOL SUBJECTS:

Language
Language Skills
Liberal Arts Education
General Merchandising & Marketing
Basic Math Skills

RECOMMENDED COURSES OF STUDY AND TRAINING:

Marketing Management
Trade and Industrial Supervision and Management
Retailing
International Marketing
Petroleum Wholesaling
Secondary Education

SOURCES OF ADDITIONAL INFORMATION:

National Outlook Handbook
Edition
(7-268)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

INSTITUTIONAL HOUSEKEEPER

Institutional housekeepers supervise and train cleaning personnel in keeping rooms clean, orderly, and attractive, and may keep track of supplies and order more as needed.

3434

321.137-010

05.12

5241

2-Business & Office (F)

7-Home Economics (S)

Management (F)

Housing & Decoration (S)

- The ability to handle loads up to 50 pounds as well as vision and hearing will be important.
- An Institutional Housekeeper will be able to take the responsibility for planning and for the staff completing their many duties.
- An ability to work with people to accomplish the operation of an institution to a set standard will be important in this occupation.
- An interest in earning the respect of others will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

PERSONAL APTITUDES:

An Institutional Housekeeper will be able to learn, understand and manage all the different fields of responsibility needed to operate an institution.

Reading and writing skills will be needed to give directions, supervise staff and keep records.

Ability to use basic math in record keeping, ordering and inventory management is important.

An Institutional Housekeeper will be able to think ahead and 'picture' the layout of the department.

Attention to details in all fields will be important in this occupation.

An Institutional Housekeeper will be able to use hands easily to help with heavy lifting at times.

OCCUPATION PROFILE:

- An Institutional Housekeeper plans and organizes the department, supervises cleaning people and checks their work to see that it meets the institution or hospital's standards of sanitation.
- The Institutional Housekeeper interviews new applicants, trains new employees, and requests dismissals and promotions.
- The Institutional Housekeeper checks on complaints about the institution's cleaning service or equipment.
- In larger institutions an Institutional Housekeeper may supervise the cleaning and maintenance staff.
- Institutional Housekeepers keep records such as time sheets, vacation and sick leave forms.



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EDUCATION AND TRAINING:

school education or its equivalent is preferred.

Previous experience in institutional housekeeping is helpful.

Institutional Housekeepers learn the employers work routine and standards on the job.

Colleges, junior colleges and technical schools offer instruction in housekeeping administration that include courses in housekeeping.

Training or knowledge of chemical use and disposal will be helpful in this occupation.

RELEVANT HIGH SCHOOL SUBJECTS:

Economics
Consumer & Homemaking
Institutional & Home Management

REQUIREMENTS OF STUDY AND TRAINING:

Training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:

Hotel and Motel Association
1230 Avenue
N.Y. 10106

Industrial Hygiene Association
1000 Edges Parkway
14311



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. of Economic Development
Grimes State Office Building
Des Moines, IA 50319
Phone (515) 281-3000

INSTRUMENT TECHNICIAN/MECHANIC

Plans, repairs and maintains precision instruments.

3186

710.281-026

05.05

6771

9-Maintenance and Repair (F)

9-Maintenance and Repair (S)

Machine Maintenance (F)

Machine Maintenance (S)

ESSENTIAL APTITUDES:

An Instrument Technician/Mechanic will be able to learn basic electrical and circuitry to perform the required diagnosis and repairs.

An Instrument Technician/Mechanic will be able to use both written and oral language to read technical manuals and discuss diagnoses and repairs.

An Instrument Technician/Mechanic will be able to use shop mathematics including algebraic formulas to compute resistance, and inductance.

An Instrument Technician/Mechanic will be able to see how a three-dimensional form would look by a two-dimensional plan will be necessary in this occupation.

An Instrument Technician/Mechanic will be able to make comparisons of shapes, identifying small differences.

- The ability to see detail in numbers and tables to prevent errors will be important in this occupation.
- An Instrument Technician/Mechanic will be able to use thumb and fingers together using the eyes as the guide will be important in this occupation.
- An Instrument Technician/Mechanic will be able to use small hand tools and instruments with accuracy and skill.
- An Instrument Technician/Mechanic will be able to make measurements based on measurable facts.
- An Instrument Technician/Mechanic will be able to compare measurements using a set standard.
- An interest in things of a scientific nature using established procedures will be helpful in this occupation.
- An Instrument Technician/Mechanic will be able to carry out loads and lift up to 20 pounds.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Instrument Technician/Mechanic will inspect meters, gauges, and gauges to discover any errors in the readings.
- An Instrument Technician/Mechanic will test the accuracy of meters, pressure gauges, temperature gauges and control devices to cover the problem area.



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ience with electrical or mechanical systems and equipment will
oful in this occupation.

UL HIGH SCHOOL SUBJECTS:

ture
echanics
natics
sic Math Skills
gebra/Geometry
al Education
ctrical/Electronic
s of Technology

MS OF STUDY AND TRAINING:

ectronic Technology
user Optics Technology
botics Technology
ustrial Electronics

OF ADDITIONAL INFORMATION:

Society of America
ler Drive, P.O. Box 12277
riangle Park, NC 27709



OCCUPATIONAL BRIEFS

Career Information S
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Grimes State Off
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Phone (515) 28

ANCE SALES AGENT

advice about insurance and sells policies to in-
duals or businesses for protection, loss or invest-

7416

250.257-010

08.01

4122

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Buying & Selling (S)

AL APTITUDES:

ance Sales Agent will be able to learn and understand the
he policies to be sold.

y to speak and write clearly to explain the product to
will be important in this occupation.

nce Sales Agent will be able to use math to figure costs,
d use complex tables and graphs.

to pay close attention to detail in written information and
void or correct errors will be important in this occupation.

to use eyes, hands and fingers together to fill out forms
rtant in this occupation.

ce Sales Agent will be able to hear and sometimes handle
10 pounds.

- An Insurance Sales Agent will be able to work with di
people influencing their ideas and attitudes.
- An Insurance Sales Agent will be able to make decisio
both experience and measurable fact.
- An interest in business contact and sharing ideas with
help in this occupation.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Insurance Sales Agents spend more than one-half of eve
'prospecting' or searching out possible customers throug
talk with, direct mail ads, etc.
- An Insurance Sales Agent sets up appointments with th
pects' to make presentations and to talk about the produ
- An Insurance Sales Agent may talk with clients over th
contact them by writing.
- Insurance Sales Agents write applications for policies fo
who have decided to purchase insurance.
- The Insurance Sales Agent follows the policy through th
until it has been approved and the policy has been issue
- The Insurance Sales Agent services policyholders by ans
tions they may have about coverage, claims, etc. after t
been made.



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nce Sales Agents must be licensed by the state in which they
sell insurance. In most states, licenses are granted after the
unt passes a written test covering the state insurance laws and
nce fundamentals.

RY OCCUPATIONS:

ted military occupations.

D OCCUPATIONS:

(1615)
ile Salesperson (7418)
ate Salesperson (7417)
ion (7454)

ATION AND TRAINING:

loyers prefer college graduates, but many insurance com-
e high school graduates with work experience.

ining in business fields may help new Insurance Sales
grasp the fundamentals of sales more quickly.

anies offer formal training sequences in the classroom and
ig on the job. They also give supervision at first to help the
nce Sales Agent become familiar with the sales procedure.

ales Agents must pass a computerized examination to be
ell insurance in Iowa.

- All applicants must be registered in advance to take a
are four categories of insurance covered by ten exams.
per exam.
- Agents' licenses are renewed, each year upon proof of
tinuing Education Credit. The resident annual renewal

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Distributive Education
 - Finances
- Math
 - Basic Math Skills

PROGRAMS OF STUDY AND TRAINING:

- 1803 - Banking and Finance
- 1804 - Business Administration and Management, Gene
- 1809 - Business Economics
- 1817 - Insurance and Risk Management

SOURCES OF ADDITIONAL INFORMATION

- Alliance of American Insurers
1501 Woodfield Road, Suite 400 West
Schaumburg, IL 60195
- American Council of Life Insurance
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
- Insurance Information Institute



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Phone (515) 28.

ANCE UNDERWRITER

ponsible for examining individual insurance ap-
ions and accepting or rejecting each application.

1635

169.167-058

11.06

1414

2-Business & Office

2-Business & Office

Finance & Investing

Finance & Investing

AL APTITUDES:

ance Underwriter will be able to learn the company's policies
ze individual policy information based on that knowledge.

nce Underwriter will be able to read and understand
financial and medical reports as well as be able to write
r, but complete evaluation reports.

to use and understand mathematical principles and rea-
ead and prepare financial and insurance risk reports will
nt in this occupation.

ce Underwriter will be able to use detail in written
d computation to avoid or correct errors.

ce Underwriter will be able to direct the process used in
and obtain the necessary information from other persons.

- The ability to make decisions based on experience and facts will be important in this occupation.
- An Insurance Underwriter will be able to complete tas- set standard.
- An interest in technical processes will be helpful in this
- This occupation seldom requires an ability to lift more t- loads.

OCCUPATION PROFILE:

- An Insurance Underwriter will examine application form- reports, insurance maps, and medical reports to determi- of risk for insuring the applicant.
- The decision to accept or reject the policy applicant will l- study of all documents and related information.
- An Insurance Underwriter will specialize in one area su- mobiles, home, business establishments and public instit-
- Information will be collected by letter or phone from fiel- tives, medical personnel and other insurance or inspectio-
- An Insurance Underwriter will authorize reinsurance, lin- companies liability by special endorsement or additional
- An Insurance Underwriter may reject the applicant beca- risk factor.



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Career Information S
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Des Moines, IA
Phone (515) 28.

William Street
New York, NY 10038

Occupational Outlook Handbook
7 edition
(51-52)



OCCUPATIONAL BRIEFS

Career Information Sheet

Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

INTERIOR DESIGNER

Interior designers help people improve the inside appearance of their homes and offices by planning the color scheme and furniture arrangements.

2371

142.051-014

01.02

322

7-Home Economics (F)

7-Home Economics (S)

Housing & Decoration (F)

Housing & Decoration (S)

ESSENTIAL ABILITIES:

An Interior Designer will be able to learn, understand and use the principles of design and color.

An Interior Designer will use speech and writing to present information and ideas. Communication will be important.

An Interior Designer will use basic math for record keeping, measuring and calculation. Mathematics will be important.

An Interior Designer will be able to picture how a room will look when the work is done.

An Interior Designer will be able to see detailed differences in size, shape and color will be important in this occupation.

An Interior Designer will be able to check the accuracy of measurements and

- An Interior Designer will be able to use hands, arms and feet together to handle small to large objects weighing around 10 pounds.
- Good sight and hearing will be important in this occupation.
- An Interior Designer will be able to take responsibility for the planning, design and outcome of a total project.
- Working with people using their ideas and the principles of design will be important in this job.
- An Interior Designer will be able to make decisions based on the client's needs and client's feelings as well as fact.
- An interest in working alone or with people using original ideas and ending with objects you can see and touch will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Interior Designers are concerned with all phases of interior and exterior design.
- An Interior Designer may be consulted on color schemes for walls or cabinets, choice of floor coverings, fabrics for drapery, upholstery, and lighting fixtures.
- An Interior Designer may work on either private homes or commercial buildings.
- The Interior Designer will consult with the clients to find out their needs, habits and choices.



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Phone (515) 28

terior Designer may be hired by design firms, department
and furniture companies.

opportunities are in the larger cities.

ement comes in the form of higher pay and larger commis-

re opportunities for professionals to establish their own busi-

BY OCCUPATIONS:

ed military occupations.

D OCCUPATIONS:

Designer (4724)
Designer (2375)
Display Artist (2372)
on (7454)

TION AND TRAINING:

eyond high school is generally required to enter the interior

department stores and design firms have their own
training programs.

es and universities, community colleges and vocational
interior design training.

- A Bachelor's degree in Interior Design is becoming a r
employment in this field.
- The types of training available include three-year prog
professional school of interior design, a four-year colleg
program or post graduate programs leading to a Maste
Ph.D.

HELPFUL HIGH SCHOOL SUBJECTS:

Art

- Studio Arts & Crafts
- Industrial Education
- Commercial Art/Graphic
- Art/Photography
- Communications

PROGRAMS OF STUDY AND TRAINING:

- 1030 - Horticulture
- 3701 - Home Economics, General
- 3716 - Human Environment and Housing
- 3727 - Textiles and Clothing
- 3836 - Home Furnishing Design and Management
- 8011 - Graphic Design
- 8024 - Fine Arts, General

SOURCES OF ADDITIONAL INFORMATION

- American Society of Interior Designers, Inc.
1430 Broadway
New York, NY 10018
- Interior Design Society



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Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

IRONWORKER

Constructs and/or installs structural metal products in the construction of large buildings and bridges.

5487

801.361-014

05.05

6473

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

PHYSICAL APTITUDES:

An ironworker will be able to learn the characteristics of the material and many methods of using the materials.

An ironworker will be able to understand both written and spoken directions as well as blueprints and drawings will be important in this occupation.

An ironworker will be able to use math and shop geometry to figure out the amounts of material needed and dimensions to be followed.

An ironworker will be able to picture the finished structure and how each part fits together is important in this occupation.

An ironworker will be able to see small differences in size and shape in three-dimensional objects will be important in this occupation.

An ironworker will be able to use eyes, hands and fingers together to work on projects including hand tools and machines.

- An ability to use eyes, hands and fingers together will be important in this occupation as much work is done high above the ground.
- An Ironworker will be able to climb, stoop, reach and stand for long periods of time. They will lift up to 100 pounds.
- An Ironworker will be able to work under the stress of working high above ground and against building deadlines.
- An ability to make decisions based on measurable facts will be important in this occupation.
- An Ironworker will be able to complete tasks to meet a schedule.
- An interest in working with things that use machines and tools will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Ironworker will work in one of four groups: structural ironworkers, riggers, ornamental workers or rodmen.
- A Structural Ironworker puts up the steel framework of buildings, metal storage tanks and overhead crane runways. They support heavy equipment.
- Ironworkers must push, pull or pry steel beams and girders into place.
- An Ironworker must connect the beams or girders with bolts.
- Ironworkers align the structure with levels.



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ED OCCUPATIONS:

ate Mason (4246)
uction Worker (4286)
(4278)
Metal Worker (5484)

RATION AND TRAINING:

pletion of a formal apprenticeship is recommended as a way
this trade.

pprenticeships last about three years and give on-the-job
and related classroom instruction in drafting, blueprint read-
nath that applies in ironwork. These apprenticeships are
on apprenticeships.

s for an apprenticeship should have a high school diploma or
alent, be in good physical shape and be 18 years old.

e can be learned by on-the-job training without apprentice-

HIGH SCHOOL SUBJECTS:

Education
ruction
ruction & Maintenance
working

S OF STUDY AND TRAINING:

enticeship

SOURCES OF ADDITIONAL INFORMATIC

- U.S. Department of Labor
Bureau of Apprenticeship and Training
210 Walnut
Des Moines, IA 50309
- Occupational Outlook Handbook
1986-87 edition
pages (401-403)



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Career Information S
Iowa Dept. Of E
Grimes State Off
Des Moines, IA
Phone (515) 28

JOURNALIST

collects and analyzes information about current events and writes news stories for publication or broadcast.

2173

- 1. 131.267-018
- 2. 11.08
- 3. 3313
- 3-Communication & Media (F)
- 3-Communication & Media (S)
- Journalism (F)
- Journalism (S)

ESSENTIAL APTITUDES:

A journalist must learn which events interest his/her audience and present those events clearly and objectively.

The ability to use both written and spoken language to present information efficiently will be important in this occupation.

Journalists must be able to use math to understand and report money and other information.

The ability to see details in graph or pictorial information is important in this occupation.

Journalists must pay attention to detail in his or her writing to correct errors.

The ability to hear as well as lift loads up to 10 pounds is important in this occupation.

- A Journalist must change from task to task quickly from one day to the next.
- A Journalist must be able to work with all kinds of people in different situations.
- An editorial writer must be able to use language to affect attitudes or ideas of others.
- An ability to make decisions based on experience and judgment is important in this occupation.
- An interest in work involving sharing information, business, and the chance to earn the respect of others is helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Journalist collects information about newsworthy events and reports by publication or broadcast.
- A Journalist decides what news tips or leads to expand on a story, either on his/her own or in consultation with an editor.
- Journalists gather and/or confirm facts of the story through interviews, observation and research.
- A Journalist organizes information, identifies important details and writes the story.



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Des Moines, IA
Phone (515) 281-1234*

RELATED OCCUPATIONS:

Public Relations Specialist (1195)
Public Relations Writer (2177)

EDUCATION AND TRAINING:

A Bachelor's degree is quickly becoming the minimum education for this occupation.

Employers prefer a Bachelor's degree in Journalism. Some accept a Bachelor of Liberal Arts degree satisfactory.

Some other employers who require a Liberal Arts, Bachelor's and degree in Journalism.

Typing is necessary because reporters type their own stories. A large number of newsrooms use computerized word processing and a typewriter-like keyboard for input.

Knowledge of news photography would be valuable.

Some may advance to larger companies or to a press service. Experience for these jobs is very high.

Experienced reporters become columnists, correspondents, editors, and executives. Competition for these jobs is severe.

Knowledge of law is helpful.

HIGH SCHOOL SUBJECTS:

English

PROGRAMS OF STUDY AND TRAINING:

- 1701 - Area Studies
- 2201 - Communication
- 2202 - Advertising
- 2204 - Journalism
- 2207 - Radio/TV
- 4301 - English
- 4306 - Linguistics
- 4310 - Speech
- 7310 - Political Science and Government
- 7311 - Sociology

SOURCES OF ADDITIONAL INFORMATION

- Women in Communications, Inc.
P.O. Box 9561
Austin, TX 78766
- Occupational Outlook Handbook
1986-87 edition
pages (212-215)



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

KITCHEN HELPER

is the cook by keeping the kitchen clean and doing work to keep the kitchen running smoothly.

7884

318.687-010

05.12

5219

7-Home Economics (F)

8-Hospitality & Recreation (S)

Food & Nutrition (F)

Food & Services (S)

PHYSICAL APTITUDES:

A Kitchen Helper will be able to carry loads from 10 to 25 pounds, and move objects around 50 pounds.

Occupation will require reaching, as well as the ability to move objects in work space.

Helper will be able to work steadily doing the same task for long periods.

Important in this occupation to be able to understand and follow instructions.

Working in working with things using machines and processes that are helpful in this occupation.

For further assistance, some physical requirements may be met at the work site or equipment.

OCCUPATION PROFILE:

- A Kitchen Helper keeps the kitchen clean and helps the cook.
- The Kitchen Helper cleans work areas and utensils.
- A Kitchen Helper carries out garbage and cleans garbage.
- A Kitchen Helper sets up trays.
- The Kitchen Helper may place food on dishes and trays.
- A Kitchen Helper should be able to follow a recipe.
- The Kitchen Helper carries supplies and food stuffs.
- Kitchen Helpers watch and stir foods.
- Kitchen Helpers wash and clean pots, pans, dishes and glassware.
- The Kitchen Helper may make drinks.
- A Kitchen Helper sets up banquet tables.
- Kitchen Helpers wash and peel vegetables.
- The Kitchen Helper may clean and polish silver.
- Kitchen Helpers sort bottles and break disposable ones.
- A Kitchen Helper sweeps and mops floors.
- A Kitchen Helper scrapes food from dirty dishes.
- The Kitchen Helper stores dishes and silverware.



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UL HIGH SCHOOL SUBJECTS:

Economics
Consumer & Homemaking
Social Education
Quantity Food

AIMS OF STUDY AND TRAINING:

For this occupation is generally received on the job.

S OF ADDITIONAL INFORMATION:

1 Culinary Federation, Inc.
3466
Stine, FL 32084

Institute for the Foodservice Industry
Baker, Suite 2620
L 60606



OCCUPATIONAL BRIEFS

Career Information S

Iowa Dept. Of E
Grimes State Off
Des Moines, IA
Phone (515) 28

LABORATORY TESTER

forms tests according to set formulas to determine characteristics of materials and substances for quality control, product development or to check if standards met.

2693

029.261-010

02.04

3831

10-Manufacturing (F)

10-Manufacturing (S)

Management & Research (F)

Management & Research (S)

ADDITIONAL APTITUDES:

Laboratory Tester will be able to learn, understand and use the principles of chemistry and laboratory research.

The ability to read, understand and explain technical language and to communicate with others by either speaking or writing will be important in this occupation.

Laboratory Tester will be able to use the math formulas used in laboratory tests.

The ability to picture the way a substance should appear to compare test results will be important in this occupation.

The ability to see small differences in form, shape and line during tests will be important in this occupation.

- A Laboratory Tester will be able to pay attention to detail and use written or table information to avoid or correct errors in writing.
- A Laboratory Tester will be able to use eyes, arms, hands and feet at the same time while handling small and breakable equipment.
- The ability to tell one color from another will be important in doing tests in this occupation.
- A Laboratory Tester will be able to reach and see as well as lift loads up to 10 pounds.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Laboratory Tester will be able to complete tasks to meet a set standard.
- An interest in scientific work using processes and machinery will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Laboratory Testers may set up and adjust laboratory equipment and instruments such as a microscope and centrifuge (a machine that uses centrifugal force to separate substances).
- The Laboratory Tester may test liquids and materials used in the production of a product for burning rate, stability or other characteristics to discover those that would affect the usefulness of the product.



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ec
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Des Moines, IA
Phone (515) 281

employers prefer persons who have had formal specialized
al training.

aining is often available at technical institutes, junior and
nity colleges, area vocational-technical schools and large cor-
is that conduct training programs or operate private schools.

essional positions, undergraduate degrees in degrees in chem-
biology are preferred.

L HIGH SCHOOL SUBJECTS:

ebra/Geometry

mistry

sics

of Technology

MS OF STUDY AND TRAINING:

od Technology

il Technology

ctronic Technology

er-Optics Technology

ironment Control Technology

er and Wastewater Technology

oratory Technology

l/Food Sciences

ogy, General

hemistry and Biophysics

ny

obiology

gy

- 4930 - Genetics
- 6705 - Chemistry
- 6720 - Physics
- 6719 - Earth Science
- 6802 - Biological Laboratory Technology
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- National Association of Trade and Technical Schools
2021 K Street, N.W.
Washington, D.C. 20006



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234

LAUNDRY/DRY CLEANING WORKER

Operates and tends washing and dry cleaning machines. Washes, dries, irons, presses, steams, and presses garments, drapes and other materials. May repair and deliver goods.

4464
362.382-014
06.02
7658
9-Maintenance & Repair (F)
13-Personal Service (S)
Clothing Maintenance (F)
Personal Care & Grooming (S)

3
S

ESSENTIAL ABILITIES:

Laundry/Dry Cleaning Worker will be able to learn and use the methods for cleaning equipment and the process for using cleaning fluids.

Ability to use the hands to operate machinery and hand finish garments will be important in this occupation.

Laundry/Dry Cleaning Worker will be able to stoop, reach and see to handle loads weighing 25 pounds and lifting up to 50 pounds.

Ability to change from one task to another several times in a day will be important in this occupation.

Ability to make decisions based on experience will be important in this occupation.

- A Laundry/Dry Cleaning Worker will be able to complete a set standard.
- An interest in working with things using machines and equipment will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Laundry/Dry Cleaning Worker may specialize in one area of cleaning.
- Laundry/Dry Cleaning Workers run machines to clean clothes and other fabrics that cannot be safely laundered at home.
- A Laundry/Dry Cleaning Worker must have a knowledge of colors and cleaning procedures.
- Laundry/Dry Cleaning Workers must sort articles by color before they are placed in the cleaning machine.
- A Laundry/Dry Cleaning Worker uses a special cleaning solvent to clean the clothes.
- The Laundry/Dry Cleaning Worker may add a special chemical to make the clothing water repellent.
- Laundry/Dry Cleaning Worker places the clean clothes in a machine (extractor) to remove excess solvent.
- Laundry/Dry Cleaning Workers place the clothes in a different machine (tumbler) to dry and remove the odor of the solvent.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-3400*

period of on-the-job training is usually enough for most
U.S.

RELEVANT HIGH SCHOOL SUBJECTS:

economics
textiles, Textiles & Home Furnishings

REQUIREMENTS OF STUDY AND TRAINING:

Training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

Responsible for providing legal advice to clients about legal matters such as buying property, making a will and settling an estate in addition to representing clients in courts of law.

8432
110.107-010
11.04
211
13-Personal Services (F)
14-Public Service (S)
Special Human Services (F)
Legal & Social Services (S)

B
ES

PERSONAL APTITUDES:

will be able to understand, define and use legal methods, rules and laws.

will be able to read and listen carefully to identify legal issues in this occupation.

will be able to write and speak using well chosen words and phrases to say exactly what is intended.

will be able to use and understand math that will be used to calculate insurance and taxes of many different kinds.

will be able to pay attention to detail in written or table form will be required in this occupation.

will be able to sit for long periods of time.

- The ability to deal with different kinds of people and react in a way that will affect their opinions and attitudes will be important in this occupation.
- A Lawyer will be able to make decisions based on experience.
- An interest in sharing ideas of a difficult-to-explain nature with people and the ambition to earn the respect and confidence of others will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Lawyers offer legal advice to individuals, businesses, organizations and government agencies.
- A Lawyer may represent clients in court or before government agencies or may try to arrange settlements out of court.
- A Lawyer may do legal research.
- Lawyers may handle tax matters for a business or individual.
- A Lawyer may serve as a guardian for a young person, prepare wills, act as a trustee or executor of an estate, offer court testimony, buy or sell real estate.
- Most practicing Lawyers work in general practice and deal with many kinds of legal activities.
- Specialization in a branch of law such as admiralty, civil, criminal, international, patent, real estate or tax is possible.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

The frequent preparation for law school is four years of college leading to a Bachelor's degree followed by three years of law school in which a Doctor of Jurisprudence (J.D.) or a Bachelor of Laws (L.B.) degree is granted.

Several Bachelor degrees leading to law school could be economics, political science, or American history to name a few.

Law schools seldom specify the college subjects which must be completed in students' pre-legal education. The prospective Lawyer's education should provide an understanding of society and its institutions, history, economics and other social sciences, logic and reasoning are all helpful. An area of specialization in law may be an area of interest developed as an undergraduate.

To practice law in the courts of any state, a person must pass the examination of the examining and accrediting group for Lawyers.

An applicant for admission to practice law must submit proof of graduation from a law school approved by the American Bar Association.

Examinations are given twice per year and a background investigation is conducted on all prospective Lawyers. If the applicant pays the fee, passes the examination and the investigation is satisfactory, the applicant will be admitted to the Iowa State Bar Association.

HELPFUL HIGH SCHOOL SUBJECTS:

Language

- Speech
- Literature

Mathematics

- Basic Math

Distributive Education

- Services

Social Studies

- History
- Government
- Sociology

Science

- Biological Sciences
- Earth/Space Sciences

PROGRAMS OF STUDY AND TRAINING:

- 4001 - Law

SOURCES OF ADDITIONAL INFORMATION:

- American Bar Association
750 N Lake Street
Chicago, IL 60611
- Association of American Law Schools
One Dupont Circle, N.W.
Washington, D.C. 20036
- Occupational Outlook Handbook
1986-87 edition
pages (95-98)



OCCUPATIONAL BRIEFS

Career Information S

Iowa Dept. Of Ec
Grimes State Offi
Des Moines, IA
Phone (515) 281

SECRETARY

Describes the general duties of a secretary; must also know the legal terms and procedures for the preparation of subpoenas, summons and other legal documents.

1444

201.362-010

07.01

4622

2-Business & Office (F)

14-Public Service (S)

Secretarial & Clerical (F)

Legal & Social Services (S)

B
ES

PERSONAL APTITUDES:

A secretary will be able to learn and use the office methods as well as learn the special language and procedures for legal information.

The ability to read and understand as well as speak and write the legal language dealing with the law will be important in this occupation.

A secretary will be able to use math to take care of insurance, legal and other problems.

The ability to pay close attention to detail in written and tabular data to avoid or correct errors will be important in this occupation.

The ability to use eyes, arms, hands and fingers together to operate office equipment is important in this occupation.

- A Legal Secretary will be able to sit long periods of time and be able to reach, hear and see.
- The ability to do many different tasks in one day will be important in this occupation.
- A Legal Secretary will be able to work courteously with a variety of different people.
- The ability to make decisions on the basis of experience and judgment will be important in this occupation.
- A Legal Secretary will be able to complete tasks to meet a high standard.
- An interest in business communication and contract work will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Legal Secretaries need the knowledge and use of secretarial skills.
- A Legal Secretary takes dictation, types letters, files, sorts, makes appointments and does general accounting.
- The Legal Secretary works with many legal forms such as wills, summonses and subpoenas.
- A Legal Secretary will take notes of interviews between the client and type the notes as a record of the interview.
- A Legal Secretary may take notes in the courtroom during a trial session.



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ec
Grimes State Offi
Des Moines, IA
Phone (515) 281

EDUCATION AND TRAINING:

High school education or its equivalent is necessary.
Vocational schools, vocational schools and community colleges offer
secretarial programs and these are strongly recommended.
Experience in office work is helpful.

RELEVANT HIGH SCHOOL SUBJECTS:

English
Language Skills
Secretarial & Typing

RECOMMENDED COURSES OF STUDY AND TRAINING:

Office Supervision and Management
Executive Secretarial
Legal Secretarial
Secretarial

SOURCES OF ADDITIONAL INFORMATION:

International Secretaries International
1000 Armour Blvd.
St. Louis, MO 64111-1299

Bureau of Labor Statistics
Outlook Handbook
Department of Labor
(202) 284-1234



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

LENS GRINDER

sets up and operates grinding and polishing machines to make lenses for various optical instruments and eyeglasses.

2686

716.382-018

06.02

7477

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

B
ES

PERSONAL APTITUDES:

A lens grinder will be able to learn the grinding operation required for a given prescription.

The ability to read and follow written instructions as well as spoken instructions will be important in this occupation.

A lens grinder will use basic math for measuring, computing and recording.

The ability to picture objects and their relationship to other objects and the objects they use will be very important in this occupation.

The ability to see small differences in shape, size and texture will be important in this occupation.

A lens grinder will be able to use eyes, arms, hands and fingers to work with delicate objects and equipment.

- A Lens Grinder will be able to reach and see, as well as lift up to 10 pounds.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Lens Grinder will be able to complete tasks to meet a deadline.
- An interest in working with things using processes and machinery to produce a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Lens Grinder may specialize in lens grinding or finishing.
- Lens Grinders may use such tools and instruments as a variety of clippers, pliers, files, grinders, protractors and glass drill bits.
- A Lens Grinder uses several precision instruments to inspect lenses for imperfections.
- A Lens Grinder may be named according to the type of lens being ground: eyeglass-lens grinder, instrument lens grinder, etc.
- Lens Grinders operate a machine to rough grind blanks of a given approximate size and shape.
- The Lens Grinder blocks optical elements in plaster.
- A Lens Grinder mounts blocked elements in a machine and operates the machine to fine grind elements to the final size and shape.



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ec
Grimes State Offi
Des Moines, IA
Phone (515) 281

UL HIGH SCHOOL SUBJECTS:

asic Math Skills
ial Education
anufacturing

AMS OF STUDY AND TRAINING:

pprenticeship

S OF ADDITIONAL INFORMATION:

Association of America
emocracy Lane
7A 22030



OCCUPATIONAL BRIEFS

Career Information Service
Iowa Dept. Of Economic Development
Grimes State Office
Des Moines, IA
Phone (515) 281-1234

LIBRARIAN
selects, maintains and facilitates the use of the collection of books and materials in a library.

8492
100.127-014
11.02
251
14-Public Service (F)
14-Public Service (S)
Education (F)
Government (S)

B
ES

PHYSICAL APTITUDES:

- The ability to learn, understand and use book and classification systems as well as general library operating procedures will be important in this occupation.
- The ability to read and understand instructions and give clear directions will be important in this occupation.
- The ability to use basic math for computations and bookkeeping will be important in this occupation.
- The ability to pay close attention to written information to avoid errors will be important in this occupation.
- The ability to reach, hear and handle loads up to 10 pounds will be important in this occupation.
- The ability to change from task to task many times in a day will be important in this occupation.

- The ability to work with many kinds of people in different settings will be important in this occupation.
- A Librarian will be able to make decisions based on experience and judgment.
- An interest in work that involves business contact with customers and offers the opportunity to gain new business will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Librarian selects and maintains books, periodicals and other materials.
- The Librarian organizes the materials for most efficient use.
- Librarians establish goals for the library program, determine the needs of the library users and evaluate the program and policies.
- A Librarian may work in the 'public' section of the library serving users.
- A Librarian may work in the 'technical' section of the library organizing collections and finding ways to make the materials most available to the users.
- Librarians find information requested from the public library.
- A Librarian may also teach users how to find information in a college/university library.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA
Phone (515) 281-1234*

of 'Director of Library Services' in a public school library in
quires, in addition to the above requirements, a Master's
in library science from a recognized institution.

er's degree in library science from an ALA approved school is
ended for positions in public libraries.

l Master's degree in a subject area, in addition to an ALA
d Master's in Library Science, is also helpful to those who
arian positions in college or university libraries.

perience in a library is also very helpful.

Chicago IL 60611

- Occupational Outlook Handbook
1986-87 edition
pages (137-140)

HIGH SCHOOL SUBJECTS:

ature
ign Language
dies
ry

AREAS OF STUDY AND TRAINING:

rary Science

SOURCES OF ADDITIONAL INFORMATION:

ibrary Association
ibrary Personnel Resources
1 Street
60611

ary Association, Inc.
igan Avenue, Suite 3208



OCCUPATIONAL BRIEFS

Career Information System

Iowa Dept. Of Education

Grimes State Office

Des Moines, IA 50319

Phone (515) 281-5100

LIBRARY ASSISTANT

Library assistants check out and shelves books, aids in cataloging new books, and does other things to help keep the library running smoothly.

1428

249.367-046

11.02

4694

14-Public Service (F)

14-Public Service (S)

Education (F)

Government (S)

LIBRARY ASSISTANT

Library Assistant will be able to learn the methods of organization and operation of the library.

Library Assistant to understand and follow written or spoken directions will be important in this occupation.

Library Assistant will be able to see small differences in shape, size, and color.

Library Assistant to pay attention to detail in written and table information and to correct errors will be important in this occupation.

Library Assistant will be able to use eyes, hands and fingers to perform clerical tasks.

Library Assistant to reach, stoop, hear and sometimes handle loads up to 50 pounds will be important in this occupation.

- A Library Assistant will be able to change from task to task many times in one day.
- An ability to work with many kinds of people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Library Assistant should be familiar with library terminology and techniques.
- Library Assistants may work in all kinds of libraries including public, industry and research companies to keep records in libraries and to serve the public.
- A Library Assistant may check out and renew books and materials on reserve.
- The Library Assistant may also be in charge of sending out notices to patrons.
- Library Assistants may order new books which make the library collection more complete.
- Library Assistants classify and file, or shelf books.
- A Library Assistant may rebind and mend books; also, clean and repair and other library materials.
- A Library Assistant works under a more experienced assistant or Librarian.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Ed.
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234*

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Previous library experience and office jobs which give experience in clerical organization are good preparation.

Courses in library services, sociology, and psychology are a plus background.

Community colleges offer programs in library services to prepare Library Assistants.

Training may also be received on the job and may last from one to two years.

- Medical Library Association, Inc.
919 N Michigan Ave., Suite 3208
Chicago, IL 60611

HIGH SCHOOL SUBJECTS:

Mathematics

Library Clerical

COURSES OF STUDY AND TRAINING:

Library Science

SOURCE OF ADDITIONAL INFORMATION:

Medical Library Association
Library Personnel Resources
919 N Michigan Street
Chicago, IL 60611



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234

LICENSED PRACTICAL NURSE

is involved in caring for patients, utilizing nursing skills and technical knowledge.

8164

079.374-014

10.02

366

6-Health (F)

6-Health (S)

Nursing (F)

Nursing (S)

B
ES

PERSONAL APTITUDES:

A Licensed Practical Nurse will be able to learn the principles of home care and hospital and nursing home operation.

The ability to understand and follow written or spoken directions and to explain these directions to others will be important in this occupation.

A Licensed Practical Nurse will be able to pay attention to detail in order to avoid errors.

The ability to use eyes, hands and fingers together will be important in this occupation.

A Licensed Practical Nurse will be able to reach, hear and see, as well as lift loads weighing 25 pounds and sometimes lift up to 50 pounds.

- A Licensed Practical Nurse will be able to change from one task to another many times in one day.
- The ability to work with all kinds of people in situations that are stressful for both the patient and nurse will be important in this occupation.
- A Licensed Practical Nurse will be able to complete tasks to a set standard.
- An interest in scientific or technical work that will be helpful in this occupation will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Licensed Practical Nurse works within the guidelines set by the Iowa Practice Act and the requirements of the employer.
- The Licensed Practical Nurse helps doctors and registered nurses in caring for sick people.
- Licensed Practical Nurses perform duties that require technical knowledge, but do not have the professional training of a Registered Nurse.
- A Licensed Practical Nurse takes and records temperatures, blood pressures, changes dressings and gives some prescription drugs under supervision.
- Licensed Practical Nurses bathe the bed patients and help with many ways with personal tasks.



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234

RELATED OCCUPATIONS:

Registered Nurse (8136)
Nurse Aide/Orderly (8166)
Nurse Practitioner Assistant (8121)
Licensed Practical Nurse (8162)

EDUCATION AND TRAINING:

Requires a high school diploma or the equivalent.

Candidates must complete a program at a state approved school of nursing or LPNs.

Initial license is issued after completion of the approved training program and passing the State Board Examination.

Hours of Continuing Education credits are required for first renewal.

Continuing Education Credits are needed for renewal at the end of the three year period.

Registration fee of \$25.00 payable to the testing service (ENCLEX)

Initial exam for licensing is given two times a year and the application fee is \$56; the exam fee is \$30.

Additional training is offered at trade, technical and vocational schools, hospitals, junior colleges and private educational institutions.

HELPFUL HIGH SCHOOL SUBJECTS:

- Science
 - Biological Science
- Home Economics
 - Consumer & Homemaking
- Health & Physical Education
 - Health
- Health
 - Nursing Care
- Math
 - General Math

PROGRAMS OF STUDY AND TRAINING:

- 3557 - Practical Nursing

SOURCES OF ADDITIONAL INFORMATION:

- American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005
- National Health Council
70 West 40th Street
New York, NY 10018
- Occupational Outlook Handbook
1986-87 edition
pages (196-198)



OCCUPATIONAL BRIEFS

Career Information System

Iowa Dept. Of Education

Grimes State Office Building

Des Moines, IA 50319

Phone (515) 281-5400

SCIENTIST

the life processes of living things and how to use these findings to prevent disease and promote a plant and animal life.

2611

041.061-030/038/090

02.02

1854

12-Natural Resources & Environment (F)

12-Natural Resources & Environment (S)

Research (F)

Research (S)

LEARNING APTITUDES:

Scientist will be able to learn, understand and use the concepts of biology and related sciences as well as the scientific method.

Scientist will be able to read, understand and use scientific and technical language which is important in this occupation.

Scientist will be able to use math, make diagrams and follow formulas.

Scientist will be able to picture how a system works as well as understand the parts of the system will be important in this occupation.

Scientist will be able to see small differences in size, form, color, and texture.

- The ability to pay attention to detail in written information and to detect or correct errors will be important in this occupation.
- A Life Scientist will be able to use eyes, hands and fingers to use laboratory equipment and handle small objects.
- The ability to reach and see as well as handle objects up to 10 feet will be important in this occupation.
- A Life Scientist will be able to make decisions based on experimental results.
- A Life Scientist will be able to complete tasks to meet a schedule.
- An interest in scientific or technical work will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Life Scientist must be familiar with research techniques and the use of complex laboratory equipment such as electron microscopes.
- Life Scientists may conduct basic research to increase knowledge of living organisms which can be applied to medicine, increasing crop yields or improving the natural environment.
- The Life Scientist may find a knowledge of computers useful in conducting experiments.
- Life Scientists may raise and/or collect specimens for dissection and examination.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234

EDUCATION AND TRAINING:

A baccalaureate degree is usually the minimum requirement for most jobs as a Life Scientist.

Experience in the field is very helpful in obtaining any position as a Life Scientist.

Advanced study is necessary for advancement.

High schools and universities offer life science curriculum. However, high schools may emphasize only certain areas of Life Science such as Biology, Botany or Zoology.

Advanced training is essential for many positions, particularly research and college training.

HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Advanced Math
Biology
Cultural Production
Life Sciences
History
Physical Education

PROGRAMS OF STUDY AND TRAINING:

- 1221 - Horticulture Science
- 1226 - Plant Pathology
- 4901 - Biology, General
- 4902 - Biochemistry and Biophysics
- 4903 - Botany
- 4914 - Microbiology
- 4917 - Ecology
- 4928 - Zoology, General
- 4929 - Entomology
- 4930 - Genetics

SOURCES OF ADDITIONAL INFORMATION:

- Botanical Society of America, Inc.
Department of Biological Science
Indiana University
Bloomington, IN 47405
- American Society of Zoologists
Box 2739
California Lutheran College
Thousand Oaks, CA 91360
- Occupational Outlook Handbook
1986-87 edition
pages (87-87)



OCCUPATIONAL BRIEFS

Career Information Sys

Iowa Dept. Of Edu

Grimes State Office

Des Moines, IA 50

Phone (515) 281-5

PERSON

and maintains wires and poles that carry power
phone service to homes and businesses.

5624

821.361-018

05.05

6433

9-Maintenance & Repair (F)

14-Public Service (S)

Machine Maintenance (F)

Utilities & Services (S)

LEARNING ABILITIES:

Person will be able to learn and understand the methods of
wires and cables.

Person will understand some technical language and follow written
instructions will be important in this occupation.

Person will be able to picture the work and materials needed
in doing the job.

Person will be able to see small differences in shape, form and line will be
important in this occupation.

Person will be able to use eyes, hands and fingers together to control equip-
ment in an exact way will be important in this

- A Lineperson will be able to climb, stoop, reach, hear and
as handle loads weighing up to 50 pounds and sometimes
100 pounds.
- An ability to handle many different tasks in the same day
will be important in this occupation.
- A Lineperson will be able to work well under the stress of
problems and some risks.
- The ability to make decisions based on measurable facts will
be important in this occupation.
- A Lineperson will be able to complete tasks to meet a set
of standards.
- An interest in working with things that use processes and
will be helpful in this occupation.
- With employer assistance, some physical requirements may
be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Linepersons are hired by light and power companies and
telegraph companies.
- A Lineperson installs most of the wires and cables that connect
central offices and sources of power with peoples' homes and
businesses.
- The Lineperson puts in poles and wires from the power sources
to consumers.



OCCUPATIONAL BRIEFS

Career Information S
Iowa Dept. Of Ec
Grimes State Offi
Des Moines, IA
Phone (515) 281

ED OCCUPATIONS:

ice Repairer (3169)
ian (5626)
ial Maintenance Mechanic (3144)
ne Equipment Installer (3166)

EDUCATION AND TRAINING:

chool education or its equivalent is required.

panies have training programs which combine on-the-job
with classroom instruction.

ie classroom training, a Lineperson may go with an exper-
w to learn on the job.

ns must continue their training so that they can qualify for
ult assignments and keep up with changes in the industry.

ns must pass a rigid physical examination.

ograms at community colleges are very helpful.

HIGH SCHOOL SUBJECTS:

ducation
unications
uction
al/Electronic
& Power Systems
cturing

PROGRAMS OF STUDY AND TRAINING:

- 7508 - Line Worker
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (358-360)
- Guide for Occupational Exploration
1979 edition
pages (88-100)



OCCUPATIONAL BRIEFS

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Phone (515) 281-4

OFFICER

es, evaluates and authorizes approval of applica-
credit; or commercial, real estate and consumer

1636

186.267-018

11.06

1415

2-Business & Office (F)

2-Business & Office (S)

Finance & Investing (F)

Finance & Investing (S)

LEARNING APTITUDES:

Officer will be able to learn, understand and follow state,
institution rules and regulations that apply to the types of
and by the company.

Officer will be able to understand spoken or written financial
as well as prepare clear, to the point reports.

Officer will be able to read and understand technical math information in
diagrams to work with property values will be important in
operation.

Officer will be able to pay attention to detail in written
reports to avoid or correct errors.

Officer will be able to sit for long periods of time will be important in this

- A Loan Officer will be able to work with all kinds of people in different situations.
- A Loan Officer will be able to make decisions based on business experience and measurable fact.
- An interest in business contacts with people that gives a person an opportunity to earn other's respect will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Loan Officers use knowledge of economics, production, distribution, merchandising, commercial law, business operations and financial statement analysis.
- A Loan Officer may find helpful an ability to concentrate and a memory for detail.
- The Loan Officer interviews applicants for loans to decide whether and collateral the applicant can offer to support the loan.
- Loan Officers seek the necessary records to conform with federal laws and management policy.
- The Loan Officer reviews and approves or rejects the application.
- The Loan Officer must continue, after the loan has been made available to the borrower in servicing the loan, as well as monitoring the progress of repayment.



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EDUCATION AND TRAINING:

Loan Officer positions are filled by management trainees. Completion of a college education is usually required for admittance to a management training program.

College courses in business administration major in finance or a liberal arts curriculum including accounting, economics, commercial law, political science, and statistics serve as excellent training for Loan Officer.

Financial institutions have well-organized Loan Officer training programs which usually last from six months to one year. Trainees are rotated from one department to another to get the 'feel' of the institution.

Work experience may be gained through summer employment in a financial institution.

HIGH SCHOOL SUBJECTS:

Math Skills
Business Education
Statistics

Marketing

AREAS OF STUDY AND TRAINING:

Cultural Business
Cultural Supplies and Services
Social Sciences, General
Economics

- 1803 - Banking and Finance
- 1809 - Business Economics
- 1830 - Real Estate, General

SOURCES OF ADDITIONAL INFORMATION

- American Bankers Association
Bank Personnel Division
1120 Connecticut Avenue, N.W.
Washington, D.C. 20036
- Occupational Outlook Handbook
1986-87 edition
pages (26-28)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Ed.
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-1234

LOCKSMITH
Locksmiths assemble and work with locks and safes of all

3192
709.281-010
05.05
6173
9-Maintenance & Repair (F)
9-Maintenance & Repair (S)
Building Maintenance (F)
Building Maintenance (S)

B
S

GENERAL APTITUDES:

- Locksmith will be able to learn the principles of all the different types of locks.
- Ability to follow spoken and written directions will be important in this occupation.
- Locksmith will use basic math in measuring and record keeping.
- Ability to picture how locks work will be important in this occupation.
- Ability to use eyes, hands and fingers together to handle small delicate and sensitive tasks will be important in this occupation.
- Locksmith will be able to stoop, reach and hear as well as handle up to 100 pounds.

- The ability to make decisions based on measurable facts is an important factor in this occupation.
- A Locksmith will be able to complete a task to meet a schedule.
- An interest in working with things that use processes and tools will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Locksmiths use their skills in the following fields: Residential Security, Commercial Security, Automotive, Burglar Alarms, and Safes.
- A Locksmith repairs and opens locks of all kinds.
- The Locksmith makes new or duplicate keys for customers.
- A Locksmith may have to change the combination on a lock.
- A Locksmith uses many kinds of hand tools and some special equipment.
- Locksmiths take apart locks such as padlocks, safe locks and door locks.
- A Locksmith repairs or replaces worn tumblers, springs and bolts of a lock.
- The Locksmith will sometimes use a file or other instrument to shorten a tumbler.



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g an independent shop is possible.

PRIMARY OCCUPATIONS:

ed military occupations.

SECONDARY OCCUPATIONS:

2364)
t (5464)
tal Worker (5484)

EDUCATION AND TRAINING:

chool education or its equivalent is preferred.

o work and a willingness to learn may be more important
al education.

he skills of this trade are learned mostly through on-the-job
ere are some locksmithing schools available.

s and cities have licensing requirements.

sty and public trust are important in this occupation, the
o no past criminal record.

HIGH SCHOOL SUBJECTS:

ducation
iist

PROGRAMS OF STUDY AND TRAINING:

- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- National Association of Trade and Technical Schools
2021 K Street, N.W.
Washington, D.C. 20006



OCCUPATIONAL BRIEFS

Career Information Service
*Iowa Dept. Of Economic Development
Grimes State Office
Des Moines, IA
Phone (515) 281-1234*

MACHINIST

Assembles or repairs metal parts for machines; also makes tools used to make other parts.

5464

600.280-022

05.05

6813

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

BS

PERSONAL APTITUDES:

Machinist will be able to learn the characteristics of metals as well as the operation of the machine used.

Machinist must be able to read and follow blueprints and other diagram directions which are important in this occupation.

Machinist must be able to use math for exact measuring and to understand trigonometry and geometry formulas.

Machinist must be able to picture what the product will look like.

Machinist must be able to see small differences in size, shape, form and line which are important in this occupation.

Machinist must be able to use eyes, hands and fingers together to operate machines so the product is exactly as ordered.

- An ability to stoop, reach and handle loads weighing 25 to 50 pounds, sometimes lift up to 50 pounds will be important in this occupation.
- A Machinist will be able to change from task to task many times in the same day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Machinist will be able to complete tasks to meet a set schedule.
- An interest in working with things that result in a product that can be seen and touched will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Machinist will read blueprints and layouts.
- The Machinist operates machine tools which cut or shape metal to sizes or patterns. A machine tool is a stationary, power-driven machine, such as a lathe, which is used for cutting and shaping metals.
- Machinists read technical drawings and blueprints and take exact measurements and specifications.
- A Machinist may use micrometers and other precision measuring instruments to check the correctness of the work to a thousandth of an inch.



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Des Moines, IA 5
Phone (515) 281-

EDUCATION AND TRAINING:

Applicant must be 18 years old in most states to work in a machine shop.

High school diploma or its equivalent is recommended.

Additional school training and/or an apprenticeship is usually needed.

Apprenticeship training usually lasts two years and is one of the best ways to get started in this trade.

RECOMMENDED HIGH SCHOOL SUBJECTS:

• Math Skills
• Science of Technology
• Education
• Electricity & Power Systems
• Manufacturing
• Machine Working

RECOMMENDED COURSES OF STUDY AND TRAINING:

• Machine Tool Operation/Machine Shop
• Die Making
• Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- International Association of Machinists and Aerospace Workers
1300 Connecticut Avenue, N.W.
Washington, D.C. 20036
- National Association of Trade and Technical Schools
2251 Wisconsin Ave. NW
Suite 200
Washington, D.C. 20007
- Occupational Outlook Handbook
1986-87 edition
pages (422-424)



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Des Moines, IA
Phone (515) 281-1234

CARRIER

Collects and delivers mail to persons along a fixed route.

7122

230.367-010

07.05

4743

14-Public Service (F)

14-Public Service (S)

Utilities & Services (F)

Utilities & Services (S)

B
ES

PERSONAL APTITUDES:

Carrier will be able to learn the routes and methods of the job.

Carrier will be able to follow both written and spoken directions and be able to explain to others will be important in this occupation.

Carrier will be able to pay attention to detail in written and oral communication to avoid or correct errors.

Carrier will be able to move around easily.

Carrier will be able to use your eyes and hands together to handle objects of various size will be important in this occupation.

Carrier will be able to reach and see as well as handle loads of various weights and sometimes lift up to 50 pounds.

- A Mail Carrier will be able to do the same task the same way every time a day.
- An interest in working with things, that need the same attention all day, each day you work, will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Mail Carrier collects and delivers mail.
- The Mail Carrier must arrange and sort the mail into the proper delivery order. Do this at the post office before making the delivery.
- Mail Carriers are also responsible for other jobs, such as sorting mail and taking care of special mail.
- Mail Carriers are allowed to handle only 35 pounds of mail at one time so you arrange the mail into bundles called 'relays'.
- A Mail Carrier may be assigned a vehicle for the route.
- The Mail Carrier may have a route of a single office building or several miles of country road.
- Mail Carriers use this vehicle as a roving storage point at each location and park.
- A Mail Carrier may collect mail by truck from the mail processing plant throughout the city.
- The Mail Carrier may deliver special delivery items by truck.



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Grimes State Office
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SOURCES OF ADDITIONAL INFORMATION:

Post Office

Occupational Outlook Handbook
8th Edition
(75-278)



OCCUPATIONAL BRIEFS

Career Information System

Iowa Dept. Of Education

Grimes State Office Building

Des Moines, IA 50319

Phone (515) 281-5500

MAIL CLERK
and delivers mail from the various offices in a
mailing company, hospital, college or an office

7121

209.587-026

07.05

4744

2-Business & Office (F)

2-Business & Office (S)

Secretarial & Clerical (F)

Secretarial & Clerical (S)

ABILITIES:

Mail Clerk will be able to learn and follow the routine of the office.

Mail Clerk to follow directions, both written and spoken, will be important in this occupation.

Mail Clerk will be able to see small differences in size and shape to

Mail Clerk to pay close attention to detail in written or table information. Correcting or correct errors will be important in this occupation.

Mail Clerk to reach and see as well as handle up to 10 pound loads will be important in this occupation.

Mail Clerk will be able to do a task the same way many times in

- A Mail Clerk will be able to complete a task to meet a set
- An interest in working with things using processes that are used many times will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Mail Clerks will have different duties depending on the place they are employed.
- A Mail Clerk picks up and delivers mail in the various office departments of the business.
- The Mail Clerk may have to stamp and deliver mail to the
- The Mail Clerk may open the mail and sort it according to what must be delivered.
- Mail Clerks may readdress undeliverable mail bearing an incorrect or incorrect address.
- The Mail Clerk may examine outgoing mail for appearance and envelopes by hand or machine.
- The Mail Clerk may fold letters or circulars and insert into
- The Mail Clerk may weigh mail to decide that postage is correct
- Mail Clerks may keep a record of registered mail.
- Mail Clerks deliver the mail to its proper place, picking up and outgoing mail along the way.



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MANAGEMENT TRAINEE

Under the direction of experienced personnel, perform assigned duties to learn the required standards and procedures.

1169

189.167-018

11.05

139

2 - Business & Office (F)

11 - Marketing & Distribution (S)

Management (F)

Management (S)

ESSENTIAL ABILITIES:

Management Trainee must be able to evaluate, decide, and carry out that effect staff.

Management Trainee will be expected to use both written and verbal language to interact with many different types of people.

Management Trainee must be able to use math to compute bills, receipts and verify cash records.

Management Trainee must be able to accurately record figures, merchandise and prepare financial reports.

Management Trainee will be able to hear and lift up to 10 lbs.

Management Trainee will be able to organize, supervise, and direct the work of others.

- The Management Trainee will work with people to promote and create good will for the company's products.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Management Trainee may work as a part of many different departments within a store to become familiar with how the store operates.
- A Management Trainee will work with many people, such as customers, other management trainees, and company officials.
- A Management Trainee will learn company policies and administrative company programs.
- Contact with the public will be required and the trainee may be expected to take part in community activities.
- The Management Trainee will learn to interview, hire, fire, and direct employees.
- Trainees may be expected to wait on customers, take phone orders, handle customer complaints, sell merchandise, and run cash registers.
- Trainees will order supplies, schedule equipment purchases, maintain inventories, account for money, make deposits, and work with managers and owners.
- Trainees will open and close stores, keep facilities clean, and maintain and repair equipment.



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Management Trainee (1149)
Management Trainee (1162)

Management Trainees. It is possible to advance to a Management Trainee position by a combination of experience on the job and training, either in house or formal education.

EDUCATION AND TRAINING:

Secondary training is very important for this position. A bachelor's degree is often required. Over 40% of salaried managers have 4 years of college or more.

Management Trainees are required to attend additional in-house or formal training programs.

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (23-35)

HIGH SCHOOL SUBJECTS:

Language Skills

Math Skills

Business
Management
Technology

Education

Business Merchandising and Marketing

DESCRIPTION OF STUDY AND TRAINING:

A Management Trainee may be involved in many different occupations for that reason specific programs have not been identified for this occupation. Business degrees or liberal arts degrees, among others, are often considered good backgrounds for



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Phone (515) 281-5100

MANUFACTURER'S REPRESENTATIVE

The products made by the manufacturer by showing them to customers and convincing them to buy from the company.

7414

279.157-010

08.02

4249

11-Marketing & Distribution (F)

10-Manufacturing (S)

Buying & Selling (F)

Product Sales (S)

PERSONAL ABILITIES:

The Manufacturer's Representative will be able to learn and understand the products represented, company policies on financing returned goods and company policies.

The Manufacturer's Representative will be able to speak and write clearly to explain and promote the products. Clear communication will be important in this occupation.

The Manufacturer's Representative will be able to use math to total sales and fill out sales and order forms.

The Manufacturer's Representative will be able to see small differences in the size and shape of objects to determine if they are correct. Attention to detail will be important in this occupation.

The Manufacturer's Representative will be able to pay attention to detail in their work to avoid or correct errors.

- An ability to reach and hear as well as handle loads weighing up to 10 pounds will be important in this occupation.
- A Manufacturer's Representative will be able to talk easily with different people affecting their attitudes and ideas in favor of the represented product.
- The ability to make decisions based on experience will be important in this occupation.
- An interest in work, sharing ideas and information in business, and making contacts with people, will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Manufacturer's Representative sells the manufacturer's products to customers in a certain area.
- The Manufacturer's Representative may cover a few counties or may cover several states.
- A Manufacturer's Representative must know all about the products for sale and must always keep up with the newest and latest products in these products.
- A Manufacturer's Representative must also stay informed about their competitors' products and be able to show customers why their competitor's item is not as good or as profitable to use.
- The Manufacturer's Representative builds up a list of customers called 'regulars', to visit frequently.



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er rate is fairly high.

nt to sales manager, district representative or district possible.

OCCUPATIONS:

military occupations.

OCCUPATIONS:

- Products Salesperson (7429)
- Sales Agent (7416)
- Sales Agent (7417)
- Commodities Sales Agent (7415)

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Postsecondary education in marketing is preferred.

A college degree is increasingly desirable, the type and level needed for a Manufacturer's Representative depends on the product and its market.

Manufacturers have formal training programs that last two years.

Employees take formal class instruction at the plant, followed by on-the-job training in a branch office under the supervision of a field manager.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Basic Math Skills
- Math
 - Language Skills
- Distributive Education
 - General Merchandising & Marketing

PROGRAMS OF STUDY AND TRAINING:

- 1023 - Agricultural Supplies and Services
- 1217 - Food Science
- 1825 - Marketing Management
- 1842 - Trade and Industrial Supervision and Management
- 2002 - Fashion Merchandising
- 2023 - Food Marketing
- 2033 - Retailing
- 2031 - International Marketing
- 2035 - Wholesaling
- 4930 - Genetics

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (257-259)



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Des Moines, IA 50319
Phone (515) 281-5555

MATERIALS HANDLER

Responsible for the storage and movement of materials of all kinds in warehouses or other storage areas.

7114

922.687-030

05.09

8769

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Stock Control (F)

Stock Control (S)

REQUIREMENTS:

Materials Handler will be able to follow written and spoken instructions.

Doing basic math computations will be important in this occupation.

Materials Handler will be able to use hands to move, carry and lift medium and large objects.

Reaching and lifting up to 50 pounds will be important in this occupation.

Materials Handler will be able to do the same task the same way in one day.

Working with things and in work that is the same as working in this occupation.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Materials Handlers are responsible for storing and moving materials of all kinds in warehouses or other storage areas.
- Materials Handlers move supplies by forklift or dolly to specified locations in the warehouse.
- The Materials Handler must put items in the proper bins, racks to be stored.
- A Materials Handler also packs orders for delivery to customers; these orders must then be loaded on skids, pallets, trucks or trailers.
- The Materials Handler determines how much material will be on pallets and trucks and how they will be packed.
- Materials Handlers keep accurate, up-to-date records of the materials received and distributed through the warehouse.
- A Materials Handler may also make daily spot checks to be sure no merchandise is out of stock.
- The Materials Handler marks goods with pencils, crayons or other marking tools so they may be easily identified and found.
- A Materials Handler records the amount of materials and items received or distributed.
- A Materials Handler may prepare parcels for mailing.
- A Materials Handler may maintain inventory records.



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Phone (515) 281-55*

OF ADDITIONAL INFORMATION:

Occupational Exploration
n
-235)



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Grimes State Office

Des Moines, IA 50319

Phone (515) 281-5100

MEAT CUTTER

Meat cutters trim, slice, and wrap all kinds of meat for the retail and wholesale market.

4326

316.684-018

05.10

5217

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Packaging & Delivery (F)

Packaging & Delivery (S)

PERSONAL APTITUDES:

Meat cutters will be able to learn the principles and methods of packaging and the meat department routine.

The ability to picture the finished product will be important in this occupation.

Meat cutters will be able to see small differences in shape, form and color.

Meat cutters will use eyes, arms, hands and fingers together to control machinery and tools to get exactly the product needed will be important in this occupation.

Meat cutters will be able to reach and see as well as handle loads of up to 50 pounds and sometimes lift up to 50 pounds.

Meat cutters will make decisions based on both experience and measurement. Accuracy will be important in this occupation.

- A Meat Cutter will be able to complete tasks to meet a schedule.
- An interest in working with things using machines and precision tools will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Meat Cutter may do a variety of jobs throughout the day.
- Meat Cutters divide animal carcasses into family size portions.
- Meat Cutters use knives, saws and cleavers to break down animal carcasses into portions of meat, fish or poultry.
- A Meat Cutter should be able to identify the cuts and grades of meat.
- The Meat Cutter may trim off fat and bone and prepare the meat to make it attractive to consumers.
- The Meat Cutter must cut each piece of meat to an exact size and thickness.
- A Meat Cutter must often be a salesperson as well as a meat cutter in a retail establishment.
- Meat Cutters slice, grind, trim, cut or otherwise prepare the meat to suit the customer.
- A Meat Cutter may also prepare other meat products such as sausage or corned beef.
- Meat Cutters may clean and cut fish and poultry.



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

OCCUPATIONS:

Meat Cutter (1183)
Meat Products Buyer (1183)
Meat Store Manager (1149)

EDUCATION AND TRAINING:

High school diploma or its equivalent is preferred by most employers. Apprenticeship training is available.

Meat cutting is a job that may be available.

Meat cutting, formal apprenticeship is the most common training method.

Apprenticeships last two to four years.

Meat cutters learn skills of this trade while working as a helper or packer. Such experience is good preparation for apprenticeship.

When available, a vocational course in meat cutting would be helpful.

HIGH SCHOOL SUBJECTS:

Mathematics
Food
Education
Career & Homemaking
Management

PROGRAMS OF STUDY AND TRAINING:

- 7722 - Meat Cutter
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- The American Association of Meat Processors
P.O. Box 269
224 East High Street
Elizabethtown, PA 17022
- Occupational Outlook Handbook
1986-87 edition
pages (415-415)



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Career Information System
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Phone (515) 281-3400

MEAT PACKING WORKER

Meat Packing Worker provides, and prepares a variety of meats for packing and distribution.

4327

525.684-010

06.04

7753

1 - Agriculture/Agribusiness (F)

1 - Agriculture/Agribusiness (S)

Processing (F)

Processing (S)

PHYSICAL ABILITIES:

Meat Packing Worker will be able to see the cuts of meat they are packing in relation to the whole carcass or in relation to the type of shipping container used for the product.

Meat Packing Worker will be able to see differences in sizes and

weights of hands, or fingers together quickly will be necessary in this occupation.

Meat Packing Worker will be able to use hands and fingers rapidly and dexterously.

Meat Packing Worker will be able to work the same way every day will be part of this occupation.

Meat Packing Worker will be able to work in a familiar pattern will be part of this occupation.

- A Meat Packing Worker will be able to carry 25 pounds or more of 50 pound loads.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Meat Packing Workers divide the whole animal carcass into larger cuts or consumer (smaller cuts).
- Meat Packing Workers often specialize and are classified according to the type of work they perform.
- Some of the specialties are; trimmers, meat processors, sawyers and saw workers.
- Meat Packing Workers are responsible for keeping the blades of cleavers and hand saws clean and in good condition.
- Meat Packing Workers also may be responsible for keeping the machinery used in good working condition.

WAGES:

Hours per week	40
Average wage (entry level)	\$6.62
Average wage (all experience levels)	\$8.65
Average range	\$8.70-\$9.10
	\$18,096-\$18,924

(Wages courtesy of the Iowa Dept. of Employment Services)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

Mechanical Engineer

tools, engines or machines that produce, transmit or convert power.

2436

007.061-014

05.01

1635

10-Manufacturing (F)

10-Manufacturing (S)

Engineering & Design (F)

Engineering & Design (S)

REQUIREMENTS:

A Mechanical Engineer will be able to learn, understand and use the principles of physics and related sciences.

The ability to understand complex technical language to explain, write using that technical language will be important in this occupation.

A Mechanical Engineer will be able to use math principles from trigonometry and calculus.

The ability to picture the relationship of one object to another and the ability to use perspective will be important in this occupation.

The ability to pay close attention to small differences in size, shape and color will be important in this occupation.

A Mechanical Engineer will be able to pay close attention to detail in number work to avoid or correct errors.

- The ability to use eyes, arms, hands and fingers together with small tools and sensitive instruments will be important in this occupation.
- A Mechanical Engineer will be able to reach and see as well as lift objects weighing 10 pounds.
- The ability to change from task to task many times in one day will be important in this occupation.
- A Mechanical Engineer will be able to plan and direct the work of others.
- The ability to make decisions based on both experience and technical facts will be important in this occupation.
- A Mechanical Engineer will be able to complete tasks to meet a set standard.
- An interest in scientific or technical work that uses processes and machines will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Mechanical Engineers are concerned with the production, transmission and use of power.
- A Mechanical Engineer may design and develop power producing machines such as internal combustion engines, steam and gas turbines, and jet and rocket engines.



OCCUPATIONAL BRIEFS

Career Information System
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Phone (515) 281-55

EDUCATION AND TRAINING:

A bachelor's degree in Mechanical Engineering is required for employment. Engineering positions are filled by people trained in the natural sciences and mathematics. Continuing education is becoming more important for advancement. An individual does not need to obtain a license to gain employment as an engineer. However, to practice as a Registered Professional Engineer, one must meet the state requirements for licensure. To obtain an Engineer license, several combinations of experience and education/training are possible. One must pass two written examinations in the fundamentals, theory, and practice of Engineering. The first year of practicing as a Registered Professional Engineer. Continuing Education Units are required for license renewal. The number of hours required varies with work experience.

HIGH SCHOOL SUBJECTS:

1/Geometry
2/Advanced Math

Education
Engineering
Services
Occupational
Training

- Energy & Power Systems
Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- 3001 - Engineering, General

SOURCES OF ADDITIONAL INFORMATION:

- American Society of Mechanical Engineers
345 E. 47th Street
New York, NY 10017
- Occupational Outlook Handbook
1986-87 edition
page (66-67)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Educat
Grimes State Office B
Des Moines, IA 503
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TECHNICIAN

operates and repairs audiovisual equipment design and produce audiovisual aids with di-om other personnel.

3171

149.061-010

01.02

329

3-Communication & Media (F)

3-Communication & Media (S)

Advertising/Public Relations (F)

Advertising/Public Relations (S)

- A Media Technician will be able to use eyes, hands and fin together to operate equipment.
- The ability to tell one color from another and use color to a attitudes will be important in this occupation.
- A Media Technician will be able to change from task to tas times in one day.
- A Media Technician will be able to plan and direct the activ others.
- An ability to make decisions based on experience, personal and other's feelings will be important in this occupation.
- An interest in sharing ideas, producing original ideas as we producing things that can be seen and touched will be helpf occupation.
- With employer assistance, some physical requirements may through changes to the work site or equipment.

APTITUDES:

chnician will be able to learn, understand and use the 'design and audiovisual production as well as the opera- air needs of many audiovisual machines.

) understand some technical language and the skill to give t instructions will be important in this occupation.

chnician will use basic math for record keeping.

o picture objects and how they fit together will be this occupation.

chnician will be able to see small differences in shape, e.

o pay attention to detail in written information to avoid rors will be important in this occupation.

OCCUPATION PROFILE:

- A Media Technician may specialize in one type of media wo still photography, motion photography, television, media gra repairing audiovisual equipment.
- Media Technicians may perform a variety of tasks.
- Media Technicians work with the people for whom the job w done. Most of the preplanning design is done by someone wi training and experience.



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S OF STUDY AND TRAINING:

ational Media
tronic Technology
r-Optics Technology
ography

OF ADDITIONAL INFORMATION:

ccupational Exploration
1
5)



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MEDICAL ASSISTANT

Works in a doctor's office by answering the telephone, scheduling appointments and assisting the doctor with patient care.

8156

079.367-010

10.03

5233

2-Business & Office (F)

6-Health (S)

Secretarial & Clerical (F)

Health Care Administration (S)

REQUIREMENTS:

Medical Assistant will be able to learn and conduct the routine of medical and the clerical routine if in a small office.

Ability to follow written and spoken instructions will be important for this occupation.

Medical Assistant will be able to pay attention to detail in written reports to make sure records are accurate.

Medical Assistant will use eyes, arms, hands and fingers together to handle medical equipment and do general patient care will be important in this occupation.

Medical Assistant will be able to see and hear as well as handle up to 100 pounds.

- An ability to do the same tasks many times in one day will be important in this occupation.
- An interest in scientific or technical work that is helpful to the patient will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Medical Assistant acts as an office receptionist, secretary and does general administrative duties.
- The Medical Assistant helps the doctor with patients in the examination area.
- Medical Assistants perform some minor laboratory procedures such as urinalysis, bloodwork, and electrocardiograms.
- A Medical Assistant answers the telephone, schedules appointments for the doctor and greets and dismisses patients.
- The Medical Assistant will type reports and letters as well as understand simple bookkeeping procedures.
- A Medical Assistant must be able to file properly so that records can be found quickly when the doctor needs them.
- Medical Assistants bill the patients for the doctor's services and maintain a record of their payments and fill out insurance forms.
- The Medical Assistant may help the patient dress and undress, take temperatures and weigh and measure patients.



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HIGH SCHOOL SUBJECTS:

Economics
Consumer & Homemaking

Medical/Dental Technology
Nursing Care

Mathematical and Typing
Physical Education
Health

Composition
Health

AREAS OF STUDY AND TRAINING:

Medical Assisting
Dental Assisting
Pharmacy Assisting

SOURCES OF ADDITIONAL INFORMATION:

Association of Medical Assistants
1000 North Drive Suite 1575
Des Moines 50319

International Medical Association
100 Dearborn Street
Des Moines 50310



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Career Information System
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LAB ASSISTANT

The medical lab assistant works under the direction of a physician and medical technologist in laboratories, in keeping test records and in maintaining laboratory equipment.

2659

078.381-010

02.04

369

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

ABILITIES:

The Medical Lab Assistant will be able to learn and use the medical test procedures, the care routine for the lab and its supplies, and the test record keeping system.

The Medical Lab Assistant will be able to understand and follow written and spoken directions will be important in this occupation.

The Medical Lab Assistant will be able to use basic math to use some formulas and for record keeping.

The Medical Lab Assistant will be able to picture relationships of one object to another and to the use of color will be important in this occupation.

The Medical Lab Assistant will be able to see small differences in color and line when doing comparison tests.

- An ability to use eyes, hands and fingers together to handle laboratory equipment will be important in this occupation.
- An ability to reach and see as well as handle loads up to 10 pounds will be important in this occupation.
- A Medical Lab Assistant will be able to change from task to task many times in one day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Medical Lab Assistant will be able to complete tasks to a high standard.
- An interest in scientific or technical work that uses process control machines will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Medical Lab Assistant works in a laboratory under the direction of the Medical Technologist.
- A Medical Lab Assistant may also take instructions from a physician to perform tests under the direction of a Pathologist (a Physician who determines the nature of a disease through examination of tissues).
- A Medical Lab Assistant must be able to work with both machines and patients.



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EDUCATION AND TRAINING:

High school diploma or its equivalent is needed.
Technical schools and community colleges offer one-to two-year programs with classroom and laboratory experience.
Medical Lab Assistants are trained on the job.

2100 West Harrison Street
Chicago, IL 60612

- American Medical Association
535 North Dearborn Street
Chicago, IL 60610

HIGH SCHOOL SUBJECTS:

Math/Geometry
Physical Sciences
Medical/Dental Technology

PLACES OF STUDY AND TRAINING:

Medical Lab Technology
Medical Lab Technology
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

American Society for Medical Technology
100 North Dearborn Street, Suite 750
Chicago, IL 60610

American Society of Clinical Pathologists
100 North Dearborn Street, Suite 750
Chicago, IL 60610



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RECORDS TECHNICIAN

Helps doctors and nurses in gathering, classifying and maintaining patients' medical records.

1431
079.367-014
07.05
364
2-Business & Office (F)
6-Health (S)
Secretarial & Clerical (F)
Health Care Administration (S)

APTITUDES:

Records Technician will be able to learn the technical knowledge and the systems used in keeping medical records.

Read, understand and use the technical language for records keeping will be important in this occupation.

Records Technician will be able to use basic math for record keeping.

Records Technician will be able to pay attention to detail in order to avoid or correct errors.

Reach and hear as well as handle loads weighing up to 25 pounds will be important in this occupation.

Change from task to task many times in one day will be important in this occupation.

- A Medical Records Technician will be able to work with all types of people in many different situations.
- An ability to make decisions based on measurable fact will be important in this occupation.
- A Medical Records Technician will be able to complete tasks to a set standard.
- An interest in working with data that is in a routine method will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Medical Records Technician makes and keeps records on patients' illnesses and treatments.
- Medical Records Technicians help staff members in research and development.
- The Medical Records Technician makes and keeps records on patients treated and the operations performed.
- A Medical Records Technician also works out a system for storing records in order, so that any patient's medical record can be located quickly.
- The Medical Records Technician maintains the medical information system, including transcribing medical data, analyzing and interpreting information, maintaining registries, compiling statistics and keeping records.



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ties are better for those persons who have had specialized
medical records.

ent may be to chief technician or a department head
r accredited technicians.

esearch or teaching with more education is a possibility.

OCCUPATIONS:

Medical Records Technicians (14310) See Medical Records Techni-
cians; Military Career Guide 1988-1989 page 64.

OCCUPATIONS:

Secretary (1446)
Office Clerk (1418)
(1492)

EDUCATION AND TRAINING:

High school diploma or its equivalent is required.

Some schools are beginning to require an Associate of Applied
Degree for Medical Records Technicians, (see Programs of
Study for Iowa schools that offer the Associate degree
in medical records technology.)

Additional training in medical records at a community college is
necessary for employment.

Some courses are offered by the American Medical Record
Association in medical records technology.

- These courses provide a good foundation for advancement
- An ability to operate a computer is increasingly important in
this occupation.
- A Medical Records Technician may become accredited by (see
two year accredited academic program and passing the American
Medical Records Association national accreditation examination
Additional Sources section.)

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language
- Office
 - General Office
- Science
 - Chemistry
 - Biological Sciences.

PROGRAMS OF STUDY AND TRAINING:

- 3544 - Medical Records Technology

SOURCES OF ADDITIONAL INFORMATION:

- American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005
- American Medical Record Association
875 North Michigan Avenue
Chicago, IL 60611



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SECRETARY

secretarial duties using medical terminology and laboratory procedures.

1446

201.362-014

07.01

4622

2-Business & Office (F)

6-Health (S)

Secretarial & Clerical (F)

Health Care Administration (S)

- An ability to sit for long periods of time as well as reach, lift and carry will be important in this occupation.
- A Medical Secretary will be able to work with all kinds of people in many different situations.
- The ability to make decisions based on experience will be important in this occupation.
- A Medical Secretary will be able to complete tasks to meet a high standard.
- An interest in work involving data, business contacts and procedures and processes will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

APTITUDES:

secretary will be able to learn office procedures and the tasks needed.

secretary will understand and follow both written and spoken directions, which is important in this occupation.

secretary will be able to use basic business math for calculations and record keeping.

secretary will see small differences in form, shape and line which will be important in this occupation.

secretary will pay close attention to detail in written work to avoid errors and mistakes will be important in this occupation.

secretary will be able to use eyes, arms, hands and fingers to operate various office machines.

OCCUPATION PROFILE:

- A Medical Secretary needs the knowledge and the use of secretarial skills.
- A Medical Secretary takes dictation, types letters, files, sorts and makes appointments and keeps records.
- The Medical Secretary works in doctors' offices, hospitals and clinics.
- Medical Secretaries do billings and keep financial records in their offices.
- The Medical Secretary prepares medical charts and records information to be used later.



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S OF STUDY AND TRAINING:

ce Supervision and Management
utive Secretarial
ical Secretarial
etarial
ical Assisting

OF ADDITIONAL INFORMATION:

ssociation of Medical Assistants
er Drive,
60601

l Outlook Handbook
tion
(284)



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SPECIALISTS

Specialists are concerned with the research, diagnosis, prevention and treatment of specific diseases and ailments.

8142

070.101-014

02.03

261

6-Health (F)

6-Health (S)

Doctor (F)

Doctor (S)

APTITUDES:

A specialist will be able to learn the general principles of the physical sciences as well as the principles of the chosen specialty.

A specialist will be able to understand the complex medical language and symbols and the ability to explain some of the language so others can understand. This is an important aptitude in this occupation.

A specialist will be able to use the math formulas required in chemistry, pharmacology and related sciences.

A specialist will be able to picture a whole system such as the human body and to describe how it works will be important in this occupation.

A specialist will be able to see very small differences in color and line.

- A Medical Specialist will be able to pay attention to detail and do delicate work to avoid or correct errors.
- The ability to use eyes, arms, hands and fingers together to handle delicate equipment in physical examinations will be important in this occupation.
- A Medical Specialist will be able to reach, hear and see as well as handle loads up to 10 pounds.
- An ability to work with all kinds of people who may be under stress in many different situations will be important in this occupation.
- A Medical Specialist will be able to make decisions based on measurable facts and experience.
- An interest in scientific or technical work that will be helpful and give an opportunity to earn the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Medical Specialist will usually examine patients at their homes (which may be in a clinic), in hospitals or sometimes at the patient's home.
- The Medical Specialist will need to make quick and accurate decisions during emergency situations.
- Medical Specialists may diagnose and treat illnesses or diseases in people.



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EDUCATION AND TRAINING:

License is required to practice as a Medical Specialist in all states except the District of Columbia.

To qualify for a Doctor of Medicine (M.D.) license, a candidate must graduate from an approved school of medicine, pass a licensing examination, and in many states including Iowa, serve one year of hospital internship.

Residency programs require two to four years, depending on the specialty, including at least one year of hospital training, followed by two years or more of clinical experience in the area.

Some specialties require practice surgery or a specialty for M.D.s and D.O.s. Additional training, a period of residency and an additional examination are required.

The professional program for Medical Specialists lasts four years. The first two years emphasizing the basic sciences such as anatomy, physiology, pathology, etc.

The last two years are devoted primarily to work in hospitals and clinics under the supervision of professional Medical Specialists. The intern must learn to take case histories, perform examinations and procedures.

Medical Specialists acquire training beyond the required hospital internship.

Medical Specialists who want to teach or do research, take additional training leading to the Master's or Ph.D. degree.

HELPFUL HIGH SCHOOL SUBJECTS:

Science

- Biological Sciences
- Chemistry
- Physics

Health & Physical Education

- Health

PROGRAMS OF STUDY AND TRAINING:

- 3630 - Medicine
- 3670 - Podiatry

SOURCES OF ADDITIONAL INFORMATION:

- American College of Obstetricians and Gynecologists
600 Maryland Avenue, S.W., Suite 300
Washington, D.C. 20024-2588
- U.S. Department of Health and Human Services
Public Health Services
Alcohol, Drug Abuse and Mental Health Administration
Rockville, MD 20857
- Occupational Outlook Handbook
1986-87 edition
pages (149-152)



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TECHNOLOGIST

performs various laboratory tests to assist the doctor in the prevention, diagnosis and treatment of diseases.

2652

078.361-014

02.04

362

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

ABILITIES:

A Medical Technologist will be able to learn and use the principles of chemistry and biology as laboratory methods.

The ability to understand and follow both written and spoken directions and to use technical language to present written or spoken information will be important in this occupation.

A Medical Technologist will be able to use the math formulas needed in chemistry, biology and related sciences.

The ability to picture objects and their relationship to other objects and to use a microscope will be important in this occupation.

A Medical Technologist will be able to see very small differences in lines or colors.

The ability to pay close attention to details in written information to detect errors will be very important in this occupation.

- An ability to use eyes, hands and fingers together to handle very delicate equipment will be important in this occupation.
- A Medical Technologist will be able to reach and see as well as lift loads up to 10 pounds.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Medical Technologist will be able to complete tasks to meet a standard.
- An interest in scientific or technical work using processes and machines will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Medical Technologist performs laboratory tests which help to diagnose and treat disease.
- The Medical Technologist draws many kinds of patient blood. The patients will range in age from newborn to elderly.
- A Medical Technologist will perform many kinds of standard tests in any or all areas of medical technology. These include chemistry, toxicology, hematology, immunology, serology, urinalysis and microbiology.
- A Medical Technologist will operate a variety of technical equipment. They must be able to recognize faulty instrument operation and be able to make simple repairs.



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EDUCATION AND TRAINING:

High school education or its equivalent is required.

Additional educational requirement is the completion of a training program in medical technology.

Programs offer two- and three-year programs in medical technology.

Four years of college are required to complete most programs approved by the American Medical Association.

Subjects include chemistry, biological science and math. Twelve months of practical training in medical technology with a good deal of laboratory work is being required.

For certification by the Registry of Medical Technologists, graduates of the AMA accredited schools may take an examination. Certification is kept by the American Society of Clinical Pathologists.

HIGH SCHOOL SUBJECTS:

Math/Geometry

Physical Sciences
Biology

Medical/Dental Technology

PROGRAMS OF STUDY AND TRAINING:

- 3513 - Radiography Medical Technology
- 3526 - Medical Laboratory Technology
- 3527 - Medical Technology
- 4914 - Microbiology

SOURCES OF ADDITIONAL INFORMATION:

- American Medical Technologist
710 Higgins Road
Park Ridge, IL 60068
- American Society for Medical Technology
3 Metro Center, Suite 750
Bethesda, Md. 20814
- American Society of Clinical Pathologists
Board of Registry
P.O. Box 12270
Chicago, IL 60612
- American Society of Cytology
130 South Ninth Street, Suite 811
Philadelphia, PA 19107
- International Society for Clinical Laboratory
818 Olive Street, Suite 918
St. Louis, MO 63101
- Occupational Outlook Handbook
1986-87 edition
pages (183-185)



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METEOROLOGIST

and interprets collective information to issue forecasts for many users: radio stations, pilots and others.

2633

025.062-010

02.01

1846

12-Natural Resources & Environment (F)

14-Public Service (S)

Research (F)

Government (S)

ABILITIES:

Meteorologist will be able to learn and use the principles of the weather prediction and basic research methods.

Meteorologist will be able to understand technical languages and charts and explain them so others can understand will be very important in this occupation.

Meteorologist will be able to picture objects and their relationships and objects in their work dealing with maps and graphs.

Meteorologist will be able to see very small differences in form, and details.

Meteorologist will pay close attention to detail in written work to avoid or correct errors will be important in this occupation.

- Meteorologists will be able to use their hands to handle small and medium objects.
- An ability to spend long periods of time sitting as well as standing and adequate sight will be important in this occupation.
- An ability to plan and direct the activities of others will be important in this occupation.
- A Meteorologist will be able to make decisions based on both qualitative and quantitative information and measurable fact.
- An interest in scientific or technical work that involves information and statistics will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Meteorologists describe the atmosphere's physical composition and processes and determine the way these elements affect the rest of our physical environment.
- Meteorologists make and read maps.
- A Meteorologist studies and interprets weather charts, maps, barometric pressure, humidity, temperature, wind velocity and amount of precipitation in order to make forecasts.
- A Meteorologist also studies the meteorological phases or rays of cosmic waves, air flow and cosmic rays.



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OCCUPATIONS:

ist (26330)
bservers (26315) See Meteorologist page 307 and Weather
age 94 in the Military Career Guide 1988-1989.

OCCUPATIONS:

Controller (6126)
cientist
(2331)
College Teacher (8454)

EDUCATION AND TRAINING:

As degree with a major in Meteorology is the usual minimum
requirement for beginning jobs in weather forecasting.

For primary and college teaching and for many top level positions in
meteorological activities, an advanced degree is essential.

HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Trigonometry
Physics
Space Sciences
Computer Science

PROGRAMS OF STUDY AND TRAINING:

- 6704 - Atmospheric Sciences & Meteorology

SOURCES OF ADDITIONAL INFORMATION:

- American Geophysical Union
2000 Florida Avenue, N.W.
Washington, D.C. 20009
- American Meteorological Society
45 Beacon Street
Boston, MA 02108
- Air Transport Association of America
1709 New York Avenue, N.W.
Washington, D.C. 20006
- Occupational Outlook Handbook
1986-87 edition
pages (83-84)



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METER READER

A Meter Reader will be able to complete a task to meet a standard.

A Meter Reader will be able to complete a task to meet a standard.

An interest in working with things that are used the same times will be helpful in this occupation.

With employer assistance, some physical requirements may be met through changes to the work site or equipment.

A Meter Reader goes to customers' homes, stores and factories to read meters that show the amount of electricity current, water used by the customer.

Meter Readers also watch for and report any tampering with meters or anything unusual about the meters.

The Meter Reader must be very careful to record the correct readings that are shown on the meters.

A Meter Reader may make minor repairs on meters.

Meter Readers may turn the service off for nonpayment of bills or on for new occupants.

The Meter Reader may collect bills.

A Meter Reader returns the route book to the business office for billing purposes.

Meter Readers may have to work outdoors in all kinds of weather.

A Meter Reader may specialize as an electric meter reader, gas meter installer and meter tester.

1438

209.567-010

05.09

4755

14-Public Service (F)

14-Public Service (S)

Utilities & Services (F)

Utilities & Services (S)

APTITUDES:

A Meter Reader will be able to learn the route, meter operation and repair for the territory assigned.

A Meter Reader will be able to understand and follow written and oral instructions.

Basic arithmetic for record keeping will be important in this occupation.

A Meter Reader will be able to pay attention to detail in written work and correct errors.

Stair climbing, see and lift loads up to 10 pounds will be necessary in this occupation.

A Meter Reader will do the same task the same way many times in one day and be efficient in this occupation.



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on
3-114)



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MILLER/MIXER

Machines that mix livestock or poultry feed according to formula and convey it to packing machine or operates grinders to crush or mill grain.

5976

550.382-022/520.685-098

06.02

7664

10-Manufacturing (F)

1-Agriculture/Agri-Business (S)

Assembly & Production (F)

Processing (S)

ABILITIES:

Miller/Mixer will be able to learn and understand the method of operation to make a wholesome food for many different animals.

Miller/Mixer will understand and follow both written and spoken directions. This is an important skill in this occupation.

Miller/Mixer will be able to use hands to operate machines and handle feed or raw materials.

Miller/Mixer will reach and stoop as well as lift up to 100 pounds will be required in this occupation.

Miller/Mixer will do the same task the same way many times in one day. This is a requirement in this occupation.

Miller/Mixer will be able to make decisions using measurable facts.

- A Miller/Mixer will be able to complete tasks to meet a schedule.
- An interest in working with things that use machines and machinery that repeat many times in one day will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Millers/Mixers choose formulas, mix feed and drug additives, and operate mixing machinery.
- A Miller/Mixer receives a feed order from a customer, then weighs the pre-mix, feed, minerals, vitamins and other ingredients needed to fill the order.
- The Miller/Mixer pours all of the ingredients into a mixing machine and starts the machine.
- The Miller/Mixer puts the mixture in a loading machine which is put into the feed bags or loaded onto a feed truck.
- Millers/Mixers record the weight and kinds of ingredients mixed.
- A Miller/Mixer may discuss the particular feed needs with an individual customer.
- A Miller/Mixer checks the quality of feed being processed and makes adjustments in the machinery to keep the correct quality.
- The Miller/Mixer may direct other workers during the mixing process.



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Career Information Syst
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Phone (515) 281-5

MS OF STUDY AND TRAINING:

prenticeship

OF ADDITIONAL INFORMATION:

Occupational Exploration
on
1-298)



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IGHT

and repairs heavy industrial machinery and
builds frameworks and foundations to support the
ery.

3142

638.281-018

05.05

6178

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

AL APTITUDES:

ght will be able to learn the methods to install a number of
omplex and small to large industrial machines.

to read blueprints and diagrams as well as follow spoken
n directions will be important in this occupation.

ht will be able to use shop geometry to figure space needed
; equipment needed for installations.

to picture an object in relationship to another object and
t in the space they use will be important in this occupa-

it will be able to see small differences in shape, form and

- An ability to use eyes, feet, arms, hands and fingers tog
operate machines or handle loads exactly as planned wil
tant in this occupation.
- A Millwright will be able to climb, stoop, reach, hear and
as lift loads up to 100 pounds.
- A Millwright will be able to do many different tasks in or
changing from one to another often.
- An ability to make decisions based on measurable fact wi
tant in this occupation.
- A Millwright will be able to complete tasks to meet a set
- An interest in working with machines and processes havi
that can be seen and touched will be important in this occ
- With employer assistance, some physical requirements m
through changes to the work site or equipment.

OCCUPATION PROFILE:

- Millwrights move and install heavy industrial machinery a
ment.
- A Millwright must be able to fit bearings, align gears and
attach motors and connect belts.
- The Millwright builds the foundations or platforms on whic
machinery is to be set.
- A Millwright must be able to read blueprints and work wit
steel, concrete and other building materials.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

High school diploma or its equivalent is required.

Training is through a four-year apprenticeship program, although some Millwrights learn on the job.

Apprentices receive shop training in installing and maintaining heavy machinery.

Apprentices receive classroom instruction in blueprint reading, shop mathematics, hydraulics, electricity and safety.

Apprenticeship applicants must be 18 and show evidence of mechanical aptitude.

Advanced mechanical technology offered by vocational technical schools, community colleges and universities are helpful.

HIGH SCHOOL SUBJECTS:

Math Skills
Education
Mechanics & Maintenance
Hydraulics & Power Systems
Working
Manufacturing

LENGTH OF STUDY AND TRAINING:

Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- International Association of Machinists and Aerospace Workers
1300 Connecticut, N.W.
Washington, D.C. 20036
- Bureau of Apprenticeship & Training
210 Walnut
Des Moines, IA 50309
- Occupational Outlook Handbook
1986-87 edition
pages (368-369)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

PICTURE PROJECTIONIST

The film and runs the movie projection machines and equipment for audiences in a movie theater.

3174

960.362-010

05.10

7479

8-Hospitality & Recreation (F)

8-Hospitality & Recreation (S)

Sports & Entertainment (F)

Sports & Entertainment (S)

SKILL APTITUDES:

Picture Projectionist will be able to learn quickly how to operate several different types of machines.

It is important to be able to follow written or spoken directions.

Projectionist will be able to use basic math in computations, and scale/graph reading.

Picture Projectionist will be able to see how the parts of the machine make the whole, so minor repairs can be made.

It is important to be able to see small differences in the picture so that an even image will be shown.

Picture Projectionist will be able to use eyes, hands and feet together to operate the machines.

It is important to be able to see differences in color.

- A Motion Picture Projectionist will be able to work sitting down. Good eyesight and hearing will be important.
- A Projectionist will be able to make decisions based on information compared to set standards.
- An interest in working alone with objects that can be seen but not touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Motion Picture Projectionists are important behind the scenes in a movie theater.
- A Motion Picture Projectionist runs the projection machines and sound equipment.
- The Motion Picture Projectionist makes sure the picture is shown properly and the sound has the correct volume.
- A Motion Picture Projectionist uses two or more projectors and sound equipment, a film rewinding machine and several reels of film.
- Motion Picture Projectionists check the equipment to make sure it works and then load the film in the projectors.
- The Motion Picture Projectionist may repair faulty sections of film quickly so the show can go on.
- A Motion Picture Projectionist may operate special effects equipment.



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S OF ADDITIONAL INFORMATION:

· Occupational Exploration
tion
(15-122)



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

MOTORCYCLE MECHANIC

adjusts, repairs or replaces the operating parts of motorcycles.

3121

620.281-054
05.05

6114

9-Maintenance & Repair (F)

15-Transportation (S)

Vehicle Maintenance (F)

Highway Transportation (S)

ESSENTIAL ABILITIES:

A Motorcycle Mechanic will be able to learn and use the principles of internal combustion engine operation and repair.

The ability to follow written or spoken instructions will be important in this occupation.

Motorcycle Mechanics will be able to picture how parts fit together to assemble a motorcycle.

The ability to see very small differences in shape, size and line will be important in this occupation.

A Motorcycle Mechanic will be able to use eyes, arms, hands and feet together to use tools in the exact way planned.

The ability to stoop, reach, hear and see as well as lift up to 100 pounds will be important in this occupation.

- A Motorcycle Mechanic will be able to change from task to task several times in one day.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Motorcycle Mechanic will be able to complete tasks to a high standard.
- An interest in working with things using machines and products resulting in a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Motorcycle Mechanic finds out why a motorcycle has broken and then makes the needed repairs.
- A Motorcycle Mechanic may make periodic checkups, adjustments and repair or replace worn parts.
- The Motorcycle Mechanic may use a checklist to make sure that necessary parts have been checked for trouble.
- A Motorcycle Mechanic may need to get an idea of the trouble by talking with the owner.
- Motorcycle Mechanics may listen to the engine run, or make a test ride to identify the problem.



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Phone (515) 281-5100*

EDUCATION AND TRAINING:

High school education or its equivalent is highly recommended.

Four years of experience are needed to become a skilled Motorcycle Mechanic.

Background in automotive repair is helpful. Courses in small engine repair are offered by high schools, vocational schools and trade schools.

EDUCATIONAL REQUIREMENTS:

Four courses leading to a High School Diploma

RECOMMENDED COURSES OF STUDY AND TRAINING:

Agricultural Machinery
Automotive Mechanics
Small Engine Repair
Apprenticeship

SOURCE OF ADDITIONAL INFORMATION:

Automotive Service Industry Association
1000 Michigan Avenue
S.E. 60611



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

MUSICAL INSTRUMENT REPAIRER

Use hand and power tools to repair percussion, string and wind instruments.

3188

730.281-054

05.05

6172

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Machine Maintenance (F)

Machine Maintenance (S)

- A Musical Instrument Repairer will be able to change tasks in one day.
- The ability to make decisions based on experience and mechanical fact will be important in this occupation.
- A Musical Instrument Repairer will be able to complete tasks to a set standard.
- An interest in working with things using processes and machinery will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

ESSENTIAL APTITUDES:

Musical Instrument Repairer will be able to learn and use the techniques of musical instrument construction and repair.

The ability to understand written, spoken and diagrammed instructions is important in this occupation.

Musical Instrument Repairer will be able to picture how parts fit together in a whole.

The ability to see small differences in size, shape and line will be important in this occupation.

Musical Instrument Repairer will be able to use eyes, hands and feet together to handle small objects in sometimes awkward positions.

The ability to reach, hear and see as well as handle loads up to 50 pounds will be important in this occupation.

OCCUPATION PROFILE:

- A Musical Instrument Repairer puts instruments into good working condition.
- Musical Instrument Repairers buff, clean, replace missing parts and remove any dents from the instruments.
- A Musical Instrument Repairer sometimes works on very small pieces and replaces these pieces in hard to reach positions on an instrument.
- Musical Instrument Repairers find out any particular complaints a customer may have, point out what needs to be done and quote the customer an estimate of what the work will cost.
- A Musical Instrument Repairer may have to order new parts and supplies when they are needed.



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LEARNING HIGH SCHOOL SUBJECTS:
courses leading to a high school diploma

MODES OF STUDY AND TRAINING:

Musical Instrument Repair
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Occupational Outlook Handbook
1990 Edition
(OS-371)

Occupational Exploration
1990 Edition
(OS-100)



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

MUSICIAN
Musicians perform classical or popular music vocally or on one or more musical instruments and may do so professionally in a group or individually.

9867

152.041.010

01.04

323

5-Fine Arts & Humanities (F)

8-Hospitality & Recreation (S)

Music (F)

Sports & Entertainment (S)

GENERAL APTITUDES:

Musicians will be able to learn to understand the structure of the sounds called music.

In preparation a Musician will easily receive and give information and writing.

Musicians will be able to use basic math and elementary algebra without any errors.

In preparation it is important to pay attention to detail in written communications.

A Musician should have above average muscle control; eye-hand coordination and finger dexterity are important for instrument

- It is important to maintain good health and have physical fitness to keep up with performance schedules.
- A Musician will have to have good hearing.
- A Musician will be able to evaluate and make judgments on her own performance and progress.
- A Musician is interested in being involved with people in ways that one cannot touch or see.
- Self discipline is needed to study and practice in order to achieve quality performance.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Musicians usually specialize in one type of music such as classical.
- A Popular Musician plays the trumpet, trombone, saxophone, organ, guitar, string bass or drums or sing with a band in restaurants or at parties.
- A Singer gives concerts or performs on radio or television in a group or alone.
- A Classical Musician plays in symphonies and theater orchestras for other groups that require orchestral accompaniments, operas or musicals.



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Des Moines, IA 50319

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ly of teachers of private music or vocal lessons is sufficient instruction to all young people seeking such training.

lar music scene changes rapidly with new styles and tastes. Although there are many opportunities for single or short-term music engagements, the supply of these Musicians is exceeded the demand. It is difficult for a popular Musician to be in demand for an extended period of time.

ment for Musicians usually means a steady, well-paying job and popularity to remain in demand.

KEY OCCUPATIONS:

(98670) See Musicians page 55 and Band Managers page 56
Military Career Guide 1988-1989

RELATED OCCUPATIONS:

Music Teacher (9866)
Music Teacher (8455)
Instrument Repairer (3188)
Music Teacher (8456)
Music Teacher (8453)
College Teacher (8454)

EDUCATION AND TRAINING:

People who become professional Instrumental Musicians begin on an instrument at an early age.

Training usually begins after the voice has changed, but piano lessons may begin much earlier.

- To achieve a career, as a performer or as a music teacher, people need intensive training through private study, in a conservatory of music.
- An audition is frequently necessary to qualify for advanced study in a music conservatory or in a college or university.
- More advanced training can be acquired through further study with an accomplished musician in a college or university strong music program or in a music conservatory.
- Training and practice generally continue throughout a Musician's career.

HELPFUL HIGH SCHOOL SUBJECTS:

- Art
- Music

PROGRAMS OF STUDY AND TRAINING:

- 1941 - Secondary Education
- 8035 - Music

SOURCES OF ADDITIONAL INFORMATION:

- American Federation of Musicians
Suite 600, Paramount Bldg.
1501 Broadway
New York, NY 10036
- Music Educators National Conference
1902 Association Drive
Reston, VA 22091



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

R MEDICAL TECHNOLOGIST

a detector, helps the doctor in tracing isotopes of a chemical element) through the patient's

2663

078.361-018

10.02

365

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

AL APTITUDES:

Medical Technologist will be able to learn the principles of science, and safety procedures concerning radioactive materials.

to understand and follow technical instructions exactly, written and spoken, will be important in this occupation.

Medical Technologist will be able to use math skills needed for the complex counting and measuring systems.

to picture the correct operation of a system when comparing test results will be important in this occupation.

to see very small differences in size, shape and line will be important in this occupation.

Medical Technologist will be able to pay attention to detail in their work to avoid or correct errors.

- An ability to use eyes, hands and fingers together to handle dangerous materials carefully will be important in this occupation.
- An ability to reach, hear and see as well as handle not more than 25 pounds will be important in this occupation.
- A Nuclear Medical Technologist will be able to change from one task to another several times each day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Nuclear Medical Technologist will be able to complete tasks to a set standard.
- An interest in scientific or technical work with people that is helpful to others but results in a product that can be recognized as important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Nuclear Medical Technologist works with a Radiologic Technologist.
- Nuclear Medical Technologists use radioactive materials for body function studies and organ imaging, and to analyze biological samples and treat diseases.
- A Nuclear Medical Technologist prepares radioactive materials for use by the patient and measures how and where they go.



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EDUCATION AND TRAINING:

High school education or its equivalent is required.

Additional educational requirement is the completion of a training program in medical technology.

Colleges offer two- and three-year programs in medical technology.

Students of college are required to complete most programs approved by the American Medical Association.

Subjects include chemistry, biological science and math. Twelve months of actual training in medical technology with a good deal of clinical work is being required.

Students of the AMA accredited schools may take an examination to receive certification by the Registry of Medical Technologists. This certification is kept by the International Society of Clinical Pathologists.

HIGH SCHOOL SUBJECTS:

Biological Sciences

Mathematics

Physical Education

Health

Medical Technology

Radiology/Dental Technology

PROGRAMS OF STUDY AND TRAINING:

- 3513 - Radiography Medical Technology
- 3527 - Medical Technology

SOURCES OF ADDITIONAL INFORMATION

- International Society for Clinical Laboratory Science
Technology
Suite 918
818 Olive Street
St. Louis, MO 63101
- Occupational Outlook Handbook
1986-87 edition
pages (200-204)



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

NURSE AIDE/ORDERLY

prepare and supply nurses with necessary equipment and sterilized supplies, and performs routine tasks to make patients more comfortable.

8166

355.674-014

10.03

5236

6-Health (F)

6-Health (S)

Nursing (F)

Nursing (S)

PERSONAL APTITUDES:

Nurse Aide/Orderly will be able to learn the hospital routine and responsibilities in a short time.

Person following both spoken and written instructions will be successful in this occupation.

Nurse Aide/Orderly will be able to use eyes, hands and fingers to handle small and sometimes breakable equipment.

Person to stoop, reach, hear and see as well as lift loads up to 50 pounds will be important in this occupation.

Nurse Aide/Orderly will be able to change from task to task many times a day.

Person to work calmly with all kinds of people in stressful situations is important in this occupation.

- An interest in working to help people in a setting where the same way each day will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Nurse Aide/Orderly learns hospital procedures and keeps records.
- The Nurse Aide/Orderly is part of the hospital team and works under the direction of a more highly-trained medical staff member.
- A Nurse Aide/Orderly answers call bells, delivers messages to rooms, serves meals, and feeds patients.
- Nurse Aides/Orderlies also make beds, bathe patients, give vital signs, take temperatures, and do many routine duties related to patient care.
- A Nurse/Aide Orderly makes sure staff members have equipment and supplies to use in their hospital work and takes care of the inventory of these items.
- The Nurse Aide/Orderly submits requests for replacement of stock from a hospital pharmacy, and charges bills to the appropriate departments.
- A Nurse Aide/Orderly may clean and sterilize used articles in hospital wards by using special equipment.



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Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

EDUCATION AND TRAINING:

High school diploma is preferred.

On-the-job training of several weeks is given by the hospital.

Students are taught to handle the various types of sterilization and to know the various supplies used by the hospital.

Previous experience is very helpful for this job, but it is not required.

New York, NY 10017-6765

- Guide for Occupational Exploration
1984 edition
pages (239-240)

HIGH SCHOOL SUBJECTS:

Economics
Consumer & Homemaking
Nursing Care
Physical Education
Math

Nursing Care

METHODS OF STUDY AND TRAINING:

On-the-job Training
Nursing Assisting
Nurse Aide

SOURCES OF ADDITIONAL INFORMATION:

Health Care Association
1400 K Street, N.W.
Washington, D.C. 20005

Health Council
Suite 34th Floor



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

NURSING HOME ADMINISTRATOR

Plans, organizes and directs educational, security, recreational and rehabilitation programs and supervises the physical environment of a nursing home.

1135

187.117-018

11.07

121

6-Health (F)

6-Health (S)

Health Care Administration (S)

Health Care Administration (S)

ESSENTIAL ABILITIES:

Nursing Home Administrator will be able to learn and use the concepts and techniques of many fields, for example, budget planning, purchasing and management.

Ability to use language skills to read and understand technical reports as well as write clear reports will be important in this occupation.

Nursing Home Administrator will use math to read and understand reports and government funding requirements.

Attention to detail in written work to avoid errors will be important in this occupation.

Nursing Home Administrator will be able to hear and handle loads of work.

- An ability to change from task to task many times in one day will be important in this occupation.
- A Nursing Home Administrator will be able to plan and direct the activities of others.
- An ability to work with all kinds of people in many different situations will be important in this occupation.
- A Nursing Home Administrator will be able to make decisions on experience.
- An interest in work involving business contact with people and an opportunity to gain the respect of others will help in this occupation.
- With employer assistance, some physical requirements may be met through the changes to the work site or equipment.

OCCUPATION PROFILE:

- Nursing Home Administrators are responsible for planning, directing and controlling the operation of a nursing home.
- Marketing skills will be helpful in this occupation.
- A Nursing Home Administrator recruits and hires professional and non-professional persons for the nursing home staff.
- A Nursing Home Administrator will be able to involve other staff, families, volunteers and residents, in the day to day operation of the institution.
- The Nursing Home Administrator must direct, supervise and evaluate the staff's work.



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KEY OCCUPATIONS:

Health Services Administrators (11340)
Health Services Management Analysts (11010) See Health Services Administrators
and Management Analysts page 256 in the Military Career Handbook, 1988-1989.

RELATED OCCUPATIONS:

Health Care Administrator (1136)
Health Services Administrator (1134)
Health Services Management Administrator (1186)

EDUCATION AND TRAINING:

Obtain a baccalaureate degree or its equivalent and work experience is

Licensure is required.

Applicants for state licensure must pass a course of instruction
approved by the State Board of Examiners. First time applicants
must pass a state and national written examination. An initial
application fee of \$50.00 is required. The fee for the state exam is
\$50.00. The fee for the national exam is \$50.00. Licenses must be
renewed annually. The renewal fee is \$90.

HIGH SCHOOL SUBJECTS:

Language Skills

Math Skills

Physical Sciences

- Sociology
- Health & Physical Education
- Health

PROGRAMS OF STUDY AND TRAINING:

- 3624 - Health Care Administration

SOURCES OF ADDITIONAL INFORMATION

- American College of Health Care Administrators
821 Woodmont Ave., Suite 200
Bethesda, MD 20814
- American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005
- Association of University Programs
in Health Administration
1911 N Ft. Meyer Dr. Suite 503
Arlington, VA 22209
- Occupational Outlook Handbook
1986-87 edition
pages (28-32)



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

OCCUPATIONAL THERAPIST

Organizes and conducts programs to facilitate rehabilitation of mentally, physically or emotionally handicapped.

8125

076.121-010

10.02

3032

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
S

PERSONAL APTITUDES:

An Occupational Therapist will be able to learn the principles of biological and behavioral sciences and how to apply the principles in therapy.

The ability to understand technical ideas and explain them so other people can understand will be important in this occupation.

An Occupational Therapist will use math to record and chart progress and to do clerical record keeping.

The ability to picture how a system works, such as the muscles of the body and their relationship to the function of the whole body, will be important in this occupation.

The ability to use hands, fingers, eyes and feet together to help people will be important in this occupation.

- An Occupational Therapist will be able to reach and handle heavy lift loads up to 10 pounds.
- An Occupational Therapist will be able to change from one task to another easily.
- An ability to work with all kinds of people in many different situations will be important in this occupation.
- An Occupational Therapist will be able to make decisions based on experience.
- An interest in work that helps other people and uses manual skills will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Occupational Therapist evaluates the condition of the patient.
- An Occupational Therapist uses knowledge of physical anatomy and human growth and development to determine the skills a patient requires to care for his or her personal needs and to participate in the workplace or community.
- An Occupational Therapist may develop short- and long-term goals for the patients.
- The Occupational Therapist may develop complete therapy plans that meet the needs of the patient and also meet set goals.



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Phone (515) 281-5100

RELEVANT OCCUPATIONS:

Occupational Therapists (81250) See Occupational Therapy Special-
ized Military Career Guide 1988-1989 page 67.

RELATED OCCUPATIONS:

Occupational Therapy Assistant (8152)
Occupational Therapist (8127)
Registered Nurse (8162)
Physical Therapist (8417)

EDUCATION AND TRAINING:

A baccalaureate degree or certification in occupational therapy is

A master's degree in occupational therapy is required for teaching,
or administrative work.

Occupational therapy educational programs is competitive and applicants are
carefully screened for past academic work and personality.

Graduates of accredited educational programs are eligible to take the
Occupational Therapy Association Certification examination to
become a Registered Occupational Therapist (O.T.R.).

A master's degree often is required for teaching, research or admin-
istrative work. certification examination administered by the

HELPFUL HIGH SCHOOL SUBJECTS:

- Science
 - Biological Sciences
- Social Studies
 - Sociology
 - Psychology
- Health & Physical Education
 - Health

PROGRAMS OF STUDY AND TRAINING:

- 3573 - Occupational Therapy

SOURCES OF ADDITIONAL INFORMATION

- American Occupational Therapy Association, Inc.
1383 Piccard Drive, Suite 300
Rockville, M.D. 20850
- American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005
- U.S. Department of Health and Human Services
Public Health Service
Alcohol, Drug Abuse and Mental Health Administration
Rockville, MD 20857
- Occupational Outlook Handbook
1986-87 edition
pages (160-162)



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Des Moines, IA 50319
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OCCUPATIONAL THERAPY ASSISTANT

The occupational therapist plan, direct and supervise activities to help mentally and physically handicapped patients.

8152

076.364-010

10.03

5233

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
ES

PERSONAL APTITUDES:

The Occupational Therapy Assistant will be able to learn the methods and technique of occupational therapy.

The ability to follow written and spoken instructions will be important in this occupation.

The Occupational Therapy Assistant will be able to picture how a task fits together and the results planned.

The Occupational Therapy Assistant will be able to use hands and feet to instruct in daily living skills.

The ability to reach and hear as well as lift objects up to 10 pounds will be important in this occupation.

The ability to change from task to task often will be important in this occupation.

- An Occupational Therapy Assistant will be able to work with all kinds of people in many different situations.
- An interest in work that helps people and works with individuals who do not set will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Occupational Therapy Assistant may plan and carry out programs to increase the patients' muscle power, coordination and confidence.
- Occupational Therapy Assistants must be able to teach and demonstrate skills as they will work with a wide variety of patients.
- Occupational Therapy Assistants teach creative skills; vocational skills such as, use of tools and self-care skills; such as dressing, eating and shaving.
- An Occupational Therapy Assistant may teach patients and social activities such as games and gardening, for self-maintenance therapy.
- The Occupational Therapy Assistant may sometimes be supervised by professional Occupational Therapists and so may need periodic consultation.
- An Occupational Therapy Assistant may perform support tasks such as moving patients, collecting equipment and preparing and maintaining work areas.



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Des Moines, IA 50319
Phone (515) 281-6100*

COURSE OF STUDY AND TRAINING:

Occupational Therapy
Occupational Therapy Assisting
Speech Pathology/Audiology

SOURCE OF ADDITIONAL INFORMATION:

1 Occupational Therapy Association, Inc.
1900 North 17th Street, N.W.
Washington, D.C. 20036

1 Health Care Association
1900 North 17th Street, N.W.
Washington, D.C. 20036



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

MACHINE SERVICER

maintains and repairs typewriters, duplicators and other types of office machines.

3164

633.281-018

05.05

6174

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Machine Maintenance (F)

Machine Maintenance (S)

B
ES

ESSENTIAL ABILITIES:

The Machine Servicer will be able to learn the principles of operation and repair of many different machines.

The ability to understand and follow written and spoken directions as well as the ability to give clear instructions will be important in this occupation.

The Machine Servicer will be able to use basic math and understand the simple electronic formulas used in meters.

The ability to picture parts and how they fit with the whole machine will be important in this occupation.

The ability to see small differences in size, shape and line will be important in this occupation.

- An Office Machine Servicer will be able to use eyes, arms and fingers together to operate the machines and use the same skills to make repairs.
- An ability to reach, hear and see as well as handle loads of up to 50 pounds will be important in this occupation.
- An Office Machine Servicer will be able to make decisions based on a measurable fact.
- An Office Machine Servicer will be able to complete tasks to a set standard.
- An interest in work that uses processes and machines to produce a product that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Office Machine Servicer cleans and repairs the many different types of machines and equipment used in offices.
- Office Machine Servicers do much of the work in the offices where the machines are located.
- The Office Machine Servicer does routine maintenance such as cleaning and oiling and makes adjustments and small repairs.
- An Office Machine Servicer may need to read and follow instructions in service manuals.



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Machine Servicers may move into sales positions for greater

KEY OCCUPATIONS:

Machine Repairer (31640) See Office Machine Repairers in the Career Guide 1988-1989 page 135.

RELATED OCCUPATIONS:

Refrigerator Repairer (3169)
Automotive Engine Mechanic (3118)
Refrigeration Equipment Installer (3166)
Refrigeration Repairer (3168)

EDUCATION AND TRAINING:

High school education or its equivalent is required by most employers. Technical training is recommended.

Training in office equipment repair will be of great use and is more important.

Office equipment repairers learn their trade as helpers with an experienced Office Machine Servicer or through training programs provided by manufacturing companies.

Knowledge in electronics is becoming most important.

HELPFUL HIGH SCHOOL SUBJECTS:

- Industrial Education
- Appliance Repair/Small Engine Repair
- Electrical/Electronic
- Product Services
- Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- 3211 - Electronic Technology
- 3212 - Laser-Optics Technology
- 3901 - Industrial Arts
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- National Association of Trade and Technical Schools
2251 Wisconsin Ave. NW
Washington, D.C. 20007
- Occupational Outlook Handbook
1986-87 edition
pages (371-373)



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OFFICE MANAGER

Plans, coordinates and directs the activities of a staff, assigning tasks and keeping the office smoothly operating.

1411

169.167-034

07.01

137

2-Business & Office (F)

2-Business & Office (S)

Management (F)

Management (S)

B
ES

GENERAL APTITUDES:

Office Manager will be able to learn and organize an office routine and become familiar with each section supervised.

Ability to use math for record keeping and budget planning will be important in this occupation.

Office Manager will be able to pay attention to detail in written work and avoid or correct errors.

Ability to hear as well as an ability to sit for long periods of time will be important in this occupation.

Ability to change from task to task many times in one day will be important in this occupation.

Office Manager will be able to plan and direct the complete work of others.

- An ability to work with all kinds of people in many different situations will be important in this occupation.
- An Office Manager will be able to make decisions based on measurable fact and experience.
- An interest in business contact with people and the character respect of others will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Office Managers coordinate the activities of the clerical personnel.
- Office Managers analyze and organize office operations and procedures such as typing, bookkeeping, filing, ordering of supplies and other clerical services.
- The Office Manager should become familiar with the operation and maintenance of office equipment.
- An Office Manager evaluates office production, changes procedures and makes new forms to improve the efficiency of the work force.
- The Office Manager sets uniform mail procedures and standards.
- The Office Manager plans the office layout.
- Office Managers review clerical and personnel records.
- The Office Manager prepares reports for guidance to management.



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Grimes State Office
Des Moines, IA 50
Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

onal Secretaries International
t Armour Blvd.
City, MO 64111-1299



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Des Moines, IA 50319
Phone (515) 281-5100

OPTOMETRIST

Optometrists examine people's eyes for vision problems and disease, prescribe corrective lenses, and test for proper depth and color perception and the ability to focus and coordinate the eyes.

8134

079.101-018

02.03

281

6-Health (F)

6-Health (S)

Doctor (F)

Doctor (S)

B
ES

PERSONAL APTITUDES:

Optometrists will be able to learn the structure of the eye as well as the principles of corrective lenses.

Optometrists who can understand technical information and explain that information so others will understand will be very important in this occupation.

Optometrists who can picture how an arrangement fits together and how the parts work together will be important in this occupation.

Optometrists will be able to see small differences in size, shape, and color.

Optometrists will be able to use eyes, hands, arms and fingers to use small and easily broken equipment.

- An ability to work with all kinds of people in many different situations will be important in this occupation.
- An Optometrist will be able to make decisions based on facts.
- An interest in scientific or technical work that will help people give them a chance to gain the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Optometrist examines the patient's internal and external eyes using special tests and instruments to find vision defects.
- The Optometrist records the patient's age, health, occupations and other important facts to use in diagnosing the patient's sight problem.
- An Optometrist will use specialized instruments and techniques to measure visual strengths and weaknesses.
- The Optometrist may examine the outside of the patient's eyes, eyelids and check the pressure on the eyeball for additional information.
- The Optometrist checks the coordination of the eyes and the most effective working distance, depth and space perception and color vision.
- An Optometrist prescribes the necessary treatment after a complete examination and diagnosis.



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es expire every second year on June 30, and all applicants
val must be made in writing. The renewal fee is \$100.00.
redit hours of continuing education are also required for

pages (147-149)

or of Optometry degree requires a minimum of six years of
nsisting of a four-year professional degree program preceded
st two years of pre-optometric study at an accredited
y, college or junior college.

ric schools across the nation are over-crowded and admission
schools is extremely limited.

L HIGH SCHOOL SUBJECTS:

sics
Physical Education
ogical Sciences
lth

MS OF STUDY AND TRAINING:

ic training programs may be available in Iowa, but CISI has
provided information about any.

§ OF ADDITIONAL INFORMATION:

t Optometric Association
h Lindberg Blvd.
, MO 63141

mal Outlook Handbook
edition



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
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Phone (515) 281-5100

ORTHOTIC OR PROSTHETIC ASSISTING

measures and fits braces, artificial limbs; builds braces and artificial limbs depending on the area of speciality.

2664

712.381-038

05.05

6869

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
ES

GENERAL APTITUDES:

Orthotic or Prosthetic Assisting will be able to learn the method of measuring and fitting artificial limbs and corrective braces.

Ability to understand and follow exact written and spoken instructions will be important in this occupation.

Orthotic or Prosthetic Assisting will be able to use basic math for measuring and estimating materials needed.

Ability to picture what the finished product will look like will be important in this occupation.

Ability to see small differences in size, shape and line will be important in this occupation.

Orthotic or Prosthetic Assisting will be able to use eyes, hands and tools together to use tools and equipment in the exact way

- An ability to reach, see and lift loads up to 50 pounds will be important in this occupation.
- An ability to change from task to task many times in order to complete the job will be important in this occupation.
- An Orthotic or Prosthetic Assisting will be able to work with people in sometimes difficult situations.
- An ability to make decisions based on measurable facts will be important in this occupation.
- An Orthotic or Prosthetic Assisting will be able to complete a job to meet a set standard.
- An interest in working with scientific and technical things and processes and machines will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- An Orthotic or Prosthetic Assisting makes and repairs artificial limbs and braces.
- Orthotic or Prosthetic Assistings work from a doctor's prescription and the instructions of the prosthetist for artificial limbs and orthotist for braces to correct deformed muscles or bones.
- The Orthotic or Prosthetic Assisting makes casts of the limbs and parts of the limbs according to measurements that have been taken by the prosthetist or orthotist.



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EDUCATION AND TRAINING:

A bachelor's degree is required as of 1980 for a practitioner.

Additional technical training is helpful.

Experience in the health field is helpful.

Training may be provided on the job.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Algebra and Trigonometry
Basic Math Skills

RECOMMENDED COURSES OF STUDY AND TRAINING:

Medical Terminology
Surgical Technology
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

1. American Board for Certification in
Orthotics and Prosthetics
1100 North Gleason Street
Alexandria, VA 22314

Occupational Exploration
Publications
(1-800-368-100)



OCCUPATIONAL BRIEFS

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Grimes State Office
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Phone (515) 281-5100

OSTEOPATHIC PHYSICIAN

Osteopathic Physicians diagnose, prescribe for and treat disorders and ailments of bones, muscles and nerves.

8118

071.101-010

02.03

261

6-Health (F)

6-Health (S)

Doctor (F)

Doctor (S)

B
ES

GENERAL APTITUDES:

Osteopathic Physicians will be able to learn and use the principles of basic medical sciences as well as special principles emphasizing the structure of bones, muscles, ligaments and nerves.

The ability to understand the medical language and the ability to convey the information so others can understand it will be important in this occupation.

Osteopathic Physicians will be able to use the math formulas learned by chemistry, pharmacology and related sciences.

The ability to picture the system of the body and how it works will be important in this occupation.

Osteopathic Physicians will be able to see very small differences in color and line.

- An Osteopathic Physician will pay very close attention to his or her written work to avoid or correct errors.
- The ability to use eyes, hands and fingers together to use tools that breaks easily will be important in this occupation.
- An Osteopathic Physician will be able to reach, hear and lift as much as lift up to 50 pounds.
- An ability to work with all kinds of people who may be in many different situations, will be important in this occupation.
- An Osteopathic Physician will be able to make decisions based on experience and measurable facts.
- An interest in scientific or technical work that is helpful to others offers a chance to earn the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Osteopathic Physicians diagnose and treat all medical problems.
- An Osteopathic Physician will need to make quick and valid diagnostic decisions during emergency situations.
- An Osteopathic Physician may also try to prevent and cure disease by prescribing drugs, performing surgery, as well as counseling the patient about diet, exercise and wellness.



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EDUCATION AND TRAINING:

Applicants must be graduates of an approved college of health care administration, and have completed a minimum internship at an approved hospital.

Examination for Osteopathic Physicians is given each June. A fee is charged for the examination.

Applicants for a temporary license must be graduates of an approved college of osteopathic medicine and have completed one year of postgraduate study. The temporary license may be granted for one year on the basis of an examination (\$150 fee) or endorsement of credentials, at the discretion of the board.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Physical Education
Health

Biological Sciences
Chemistry
Physics

COURSEWORK AND TRAINING:

Osteopathic Medicine

SOURCES OF ADDITIONAL INFORMATION

- American Osteopathic Association
142 East Ontario Street
Chicago, IL 60611
- Iowa Osteopathic Medical Association
508 10th Street, Suite 300
Des Moines, IA 50309
- Occupational Outlook Handbook
1986-87 edition
pages (149-153)



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Phone (515) 281-5000

PACKER/WRAPPER

Packer/Wrapper packages materials and products manually or by machine performing a number of different tasks in connection with packing.

7126

920.587-018

06.04

8761

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

B
ES

PHYSICAL APTITUDES:

Packer/Wrapper will be able to use eyes, hands and fingers to hand pack or operate machines to wrap or package materials.

Packer/Wrapper will be able to reach and lift up to 50 pounds.

Packer/Wrapper will be able to do the same task in the same way many times in one day. This is an important feature in this occupation.

Packer/Wrapper will be able to work with things that are repeated many times in one day. This is an important feature in this occupation.

With employer assistance, some physical requirements may be met. Changes to the work site or equipment.

OCCUPATION PROFILE:

- A Packer/Wrapper packages materials and products by hand or machine.
- A Packer/Wrapper may perform any combination of the following duties:
 - clean packaging containers.
 - line and pad crates and assemble cartons.
 - obtain and sort products.
 - wrap protective materials around products.
 - start, stop and regulate the speed of the conveyor.
 - weigh containers and adjust quantity.
 - nail, glue or close and seal containers.
 - label containers or container tops.
 - sort bundles of filled containers.
- Packers/Wrappers may pack special arrangements or special products.
- Packers/Wrappers may inspect materials, products and packaging at each step of the packaging process.
- Packers/Wrappers may record information such as weight and date packaged.



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R
and prepares surfaces and then applies paint, enamel, lacquer or other materials.

4242

840.381-010

05.10

6442

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

AL APTITUDES:

will be able to learn the qualities of the paint to be used on surfaces to be painted.

Ability to understand and follow both spoken and written directions will be important in this occupation.

Ability to use basic math in estimating materials will be important.

Ability to see small differences in size, shape and color will be important.

Ability to use eyes, hands and fingers together to handle equipment so the result is exactly as planned is important in this occupation.

Ability to climb, stoop, reach and see as well as lift up to 50 pounds will be important in this occupation.

- A Painter will be able to make decisions based on experience.
- A Painter will be able to complete tasks to meet a set standard.
- An interest in work involving things using machines and tools that result in a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Painters should be able to mix paints and match colors.
- A Painter should also know the characteristics of the types of surfaces and for what they are suited.
- A Painter should know how to put up the scaffolding on which to work.
- Painters must keep the equipment clean and in good working order.
- Painters first prepare the surface to be painted by scraping off old paint, then filling nail holes and cracks, and brushing off dust.
- A Painter then applies the paint with a brush, a spray gun or roller uniformly and rapidly.
- Painters may apply coats of paint, varnish, stain, enamel or other finishes to decorate and protect building surfaces.
- Painters use tools such as mixing paddles, pliers, wrenches, rulers, screwdrivers, dusters, putty knives and gauges to measure the consistency of the paint.



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High school courses in the building trades are helpful.

Information may be obtained on the job.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Mechanics
Physical Education
Instruction & Maintenance

RELEVANT COURSES OF STUDY AND TRAINING:

Painting and Decorating
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Occupational Outlook Handbook
10th Edition
(Pages 392-394)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
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Phone (515) 281-6100

PAPERHANGER

Prepares the surface and then covers interior walls and ceilings with decorative wallpaper or fabric.

4224

841.381-010

05.05

6443

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

B
ES

PERSONAL APTITUDES:

Paperhanger will be able to learn the qualities of the many papers and the wall treatment needed to use them.

Paperhanger will be able to follow both written and spoken instructions will be able to work in this occupation.

Paperhanger will be able to use math in measuring and estimating materials needed.

Paperhanger will be able to picture how the finished product will look.

Paperhanger will be able to use eyes, hands and fingers together to handle materials and equipment so each job is finished exactly as required.

Paperhanger will be able to climb, stoop, reach and see as well as lift up to 50 pounds. This will be important in this occupation.

- A Paperhanger will be able to make decisions based on experience and measurable fact.
- A Paperhanger will be able to complete tasks to meet a deadline.
- An interest in working with things using machines and tools will result in a product that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Paperhangers cover interior walls and ceilings with wall paper or fabric.
- Paperhangers first prepare the surface that is to be papered.
- A Paperhanger may remove old paper using water, steam, chemical remover and scraper.
- Paperhangers may smooth rough spots with sandpaper and cracks with plaster.
- Paperhangers may mix paste to the desired thickness and apply paste on the back of the wallpaper or fabric.
- A Paperhanger must prepare the walls by sizing them so the paper will stick to the wall.
- Paperhangers must be careful to use the correct amount of paste.
- The Paperhanger must remove air bubbles by smoothing with a seam roller.



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WAYS OF STUDY AND TRAINING:

Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

International Brotherhood of Professional Paperhangers
1000 Lincoln Avenue
Montpelier, VT 05602

Occupational Outlook Handbook
1990 Edition
(92-394)



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PARALEGAL ASSISTANT

Paralegal Assistants research law, investigate facts and prepares documents to assist lawyers.

8433

119.267-026

11.04

396

14-Public Service (F)

14-Public Service (S)

Legal & Social Services (F)

Legal & Social Services (S)

B
ES

PERSONAL APTITUDES:

Paralegal Assistants will be able to learn, understand and define legal procedures, principles and laws.

Paralegal Assistants who are able to read and listen carefully to discover useful details to and report those in clear language will be important in this occupation.

Paralegal Assistants will be able to use math to prepare office documents and tax returns.

Paralegal Assistants who are able to pay attention to detail in written information to avoid or correct errors will be important in this occupation.

Paralegal Assistants will be able to sit for several hours.

Paralegal Assistants who are able to change easily from task to task many times a day will be important in this occupation.

- A Paralegal Assistant will be able to work with many kinds of people.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Paralegal Assistant will be able to complete tasks to a high standard.
- An interest in work involving information and business systems will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Paralegal Assistant may research and study legal materials, recorded court decisions and legal codes to prepare appeals and contracts.
- Paralegal Assistants may inventory and price real and personal property for estate settlements.
- A Paralegal Assistant sometimes examines facts and relevant cases to decide how to prepare the case.
- The Paralegal Assistant may be responsible for filing pleadings with the court clerk.
- Paralegal Assistants may deliver subpoenas (legal commands to appear in court) to witnesses.
- The Paralegal Assistant will, in some offices, direct the work of law office employees.



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Phone (515) 281-5000*

S OF ADDITIONAL INFORMATION:

International Association of Legal Assistants
100 North Utica
Des Moines, IA 50319

Association of Trade and Technical Schools
1400 Wisconsin Ave. NW Suite 200
Washington, D.C. 20007

Occupational Outlook Handbook
10th Edition
(1990-1991)



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Phone (515) 281-5000

PARK ATTENDANT

Responsible for such activities as park maintenance and supervising campground use within a park.

4145

406.687-010

03.04

5622

12-Natural Resources & Environment (F)

14-Public Service (S)

Resource Regulation & Control (F)

Government (S)

B
ES

PHYSICAL APTITUDES:

Park attendant will be able to climb, stoop, reach and see as well as lift up to 50 pounds.

Ability to do the same task in the same way many times in one day is important in this occupation.

Park attendant will be able to complete tasks to meet a set schedule.

Interest in working with things rather than people and tasks that are done the same way every day will help in this occupation.

Employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Park Attendant works in maintenance and repairs of city, state or national park and gives help to park visitors.
- The Park Attendant repairs buildings, tables, fireplaces, and equipment.
- A Park Attendant also maintains roads, trails, restroom systems.
- A Park Attendant keeps accurate records of the entire park.
- Park Attendants may handle situations that could become emergencies.
- A Park Attendant must like outdoor work, be able to work in all weather, and be dependable.
- A Park Attendant may also cut down trees and clear trails, boat docks and ramps.
- The Park Attendant may plant trees, flowers, hedges and shrubs to improve the appearance of the park.
- Park Attendants help register campers and lodgers, provide information to camping and picnic areas, and provide general park information to visitors.
- Park Attendants help enforce rules and regulations.

WAGES:

Hours per week

40

Average wage (entry level)

not available



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PARKING LOT ATTENDANT

Parking Lot Attendant is responsible for the safety and storage of vehicles left in a parking lot.

6192

915.473-010

09.04

874

13-Personal Services (F)

15-Transportation (S)

Special Human Services (F)

Highway Transportation (S)

B
ES

PHYSICAL APTITUDES:

Parking Lot Attendant will be able to use eyes, hands and feet to drive cars safely.

Strength to reach and lift loads up to 10 pounds will be important in this occupation.

Parking Lot Attendant will be able to do the same task in the same way many times a day.

Ability to work with all kinds of people will be important in this occupation.

Consistency in working with things and tasks that are done the same way every day will help in this occupation.

Employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Parking Lot Attendant must be able to drive all sizes of cars and handle manual as well as automatic transmissions.
- A Parking Lot Attendant must be able to move cars around parking places.
- Parking Lot Attendants work in lots which are located on the ground or work in lots which go several stories above street level.
- Parking Lot Attendants hand out claim checks and take care of customers while they leave.
- The Parking Lot Attendant must be able to make corrections and operate a simple cash register.
- A Parking Lot Attendant must be dependable and honest.
- The Parking Lot Attendant must also be on the lookout for people who might rob or steal from the parked cars.
- A Parking Lot Attendant may have to work under great pressure to deal with people who are impatient.
- Parking Lot Attendants often have to do a lot of walking in and out of cars.
- A Parking Lot Attendant often works on a shift basis.
- Parking Lot Attendants may service automobiles with gas and water.



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PAYROLL/TIMEKEEPING CLERK

Plans, organizes and coordinates activities of workers engaged in processing timecards, compiling payroll statistics and recording hours of work.

1628

215.482-010

07.02

4713

2-Business & Office (F)

2-Business & Office (S)

Secretarial & Clerical (F)

Secretarial & Clerical (S)

B
ES

PERSONAL APTITUDES:

The Payroll/Timekeeping Clerk will be able to learn the methods of processing timecards, computing and distributing the payroll.

The ability to understand and follow both written and spoken directions will be important in this occupation.

The Payroll/Timekeeping Clerk will be able to use basic math for processing timecards and bookkeeping tasks.

The ability to pay close attention to detail in written and number work and to correct errors will be important in this occupation.

The Payroll/Timekeeping Clerk will be able to use eyes, hands and feet together to operate machines without errors.

The ability to reach and see as well as sit for long periods of time will be important in this occupation.

- A Payroll/Timekeeping Clerk will be able to do the same work the same way many times in one day.
- A Payroll/Timekeeping Clerk will be able to complete a task to a set standard.
- An interest in working with things using processes that repeat many times will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Payroll/Timekeeping Clerk computes wages and posts them to payroll records.
- A Payroll/Timekeeping Clerk operates a posting machine and records earnings from timesheets and work orders and posts any deductions.
- The Payroll/Timekeeping Clerk may enter net wage on a time record card, check, checkstub or payroll sheet.
- The Payroll/Timekeeping Clerk may calculate wages for the hour.
- The Payroll/Timekeeping Clerk may prepare periodic reports on earnings and income tax deductions.
- The Payroll/Timekeeping Clerk may prepare and distribute envelopes.



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RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills

Accounting
General Clerical

RELEVANT COURSES OF STUDY AND TRAINING:

Accounting
Bookkeeping
Clerical
Word Processing

SOURCES OF ADDITIONAL INFORMATION:

National Secretaries International
1000 Armour Blvd.
Des Moines, MO 64111-1299



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Phone (515) 281-6100

PERSONNEL ADMINISTRATOR

Personnel Administrator manages a company's employment policies and procedures, focusing on the 'human element' in business.

1186

166.117-018

11.05

123

2-Business & Office (F)

2-Business & Office (S)

Management (F)

Management (S)

IB
ES

PERSONAL APTITUDES:

Personnel Administrator will be able to learn the company policies, procedures, firing, and benefits, as well as interviewing and job analysis techniques.

Personnel Administrator will be able to use language in writing or speaking to inform, instruct and counsel others will be important in this occupation.

Personnel Administrator will be able to use math for wage, insurance, and benefit information.

Personnel Administrator will be able to picture objects and their relationships to other objects and be important for those responsible for improving the work setting.

Personnel Administrator will be able to see small differences in detail and line when using graphs and related information.

Personnel Administrator will be able to pay attention to detail in order to avoid or correct errors.

- The ability to hear as well as sit for long periods of time will be important in this occupation.
- A Personnel Administrator will be able to change from one task to many times in one day.
- An ability to plan and direct the activities of others will be important in this occupation.
- A Personnel Administrator will be able to work with all people in many different situations.
- An ability to make decisions based on experience, personal judgment, and the feelings of others will be important in this occupation.
- An interest in sharing information with business contacts and a chance to earn others' respect will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Personnel Administrators recruit, test and recommend applicants who have the education, training and experience for the vacancies.
- Personnel Administrators establish personnel policies and procedures such as allowable sick leave and vacation, behavior standards in various situations, etc.
- Personnel Administrators may keep personnel records and monitor work hours.



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entry level personnel jobs are currently very competitive, the Department of Labor predicts that the number of Personnel Administrators will grow (1980-1990 period) at a rate of 28-49% compared to an average growth rate of 17 to 25% for all occupations.

There is considerable specialization in personnel management at various levels in areas such as: compensations, benefits, labor relations, etc.

Advancement to executive level responsibility is becoming more common, especially in larger companies.

KEY OCCUPATIONS:

Personnel Managers (11860)
Personnel Specialists (11861)
Training Specialists (11862)
Personnel Managers (11863)
Opportunity Program Managers (11864)
Personnel Analysts (11001). See Personnel Specialists page 107, Training Specialists page 109 and Personnel Managers page 257 in the Career Guide 1988-1989.

RELATED OCCUPATIONS:

Personnel (8414)
Personnel Trainee (1169)
Personnel Assistant (8434)
Personnel Relations Specialist (1195)

PREPARATION AND TRAINING:

- Many employers in private industries prefer applicants for these positions who have majored in business or personnel administration.
- For government positions, the applicant should have some background in public administration or political science.
- Military training and/or experience can be an advantage for these occupations.
- Where testing is a major part of the work, additional courses in psychology are helpful. A background in industrial engineering is beneficial to someone who is involved in time/motion and ergonomics studies.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
- Language Skills
- Social Studies
- Sociology

PROGRAMS OF STUDY AND TRAINING:

- 1804 - Business Administration and Management,
- 1809 - Business Economics
- 1811 - Hotel/Motel Management
- 1842 - Trade and Industrial Supervision and Management
- 1920 - Office Supervision and Management
- 1927 - Executive Secretarial
- 7311 - Sociology



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Phone (515) 281-6

PEST CONTROL TECHNICIAN

Identifies, locates, and exterminates pests such as termites and rodents which destroy property and homes, offices and schools.

2676

389.684-010

05.10

5246

9-Maintenance & Repair (F)

12-Natural Resources & Environment (S)

Building Maintenance (F)

Sanitation & Health (S)

IB
ES

PERSONAL APTITUDES:

A Pest Control Technician will be able to learn safe methods of use and control of pesticides as well as the habits of the pests.

Ability to picture spaces where pests might live that are not easily visible will be important in this occupation.

A Pest Control Technician will be able to reach as well as handle objects up to 10 pounds.

Ability to change from task to task several times in one day will be important in this occupation.

A Pest Control Technician will be able to make decisions based on information received.

Interest in working with things using machines and processes that are repeated many times will help in this occupation.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Pest Control Technicians are employed by a pest control company.
- A Pest Control Technician goes to homes, factories, offices, and warehouses.
- The Pest Control Technician looks for and destroys pests that damage property, including termites, rats, mice, roaches, and fleas.
- A Pest Control Technician must check flooring, foundation, rafters and other parts of the building where pests might live.
- Pest Control Technicians can tell when insects or pests are present by the signs they leave.
- The Pest Control Technician does whatever is needed to control pests and keep others from coming.
- The Pest Control Technician must destroy nests, use sorbents, and set chemical for bait or spray chemical solutions or powders in infested places.
- Pest Control Technicians spray chemical solutions or toxins, set mechanical traps to kill pests that infest buildings and other living areas.
- A Fumigator fumigates rooms and buildings using toxic gases.
- The Pest Control Technician may clean areas that attract pests with rakes, brooms, shovels, and mops before fumigating.



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Phone (515) 281-4

COURSE OBJECTIVES:

Horticulture Science
Plant Protection
Biology, General
Entomology

REQUIREMENTS:

Pest Control Association, Inc.
1000 North Street, P.O. Box 377
Farmingdale, VA 22027



OCCUPATIONAL BRIEFS

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Phone (515) 281-6100

PHARMACIST

Pharmacists dispense drugs/medicines prescribed by medical practitioners; supplies and advises people on the use of medicines that can be obtained with or without prescriptions.

8124

074.161-010

02.04

301

6-Health (F)

6-Health (S)

Medicine & Supply (F)

Medicine & Supply (S)

IB
ES

PHYSICAL APTITUDES:

Pharmacists will be able to learn and understand the effect, uses and side effects of drugs. A knowledge of ways of testing for purity and quality will be valuable.

The ability to understand technical information and instructions, as well as to prepare instructions others can understand, will be important in this occupation.

Pharmacists will be able to use math for measuring, in formulas for dosages and in record keeping.

The ability to see small differences in size, shape and line when comparing objects with graphs and charts will be important in this occupation.

- An ability to pay attention to detail in written information; the ability to correct errors will be important in this occupation.
- A Pharmacist will be able to use hands and fingers carefully to handle medicines in liquid or tablet form.
- The ability to tell one color from another will be important in this occupation.
- A Pharmacist will be able to reach, see and lift loads up to 25 pounds.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Pharmacist will be able to complete a task to meet a deadline.
- An interest in work that involves business contact and technical processes will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Pharmacist fills prescriptions written by physicians and other medical practitioners and sells medicines that may be purchased without a prescription directly to consumers.
- A Pharmacist must understand the composition and effects of medicines and be able to test them for purity and strength.



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RELEVANT OCCUPATIONS:

Pharmacist (81240) See Pharmacists page 72 in the Military Career Briefs 1988-1989.

RELATED OCCUPATIONS:

Pharmacist (8112)
Physician (8118)
Registered Nurse (8162)
Pharmacy/College Teacher (8454)

EDUCATION AND TRAINING:

A Bachelor's degree in pharmacy from an accredited school of pharmacy is the minimum educational requirement for most positions in the profession.

Graduates from a college of pharmacy and receive a Bachelor of Science (B.S.) or a Bachelor of Pharmacy (B. Pharmacy) degree, one must have at least five years of study beyond high school including two to three years of pre-pharmacy education and three to four years of professional instruction. Admission requirements vary between colleges of pharmacy and specific information should be requested from colleges of interest.

A license to practice pharmacy is required in all states. In Iowa, applicants for a license must be at least 21 years old and a graduate of an approved school of pharmacy. Written examinations are given each year in two locations in Iowa.

- The exam fee is \$195. The license is issued for two years. A Pharmacist must have 30 hours or 3.0 educational units of continuing education throughout the two years for renewal. The renewal fee is \$60 for the two-year license.
- A Master's degree in pharmacy is required for research and college teaching.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Algebra/Geometry
- Science
 - Biological Sciences
 - Chemistry

PROGRAMS OF STUDY AND TRAINING:

- 3669 - Pharmacy

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (162-164)



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PHOTOGRAPHER

in artistic, commercial, news, scientific and industrial fields using camera equipment to photograph objects, materials or scenery.

4734

143.062-030

01.02

326

3-Communication & Media (F)

3-Communication & Media (S)

Newspaper/Magazine/Book (F)

Newspaper/Magazine/Book (S)

IB
ES

GENERAL APTITUDES:

Photographer will be able to learn the use and care of the equipment as well as the principles of composition and color.

Ability to understand technical instructions as well as share ideas and difficult to describe will be important in this occupation.

Photographer will use math formulas for calculating exposure and developing the film.

Ability to picture objects and their relationship to other objects and the equipment used will be important when selecting subjects to photograph.

Photographer will be able to see small differences in shape, size, and color.

- An ability to use eyes, hands and fingers together to use controls on some equipment will be important in this occupation.
- A Photographer will be able to reach, hear and see as well as lift up to 10 pounds.
- A Photographer will be able to change from task to task in one day.
- An ability to work with all kinds of people in different situations will be important in this occupation.
- A Photographer will be able to make decisions based on personal feelings and the feelings of others.
- An ability to complete a task to meet a set standard will be important in this occupation.
- An interest in working with information in forms not easily seen but that can be pictured will help in this occupation.
- An interest in using processes and machines to make a picture that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Photographers use cameras and other equipment to record events or other subjects on film.
- A Photographer may try to capture a particular mood or personality, item or event.



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begin as a darkroom worker or as a Photographer's assistant.

One-third of all photographers are self-employed.

KEY OCCUPATIONS:

Photographers (47340) See Photographers in the Military Career Brief, 1988-1989 page 56.

RELATED OCCUPATIONS:

Graphic Designer (4724)
Picture Projectionist (3174)
Graphic Printer Operator (5932)

EDUCATION AND TRAINING:

High school diploma or its equivalent is generally required.

Three years in a technical school, a university, a community college, or on-the-job training are needed to enter the field.

Apprenticeships are available to those showing talent.

The amount and length of training has an effect on the photographic work that can be done. Industrial, news and scientific photography require a minimum of a high school education beyond high school. Photographic work in commercial photography and engineering usually requires a background in those areas and a high level of skill in photography.

- Having a hobby in photography or having a sales job in a supply shop is good experience.

HELPFUL HIGH SCHOOL SUBJECTS:

Art

- Studio Arts & Crafts
- Industrial Education
- Commercial Art/Graphic Arts/Photography
- Communications

PROGRAMS OF STUDY AND TRAINING:

- 2201 - Communications, General
- 2204 - Journalism
- 2207 - Radio/Television General
- 2912 - Educational Media
- 7707 - Graphic Communications
- 8011 - Graphic Design
- 8021 - Photography
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- Professional Photographers of America, Inc.
1090 Executive Way
Des Plaines, Illinois 60018
- Occupational Outlook Handbook
1986-87 edition
pages (223-225)



OCCUPATIONAL BRIEFS

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PHOTOGRAPHIC PRINTER OPERATOR

sets up and operates computerized hotofinishing equipment to produce color prints from negatives.

5932

976.382-014

5.10

7671

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

IB
ES

GENERAL APTITUDES:

A Photographic Printer Operator will be able to learn the set up and operation of equipment that produces photographic prints from negatives.

A Photographic Printer Operator will be able to understand chemical terminology and keep an accurate record of processing time. This will be necessary.

A Photographic Printer Operator will be able to compare time units with temperature changes to determine the amount of processing needed.

A Photographic Printer Operator will be able to identify the color balance needed and adjust equipment to maintain proper balance.

A Photographic Printer Operator will be able to keep the equipment in proper working order with the correct amount and type of materials such as paper and chemicals.

- The ability to identify differences in size and shape is necessary to maintain centering, or correct the size, shading, and focus of a color photograph image.
- A Photographic Printer Operator will be able to position and easily operate equipment.
- The ability to determine differences between colors and different shades of one color will be necessary in this occupation.
- An ability to reach, stand at equipment and lift up to 20 pounds is necessary in this occupation.
- Must be able to make judgments about color and quality of a photographic image based upon experience and a sense of perspective and layout.
- A Photographic Printer Operator will be able to make decisions on measurable information to produce a satisfactory product.
- A Photographic Printer Operator must produce a product that meets a set standard.
- An interest in working with processes that produce a product that can be seen, will be important in this occupation.
- With employer assistance, some physical requirements may come through changes in the work site or with equipment.



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KEY OCCUPATIONS:

Photographic Printer Operator (59320) See Photoprocessing Special-
ized Military Career Guide 1988-1989 page 171.

RELATED OCCUPATIONS:

Printer (4734)

Machine Operator (5968)

Printer/Peripheral Equipment Operator (1686)

EDUCATION AND TRAINING:

Completion of a high school diploma or equivalent is required by
employers in this field.

Photographic Printer Operators usually start as helpers and learn on
the job.

Community colleges may offer courses in photographic process-
ing.

Training may be offered by vocational and technical schools.

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills
Physical Education
Commercial Photography
Communications
Electricity & Power Systems
Manufacturing

- Product Services
- Agriculture
- Mechanics

PROGRAMS OF STUDY AND TRAINING:

- 7712 - Lithography, Photography and Platemaking.
- 8021 - Photography

SOURCES OF ADDITIONAL INFORMATION:

- Society of Photo-Technologists
P.O. Box 9634
Denver, CO 80209



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Phone (515) 281-4300

PHYSICAL SCIENTIST

Physical scientists research the properties of matter and energy to develop new products and processes, and increase the knowledge of the physical world.

2624

023.061-014

02.01

1843

12-Natural Resources & Environment (F)

12-Natural Resources & Environment (S)

Research (F)

Research (S)

OB
ES

PHYSICAL APTITUDES:

Physical Scientist will be able to learn the principles involved in the field as well as the principles of scientific research.

Physical Scientist will be able to use and understand technical information in written, mathematical form will be important in this occupation.

Physical Scientist will be able to be comfortable with math through high school level.

Physical Scientist will be able to picture a complex system and its parts will be important in this occupation.

Physical Scientist will be able to see small differences in size, shape and color in both three-dimensional and two-dimensional objects.

- An ability to pay close attention to details in written information and to avoid or correct errors will be important in this occupation.
- A Physical Scientist will be able to use eyes, hands and feet together to use delicate and breakable equipment.
- An ability to reach and see as well as lift loads up to 100 pounds will be important in this occupation.
- A Physical Scientist will be able to make decisions based on past experience and measurable facts.
- An ability to complete a task to meet a set standard will be important in this occupation.
- An interest in scientific work will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Physical Scientist does basic research to increase the knowledge and understanding of matter and energy or does applied research on old and new products and processes.
- A Physical Scientist will specialize in a specific area of physical science such as astronomy, food science or physics.
- An Astronomer studies the structure and evolution of the universe by collecting and analyzing data on the sun, moon, planets and stars to determine the size, shape, temperature, chemical makeup and movement of these bodies.



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ment opportunities for Astronomers depend greatly on federal funding located for astronomical research. Competition for beginning positions is expected to increase, according to the U.S. Department of Labor.

in Computer Science and Business Administration may improve employment opportunities.

tronomers are employed by colleges and universities, the government and observatories financed by non-profit organizations.

entists may anticipate moderate increases in employment opportunities through the mid-1980's, according to the U.S. Department of Labor.

entists work in all areas of the food industry with all types of products. They may do research for federal agencies or colleges and universities where they may also teach.

ndustry, colleges and universities, federal agencies, commercial laboratories and independent research organizations employ most scientists.

ment for most Physical Scientists means more responsibility, administrative duties and usually increases in salary.

KEY OCCUPATIONS:

and Laboratory Occupations (2600)
Scientists (26244)
; (26250) See Engineering, Science, and Technical Occupations
the Military Career Guide 1988-,989 pages 76 and 294.

RELATED OCCUPATIONS:

- Chemist (2625)
- Life Scientist (2611)
- Meteorologist (2633)
- Geologist (2634)

PREPARATION AND TRAINING:

- The usual requirement for a job in astronomy is a Ph.D. Beginning jobs may be filled by persons with less education. Level teaching and research positions in astronomy are usually filled only by those with the doctorate.
- A Bachelor's degree in chemistry is usually the minimum requirement for starting jobs as a Chemist. Graduate training is required for many positions, particularly in research and college teaching.
- A Bachelor's degree in food science or chemistry is the minimum requirement for beginning Food Scientists. An advanced degree is necessary for many jobs, especially in research and development and for some management level positions in industry.
- A beginning job as a Physicist may be filled by someone with a Bachelor's degree in Physics. Graduate training is increasingly necessary and may be required for many entry jobs and for advancement.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
- Algebra/Geometry
 - Advanced Math
- Science



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PHYSICAL THERAPIST

Physical Therapists help people with muscle, nerve, joint and bone disorders and injuries to help them overcome their disabilities.

8127

076.121-014

10.02

3033

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

ES

ESSENTIAL APTITUDES:

Physical Therapists will be able to learn the principles of anatomy, physiology and related sciences as well as human growth, development and the effect of disease and trauma.

Physical Therapists will be able to understand technical information and the ability to use this information to plan and explain a course of treatment will be important in this occupation.

Physical Therapists will be able to use basic math for record keeping, measurement and evaluation.

Physical Therapists will be able to picture objects and systems, how they fit and how they interact. Spatial ability will be important in this occupation.

Physical Therapists will be able to see small differences in size, shape and line.

- An ability to pay attention to detail in written work to detect and correct errors will be important in this occupation.
- A Physical Therapist will be able to use eyes, feet, hands and fingers together to complete a task in the exact way planned.
- A Physical Therapist will be able to stoop, reach, hear and lift loads up to 10 pounds and often more.
- An ability to plan and direct the activities of others will be important in this occupation.
- A Physical Therapist will be able to work patiently with people changing their ideas and attitudes relating to the treatment.
- A Physical Therapist will be able to make decisions based on experience and measurable facts.
- An interest in scientific or technical work that is helpful and involves sharing ideas will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Physical Therapists evaluate the condition of the patient and report their findings to the physician.
- Physical Therapists develop short and long-term goals for the patient and treatment programs to achieve them.



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ment may be found in hospitals or nursing homes; rehabilita-
ers or schools for crippled children; public health agencies;
ns' offices or clinics; schools of physical therapy; or research
tions.

settings, specialization may be possible in pediatrics (chil-
riatrics (elderly), orthopedics, neuromuscular or sports medi-

BY OCCUPATIONS:

Therapists (81270). See Physical Therapist in the Military
uide 1988-1989 page 289.

D OCCUPATIONS:

ist/Speech Pathologist (8128)
onal Therapist (8125)
Therapy Attendant (8153)
1 Assistant (8121)
ed Nurse (8162)
ory Therapist (8123)

ATION AND TRAINING:

or's degree in physical therapy may be completed at some
While at others, a Bachelor's degree may be completed in a
eld followed by an additional 12-16 month program to
certificate in physical therapy.

ould be considered very carefully. Programs vary from
school.

- A Master's degree in physical therapy would increase o
for advancement in teaching, research and administrati
- All states and the District of Columbia require a license
physical therapy. In Iowa, licensure is granted by the I
ment of Health. Application for a license requires a deg
icate from a school of physical therapy and a passing sc
state board examination.
- An applicant must be 21 years old and pass the written
application fee is \$55.
- The exam fee is \$85.00. A license renewal fee of \$55.00
annually.

HELPFUL HIGH SCHOOL SUBJECTS:

- Science
 - Biological Sciences
 - Physics
- Home Economics
 - Consumer & Homemaking
- Math
 - Algebra
 - Geometry
- Health & Physical Education
 - Health

PROGRAMS OF STUDY AND TRAINING:

- 3579 - Physical Therapy



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PHYSICAL THERAPY ATTENDANT

The physical therapist in the reparation and treatment of persons with muscle, nerve, joint and bone disorders.

8153

355.354-010

10.03

5233

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

IB
ES

GENERAL APTITUDES:

The Physical Therapy Attendant will be able to learn the principles of physical therapy as well as the operation of machines and programs used in the treatment.

The Physical Therapy Attendant will be able to understand and follow both written and spoken instructions. Reading and writing skills are important in this occupation.

The Physical Therapy Attendant will be able to use eyes, hands and feet to operate machines and help patients during treatments.

The Physical Therapy Attendant will be able to stoop, reach, hear and see, and lift up to 50 pounds.

The Physical Therapy Attendant will be able to work with many kinds of people patiently and often help them. Understanding and patience are important in this occupation.

- A Physical Therapy Attendant will be able to make decisions based on both experience and measurable facts.
- A Physical Therapy Attendant will be able to complete tasks to a set standard.
- An interest in work involving business contact and the ability to communicate information will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Physical Therapy Attendant prepares patients for treatment by the physical therapist.
- Physical Therapy Attendants place the patient in position for treatment and time the length of the treatment.
- The Physical Therapy Attendant may use different kinds of techniques, or may massage the patient and give heat and cold treatments.
- The Physical Therapy Attendant can often help patients with their attention and understanding.
- A Physical Therapy Attendant may also transport patients in wheelchairs or wheeled carts.
- The Physical Therapy Attendant may be asked to set up and put away equipment such as hydrotherapy tanks and whirlpools.



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EDUCATION AND TRAINING:

High school diploma or its equivalent is usually required.

Applicants must be at least 18 years old.

Therapy Attendants may train on the job in hospitals and health care facilities. The length and content of these training programs may vary widely.

Employers prefer Physical Therapy Attendants who have training as a Licensed Practical Nurse or other health occupations.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Economics
Consumer & Homemaking

Nursing Care
Physical Education
Health

REQUIREMENTS OF STUDY AND TRAINING:

On-the-job training for this occupation is generally required on the job.

SOURCES OF ADDITIONAL INFORMATION:

International Physical Therapy Association
1100 17th Street, N.W.
Washington, D.C. 20005



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AN ASSISTANT

Some of the simpler tasks usually performed by a Physician Assistant such as doing routine physicals and writing down a patient's history.

8121

079.364-018

10.02

304

6-Health (F)

6-Health (S)

B Health Technicians (F)

ES Health Technicians (S)

ADDITIONAL APTITUDES:

A Physician Assistant will be able to learn the principles of anatomy, physiology, behavioral science and related sciences.

The ability to understand scientific and technical information and be able to explain it so others can understand will be important in this occupation.

A Physician Assistant will be able to use math for record keeping and data computing.

The ability to picture a system, such as the digestive system, its parts and how they fit and work together, will be important in this occupation.

A Physician Assistant will be able to see very small differences in texture, line and color.

- An ability to pay attention to detail in written information; correcting errors will be important in this occupation.
- A Physician Assistant will be able to use eyes, hands and feet together to complete tasks in the exact way planned.
- An ability to reach, hear and see as well as lift loads up and down will be important in this occupation.
- A Physician Assistant will be able to work with all kinds of people in stressful situations.
- A Physician Assistant will be able to make decisions based on experience and measurable facts.
- An interest in scientific work that can be helpful to people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Physician Assistant may help a physician's practice in a more effective and economical manner.
- The Physician Assistant is qualified by academic and clinical training to provide patient services with and under the supervision of a physician.
- A Physician Assistant may record a detailed medical history, perform a physical exam, identify problems and refer patients to a physician.



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EDUCATION AND TRAINING:

High school diploma or its equivalent is required, with a minimum of two years of college course work.

Health care experience with direct patient contact is usually required.

Physician Assistant program usually takes two years.

Upon successful completion of an approved Physician Assistant program, graduates must take the National Certification exam to become a Physician Assistant, Certified. To maintain certification, Physician Assistants must accumulate 100 hours of continuing education every two years.

Registration fee is \$10.00. The two-year certification fee is \$100.00.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Biological Sciences
Chemistry
Physics
Social Studies
Biology
Physical Education
Health
Economics
Consumer & Homemaking

PROGRAMS OF STUDY AND TRAINING:

- 3546 - Physician Assisting - Primary Care

SOURCES OF ADDITIONAL INFORMATION:

- American Medical Association
535 North Dearborn Street
Chicago, IL 60610
- Occupational Outlook Handbook
1986-87 edition
pages (168-171)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

PLUMBER/PIPEFITTER

Plumbers install and repair items such as pipes, fixtures, and equipment for steam, water or gas.

4274
862.381-030
05.05
645
4-Construction (F)
4-Construction (S)
Plumbing & Electrical (F)
Plumbing & Electrical (S)

ESSENTIAL ABILITIES:

Plumber/Pipefitter will be able to learn the methods of installation, maintenance and repair of piping systems, fixtures and appliances.

Ability to understand and follow written and blueprint instructions is important in this occupation.

Ability to use math for measuring and estimating materials will be important in this occupation.

Plumber/Pipefitter will be able to picture parts and how they work together as a whole.

Plumber/Pipefitter will be able to see small differences in size, weight and line.

Ability to use eyes, hands and fingers together to use tools and equipment safely will be important in this occupation.

- A Plumber/Pipefitter will be able to climb, stoop, reach and lift, as well as lift up to 100 pounds.
- The ability to change from task to task many times in a day is important in this occupation.
- An ability to make decisions based on measurable facts is important in this occupation.
- A Plumber/Pipefitter will be able to complete tasks to meet a standard.
- An interest in working with things, processes and machinery is important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Plumber/Pipefitter may work for mechanical contract building construction at the job site.
- Plumbers/Pipefitters install pipe systems that carry water and other materials needed for sanitation or industrial production.
- The Plumber/Pipefitter coordinates work with Electricians, Plumbers and Carpenters.
- A Plumber/Pipefitter should be able to use the tools and equipment of the trade such as a wrench, chisel, pipe threader, drill and pipe.
- A Plumber installs water, gas and waste disposal systems in homes, schools, factories and other buildings.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

etal Worker (5484)

ATION AND TRAINING:

entice candidate must be at least 16. A high school education
ivalent is usually recommended.

enticeship in Plumbing/Pipefitting takes five years.

rentice learns how to use and care for tools, machines and
nt used in the work.

rentice also receives related classroom instruction in drafting
print reading, plus mathematics.

ailable, training from a vocational school is helpful.

L HIGH SCHOOL SUBJECTS:

l Education
struction
struction & Maintenance
re
hanics

MS OF STUDY AND TRAINING:

lumbing, Pipefitting and Steamfitting
pprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Mechanical Contractors Association of America
5530 Avenue, Suite 750
Washington, D.C. 20015
- National Assn of Plumbing-Heating Cooling Contractors
P.O. Box 6808
Falls Church, VA 22046
- Occupational Outlook Handbook
1986-87 edition
pages (396-398)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

POLICE OFFICER

Protects the life and property of people, makes arrests, helps in emergencies and works to prevent crime.

9414
375.263-014
04.01
5132
14-Public Service (F)
14-Public Service (S)
Protection (F)
Protection (S)

PERSONAL APTITUDES:

Officer will be able to learn and understand the federal, state and local laws and the department method used in enforcement.

Ability to understand and follow written and spoken commands as well as give clear and reasonable directions will be important in this occupation.

Officer will be able to judge directions and speeds when driving with traffic as a driver or for traffic control.

Ability to see small differences in size, shape and line will be important when making security checks.

Officer will be able to react quickly by using eyes, feet, arms and hands together to control or prevent problems.

Ability to reach, hear and see as well as lift loads up to 25 pounds will be important in this occupation.

- A Police Officer will be able to change from one task to another many times in one day.
- An ability to work with all kinds of people in sometimes difficult situations will be important in this occupation.
- A Police Officer will be able to make reasonable decisions and use experience even when under stress or danger.
- An interest in work involving information use and business with people will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Police Officer may work in a small town with one or two officers, the force or in a large city with several hundred people.
- The Police Officer will report to police headquarters at various times through call boxes, radios or walkie-talkies.
- A Police Officer patrols a certain area or directs traffic.
- A Police Officer may drive or ride in a car or motorcycle.
- Police Officers work alone or sometimes with a partner.
- Police Officers are always on the lookout for someone or something that is out of the ordinary.
- A Police Officer gives help to people hurt in traffic accidents and other kinds of accidents.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5111*

DUTY RESPONSIBILITIES:

Driver (9426)
Guard (9476)
Cooper (9416)

EDUCATION AND TRAINING:

Police officers in Iowa are required to complete training at the Iowa Law Enforcement Academy (ILEA) in Des Moines or at a training facility approved by the ILEA Council. These trainees include: Cedar Rapids, Ottumwa, and Sheldon.

Applicants may be 18 to 65 years of age.

Applicants must hold an Iowa chauffeur's license.

A physical exam will be required.

High school graduates with no further education must complete the recruit training course consisting of ten weeks (400 hours) of training.

An applicant who has completed a comparable Basic Recruit Training course in another state, or two years of police science, or law enforcement education, or a four-year program of police science, or justice education at an accredited institution, he/she is eligible for the Advanced Officer Basic Training. This program consists of ten weeks (200 hours) of full-time training.

Advancement in law enforcement, police science or criminal justice is by rank. Police Officers advance in the ranks of the police force and promotion training is required by law.

- For advancement, current trends for further education in management, business administration, civil justice administration, public administration.
- For more information on the training available at ILEA Iowa Law Enforcement Academy, P.O. Box 130 Johnston, IA 50131.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Social Studies
 - Sociology
- Health & Physical Education
 - Health

PROGRAMS OF STUDY AND TRAINING:

- 7004 - Criminal Justice
- 7007 - Law Enforcement
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook 1986-87 edition pages (303-305)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-4100

POLITICAL SCIENTIST

Study governmental structure and operation and combine this research with consultation and teaching.

2134

051.067-010

11.03

1914

14-Public Service (F)

14-Public Service (S)

Government (F)

Government (S)

IB
ES

PERSONAL APTITUDES:

A Political Scientist will be able to learn and understand the principles of sociology, political theory, the organization and operation of government.

Ability to understand technical information and explain it so others will understand will be important in this occupation.

A Political Scientist will be able to use basic math and the formulas for collecting statistics.

A Political Scientist will be able to pay close attention to detail in order to avoid or correct errors.

Ability to hear and sit for long periods of time will be important in this occupation.

A Political Scientist will be able to plan and direct the activities of

- A Political Scientist will be able to make decisions based on logical reasoning.
- An interest in scientific or technical work involving logical reasoning will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Political Scientist studies governments; their organization and purposes.
- A Political Scientist may specialize in a general area of political science such as political theory, comparative politics, U.S. international political institutions or policies of a particular period.
- A Political Scientist will probably combine research, consulting and administrative duties with university or college teaching (University/College Teacher (8454) for more information).
- The Political Scientist may survey public opinion or political private research agencies or study proposed legislation for government, legislative bureaus or congressional committees.
- Political Scientists may administer government programs or study the operation of government agencies.
- A Political Scientist may write the surveys used in the collection of data.
- Training and supervising survey workers may be part of the occupation.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-t

L HIGH SCHOOL SUBJECTS:

ge
Language Skills
udies
tory
ernment
iology

MS OF STUDY AND TRAINING:

olitical Sciences and Government

S OF ADDITIONAL INFORMATION:

onal Outlook Handbook
edition
9-101)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

POST OFFICE CLERK

Sorts mail, sells stamps and money orders and performs other tasks related to moving the mail.

7123

243.367-014

07.03

4742

14-Public Service (F)

14-Public Service (S)

Utilities & Services (F)

Government (S)

IB
ES

PERSONAL APTITUDES:

A Post Office Clerk will be able to learn the methods of handling mail and the operation of the machines used.

The ability to understand and follow spoken and written directions will be important in this occupation.

A Post Office Clerk will be able to use basic math for making change and record keeping.

The ability to see small detail in shape, size and line will be important in this occupation.

A Post Office Clerk will be able to pay close attention to detail in their work to avoid or correct errors.

A Post Office Clerk will be able to use eyes, hands and fingers to handle mail and operate the machines quickly and without

- The ability to reach, hear and see as well as lift loads up to 50 pounds will be important in this occupation.
- A Post Office Clerk will be able to change from task to task many times in one day.
- A Post Office Clerk will be able to work patiently with a variety of people.
- An interest in business contact and work that is done throughout the everyday will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Post Office Clerk sells stamps, money orders and postage.
- Post Office Clerks weigh outgoing mail and figure mailing rates.
- A Post Office Clerk also registers and insures letters and parcels, receives complaints and posts circulars on bulletin boards.
- The Post Office Clerk sorts incoming and outgoing mail.
- The Post Office Clerk separates the pieces of mail into different types: parcel post, letter mail and paper mail.
- A Post Office Clerk cancels stamps and puts mail into bins according to geographic location.
- Post Office Clerks use the distribution machines or electronic machines to direct letters automatically to the right compartment by pushing the correct buttons.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000*

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills
Advanced Education
Vocational Training

RELEVANT COURSES OF STUDY AND TRAINING:

Training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:

Job Information Center
1000 Walnut Street
Des Moines, Iowa 50309

National Outlook Handbook
1980 Edition
(75-278)



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

PLANT OPERATOR

es, services and repairs boilers, turbines, gener-
and auxiliary equipment used to produce large
ts of electricity.

5948

952.382-018

05.06

6932

14-Public Service (F)

14-Public Service (S)

IB Utilities & Services (F)

ES Utilities & Services (S)

AL APTITUDES:

Plant Operator will be able to learn the equipment and
1 of the plant.

y to follow written, spoken and pictorial instructions will be
it in this occupation.

Plant Operator will be able to use math for record keeping
ing scales and gauges.

y to picture objects, their relationship to other objects and the
ey use will be important in this occupation.

ant Operators will be able to use their hands to operate
error the large and small machine controls.

y to reach, hear, see and lift loads up to 50 pounds will be
t in this occupation.

- A Power Plant Operator will be able to make decisions l
experience.
- A Power Plant Operator will be able to complete tasks t
standard.
- An interest in working with things that use processes a
will help in this occupation.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Power Plant Operator operates boilers, turbines, gene
auxiliary equipment at a generating plant to produce ele
- The Power Plant Operator will monitor a control board :
equipment following recording and indicating instrument
- The Power Plant Operator adjusts controls of water and
systems, blowers and igniters to start up or shut down k
- A Power Plant Operator may control the operation of th
auxiliary equipment such as water and vacuum pumps,
and steam condensers.
- The Power Plant Operator adjusts boilers to provide stea
fied temperatures and pressures for turbine loads accord
demands.
- Power Plant Operators adjust controls to regulate speed,
the phase of incoming turbines to accommodate the volta
power generated.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills
Sciences of Technology
Technical Education
Electrical/Electronic

RELEVANT COURSES OF STUDY AND TRAINING:

Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

International Brotherhood of Electrical Workers
1400 K Street, N.W.
Washington, D.C. 20037



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6000

PRESCHOOL TEACHER

Preschool Teacher will be able to promote social, emotional and intellectual growth in a preschool, day care center or other facility.

8457

092.227-018

10.01

231

14-Public Service (F)

14-Public Service (S)

Education (F)

Education (S)

IB
ES

PERSONAL APTITUDES:

Preschool Teacher will be able to learn the use and methods of child development and the principles of child behavior.

Ability to understand information and directions and to present information in a way the children can understand will be important in this occupation.

Preschool Teacher will be able to use basic math as well as teach

Ability to pay close attention to detail in written information to correct errors will be important in this occupation.

Preschool Teacher will be able to use eyes, feet, hands and fingers to complete tasks as planned.

- The ability to tell one color from another will be important in this occupation.
- The ability to stoop, reach and hear as well as lift up to will be important in this occupation.
- A Preschool Teacher will be able to quickly change from many times in one day.
- A Preschool Teacher will be able to plan and direct the activities of others.
- An ability to work with all kinds of people, young and old in different situations will be important in this occupation.
- A Preschool Teacher will be able to make decisions based on experience.
- An interest in work that is helpful to people and involves gathering information will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Preschool Teacher instructs children in activities to help promote physical and intellectual growth in a preschool, day care center or other child development facility.
- Preschool Teachers plan individual and group activities to promote the learning of all.
- The Preschool Teacher will do a variety of tasks during



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

Teachers who are employed by school districts which have a degree as part of their total educational program need at least a bachelorette degree in Education with a pre-kindergarten/elementary endorsement and be certificated by the Iowa Department of Public Instruction.

Working experience with children would be helpful in this field.

Training in First Aid and CPM will be an advantage.

Classes are offered at community colleges in child care/child development which would be most useful in teaching children in preschools/day care centers.

Four-year degree programs offer a greater depth of training for the person interested in this field.

RELEVANT HIGH SCHOOL SUBJECTS:
Courses leading to a high school diploma.

DEGREES OF STUDY AND TRAINING:

Education, General
Special Education, General
Elementary Education
Early Childhood Education
Secondary Education
Teaching English as a Foreign Language
Child Development, Care and Guidance
Liberal Studies
Religious Education

SOURCES OF ADDITIONAL INFORMATION

- National Association for the Education of Young Children
1834 Connecticut Avenue, N.W.
Washington, D.C. 20009



OCCUPATIONAL BRIEFS

Career Information Sys

Iowa Dept. Of Edu

Grimes State Office

Des Moines, IA 50

Phone (515) 281-4

PRINTING WORKER

prepares and operates printing presses, plate-making, proofing, and paper cutting, drilling and folding materials to print and produce items.

4766

651.380-010

06.01

7443

10-Manufacturing (F)

3-Communications & Media (S)

Assembly & Production (F)

Newspaper/Magazine/Book (S)

PERSONAL APTITUDES:

A Printing Worker will be able to learn the process used in printing and the operation of the printing presses used.

The ability to follow both written and spoken directions will be important in this occupation.

A Printing Worker will be able to use basic math.

A Printing Worker will be able to picture what the finished product will be like.

The ability to see small differences in size, shape and line will be important in this occupation.

The ability to pay attention to detail in written information to avoid errors will be important in this occupation.

- A Printing Worker will be able to use eyes, hands and feet together to safely operate the equipment.
- A Printing Worker will be able to reach, see and lift loads up to 50 pounds.
- An ability to change from task to task many times in one day is important in this occupation.
- A Printing Worker will be able to make decisions based on experience.
- A Printing Worker will be able to complete tasks to meet a set standard.
- An interest in working with things that use processes and machinery to make a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Printing Press Operator prepares type form and press sheets for fine printing and operates the press.
- The Printing Worker ensures printing impressions that are clear and uniform.
- Printing Workers adjust control margins and the flow of ink on the inking roller.
- The Printing Worker must be able to oil and clean the press and make minor repairs.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

EDUCATION AND TRAINING:

High school education or its equivalent is usually required.
Apprenticeships for Printing Workers may be learned during formal apprenticeships.
Apprenticeship includes classroom instruction in related printing and takes two years for a press assistant and four to five years for Press Operators.
Apprenticeships in printing courses in high schools and vocational schools is available.
There may be a waiting list for formal apprenticeships. It may be necessary to work a year or two as an unskilled press worker.

Apprentices must be 18 years of age, pass a physical examination, and have good eyesight and good eye-hand coordination.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Courses Leading to a High School Diploma.

TOPICS OF STUDY AND TRAINING:

Graphic Communications
Composition, Make Up and Typesetting
Lithography
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- International Typographical Union
P.O. Box 157
Colorado Springs, Colorado 80901
- Printing Industries of America
1730 North Lynn Street
Arlington, VA 22209
- Occupational Outlook Handbook
1986-87 edition
pages (440-441)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

PROBATION OFFICER

Probation Officers advise and counsel persons convicted of a criminal offense who have had their sentences suspended; is responsible to the courts for these persons.

8422

195.167-034

07.01

2032

14-Public Service (F)

14-Public Service (S)

Legal & Social Services (F)

Legal & Social Services (S)

GENERAL APTITUDES:

Probation Officer will be able to learn the rules and regulations applicable to the convicted person's release on probation.

Ability to understand the meaning of the client's conviction as well as the ability to talk with the client and be understood will be important for this occupation.

Probation Officer will be able to use basic math.

Ability to hear and sit for long periods of time will be important for this occupation.

Probation Officer will be able to change from task to task many times in one day.

Probation Officer will be able to plan and direct the activities of

- An ability to get along with all kinds of people often in stressful situations is important in this occupation.
- A Probation Officer will be able to make decisions based on experience.
- An interest in work that is helpful to people and involves gathering information will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Probation Officer will need to deal with all phases of the criminal justice system from police officers to judges.
- Probation Officers gather and check information about the client by observing the client's behavior, by interviewing people and by reviewing records and reports.
- The Probation Officer should apply the general principles of psychology, counseling and social work to your work.
- A Probation Officer monitors the activities of a juvenile offender on probation from a correctional institution.
- Probation Officers complete records on clients, explain the probation contract to the client and see that it is signed.
- A Probation Officer will need to identify client problems in school, employment, family, etc., and determine whether the client can help and, when necessary, refer the client to resources in the community who can help solve the problem.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

EDUCATION AND TRAINING:

Seeking jobs as Probation Officers can complete a variety of professional experiences and gain employment.

A baccalaureate degree with emphasis in the behavioral sciences is required for Juvenile Probation Officers.

Work experience in corrections or related work can be substituted for education.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics courses leading to a high school diploma.

RECOMMENDED COURSES OF STUDY AND TRAINING:

Psychology
Criminal Justice Studies
Social Work
Social Sciences
Sociology

SOURCES OF ADDITIONAL INFORMATION:

1. Occupational Exploration
Publication
(45-446)

2. Occupational Outlook Handbook
12th Edition
(1982)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

PRODUCT DEMONSTRATOR

Product Demonstrators demonstrate and explain the features of products and services to potential customers to promote sales.

7448

297.354-010

08.02

445

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Public Relations & Advertising (F)

Public Relations & Advertising (S)

IB
ES

PERSONAL APTITUDES:

Product Demonstrator will be able to learn about the product being demonstrated as well as the methods of giving a successful demonstration.

Ability to present information in a clear, interesting and convincing manner will be important in this occupation.

Product Demonstrator will be able to use basic math.

Ability to use eyes, hands and fingers together to handle small and delicate objects will be important in this occupation.

Product Demonstrator will be able to reach, hear and lift loads up to 25 pounds.

Ability to work with all kinds of people to affect their attitudes or behaviors will be important in this occupation.

- A Product Demonstrator will be able to make decisions based on previous experience.
- An interest in business contact with people sharing information will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Product Demonstrators display the product and explain its features to customers.
- A Product Demonstrator answers customers' questions about the product.
- A Product Demonstrator will find planning and thorough preparation is very important to demonstrate successfully.
- Product Demonstrators may demonstrate the use or proper care of a product and explain the good points to persuade customers to purchase the product.
- A Product Demonstrator may use graphic aids, such as charts or films, to make the demonstration more interesting.
- The Product Demonstrator may suggest product improvements to your employer.
- An Appliance Demonstrator visits community organizations, schools to demonstrate the operating features and care of household appliances as: washers, dryers, air conditioners, ranges, refrigerators, food processors, etc.



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Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

EDUCATION AND TRAINING:

Employers usually require a high school diploma or its equivalent.
Some employers and some manufacturers provide on-the-job training.
Experience in retailing or demonstrating which can be helpful to
those interested in advancing.
Community colleges, vocational high schools and trade schools often
offer courses in retailing or demonstrating which can be helpful to
those interested in advancing.

RELEVANT HIGH SCHOOL SUBJECTS:

English
Language Skills

COURSES OF STUDY AND TRAINING:

Fashion Merchandising
Fashion Modeling
Sales
Cosmetology
Home Economics, General
Textiles and Clothing

SOURCES OF ADDITIONAL INFORMATION:

International Professional Advertising Association
100 West 42nd Street
New York, NY 10017



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Educ
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

PRODUCTION MACHINE OPERATOR

operates a special purpose machine to produce a product to meet a standard.

5968

609.685-018

06.04

7529

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

IB
ES

PHYSICAL APTITUDES:

Production Machine Operator will be able to use eyes and hands to operate the machines safely and to meet standards.

Ability to do the same task the same way many times in one day is important in this occupation.

Production Machine Operator will be able to handle loads up to 25 pounds and sometimes lift loads up to 50 pounds.

Production Machine Operator will be able to complete tasks to meet a standard.

Interest in working with things that use machines and processes that are repeated many times will be helpful in this occupation.

Employer assistance, some physical requirements may be met on-site or changes to the work site or equipment.

OCCUPATION PROFILE:

- A Production Machine Operator runs various kinds of production machines used in the grinding, punching, forming, shearing and shaping of metal, plastic, rubber or glass equipment parts.
- The Production Machine Operator may inject molding material into machines as grinding and polishing machines.
- A Production Machine Operator must read the orders or drawings before putting material into the machines.
- Production Machine Operators lift the work piece either vertically with a hoist, position and secure it, or load an automatic device.
- A Production Machine Operator trips the machine and starts operation.
- The Production Machine Operator may periodically check for possible defects and measure it with gauges and micrometers (millionth of a meter).
- A Production Machine Operator may perform a special operation.
- The Production Machine Operator adjusts the machine and sets proper gauges to check dimensions and tolerances.
- Production Machine Operators are responsible for oiling and maintaining the machines being used.
- A Production Machine Operator may be required to transfer a type of machine to another as the situation demands.



OCCUPATIONAL BRIEFS

Career Information Syst

Iowa Dept. Of Educ

Grimes State Office

Des Moines, IA 50

Phone (515) 281-5

S OF ADDITIONAL INFORMATION:

ional Assn of Machinists and Aerospace Workers
nnecticut Avenue, N.W.
ton, D.C. 20036



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

PRODUCTION SUPERVISOR

Plans and coordinates activities of production department in processing materials or manufacturing process in an industrial establishment.

1154

183.117-014

05.02

132

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

IB
ES

PERSONAL APTITUDES:

Production Supervisor will be able to learn and understand the total operation of the production department as well as some principles of industrial management.

Production Supervisor will be able to understand and follow directions as well as give clear, exact directions.

Production Supervisor will be able to use shop math and basic record keeping.

Ability to picture the way the total production process works and how each part fits in will be important in this occupation.

Ability to see small differences in size, shape and line will be important in this occupation.

- A Production Supervisor will be able to pay attention to detail to avoid or correct errors.
- An ability to hear and lift loads up to 10 pounds will be important in this occupation.
- A Production Supervisor will be able to change from task to task many times in one day.
- An ability to plan and direct the activities of others will be important in this occupation.
- An ability to work with all kinds of people in different situations will be important in this occupation.
- A Production Supervisor will be able to make decisions based on past experience and measurable facts.
- An interest in work using processes and machines, including making contacts, with a chance to earn the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Production Supervisors direct and coordinate the activities of the production department such as processing materials and equipment and knowledge of production methods to manufacturing production.
- The Production Supervisor reviews production orders or drawings and check product data.



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Phone (515) 281-4

AIMS OF STUDY AND TRAINING:

Food Science
Trade and Industrial Supervision and Management
Mechanical Design Technology
Industrial Arts, General

S OF ADDITIONAL INFORMATION:

For Occupational Exploration
Information
(515-281-172)



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Phone (515) 281-6000

PROOFREADER

Proofreaders read written materials to detect grammatical, typing and position errors and marks for correction.

2182

209.387-030

07.05

4792

2-Business & Office (F)

2-Business & Office (S)

Secretarial & Clerical (F)

Secretarial & Clerical (S)

IB
ES

PHYSICAL ABILITIES:

Proofreaders will be able to learn the process and correction symbols used in printing shops.

Ability to read quickly while paying close attention to detail will be important in this occupation.

Proofreaders will be able to picture how the print should fit the page and to detect errors in the layout.

Ability to see small differences in size, shape and line will be important in this occupation.

Proofreaders will be able to pay very close attention to detail in order to obtain information to correct errors.

Ability to reach, see and carry loads up to 10 pounds will be important in this occupation.

- A Proofreader will be able to make decisions based on facts.
- A Proofreader will be able to complete tasks to meet a schedule.
- An interest in work involving information and doing the same task many times will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Proofreaders read original copy or proof of type set to detect and mark the errors.
- The Proofreader may place proof and copy side by side on a light board, read proof against copy and mark errors on proof against a standardized code.
- The Proofreader returns marked proof for corrections and, at the same time, checks corrected proof against copy.
- A Proofreader may read aloud to find differences between original and copy.
- Proofreaders may measure dimensions, spacing and position on a page to verify specifications.

WAGES:

Hours per week	35-40
Average Wage (entry level)	\$3.93
Average Wage (all experience levels)	\$4.78
Average Range	\$3.35-\$6.32



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PSYCHOLOGIST

Psychologist studies the behavior of individuals and groups in order to understand and explain their actions, combining this with other activities to directly serve people.

8434

045.107-022

10.01

1915

6-Health (F)

6-Health (S)

Doctor (F)

Doctor (S)

OB
ES

PSYCHOLOGIST

Psychologist will be able to learn and understand the causes of behavior of others as well as their own.

Psychologist will be able to listen and talk to others to understand technical information and explain that information to others will be important in this occupation.

Psychologist will be able to use math for record keeping and in research.

Psychologist will be able to see and compare details in graph or pictured information important in this occupation.

Psychologist will be able to use his or her hands to conduct tests in research.

- An ability to change from task to task many times in an important way is important in this occupation.
- A Psychologist will be able to work with all kinds of people who are interested in their needs and welfare.
- A Psychologist will be able to affect the attitudes and ideas of patients.
- An ability to make decisions based on both experience and a logical fact will be important in this occupation.
- An interest in scientific work that is helpful to others and sharing information will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Psychologists perform many different activities depending on the type of Psychologist you are, the type of treatment you use and the type of work.
- A Psychologist may work exclusively with people, animals, or plants, interviewing and counseling.
- Psychologists may devote their time entirely to studying the behavior of animals.
- The Psychologist may prepare or revise and interpret psychological tests.



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partment of Employment Services figures do not include
who are self employed.

ompetition is expected for persons below the Ph.D. level.

gists desiring academic positions may also find strong com-

ional advancement for Psychologists usually is achieved
more education. These advancements may include research
ing positions with more responsibility and higher rank and
d specialization and expertise within psychology.

RY OCCUPATIONS:

gists (84340) See Psychologists in the Military Career Guide
89 page 281.

D OCCUPATIONS:

3436)
r (8414)
n Officer (8422)
orker (8417)

PREPARATION AND TRAINING:

- Education past high school will take about eight years.
- A Master's degree in Psychology is usually the minimum requirement for professional employment in the field.
- People who hold this degree can qualify for positions wh
administer and interpret psychological tests; collect and
tistical data; conduct research experiments; and perform
tive duties. They also may teach in colleges; counsel stu
handicapped persons; or if they have had previous teach
ience, work as a School Psychologist or counselor.
- The Ph.D. is needed for many entry level positions and
more important for advancement. People with Ph.D.s in
can qualify for more responsible research, teaching, clin
counseling positions.
- About one year of full-time graduate work is needed to c
Master's degree in Psychology. Three to five additional
necessary for the Ph.D. with an extra year of supervise
for clinical or counseling specialties.
- Applicants for a license must have a Doctorate in psych
Master's degree with five years of experience, and at le
of work under a licensed Psychologist.
- An application fee of \$100 is required.
- The approved applicant must pass a written exam. The
- Twenty hours of Continuing Education Units per year a
The renewal fee is \$140.



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ADMINISTRATOR/OFFICIAL

and coordinates administration of city, county, regional or national government in accordance with policies determined by councils, boards or other officials of authorized officials.

- 1138
- 188.117-114
- 11.05
- 1131
- 14-Public Service (F)
- 14-Public Service (S)
- Utilities & Services (F)
- Utilities & Services (S)

EB
ES

ADDITIONAL APTITUDES:

Administrator/Official will be able to learn the operation of a city or county or state government and methods of problem solving to manage these governments.

Ability to listen, read and present information, spoken or written, in confidential ways, will be important in this occupation.

Administrator/Official will be able to understand and explain complex statements.

Administrator/Official will be able to pay attention to detail and information to avoid or correct errors.

Ability to move from place to place easily and to hear will be important in this occupation.

- An ability to change from task to task many times in order to be important in this occupation.
- A Public Administrator/Official will be able to plan and coordinate the activities of others.
- A Public Administrator/Official will be able to work pleasantly with many kinds of people in different situations.
- An ability to make decisions based on experience will be important in this occupation.
- An interest in work involving sharing information and knowledge with others as well as a chance to gain the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Public Administrator/Official is responsible to the community for the elected official appointing body.
- A Public Administrator/Official will develop a knowledge of government systems and how they work to meet the needs of citizens.
- Public Administrators/Officials coordinate and administer the operating departments such as tax collection and distribution, law enforcement and public works.
- The Public Administrator/Official hires department head and supervisory staff.



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ing to the U.S. Department of Labor, this occupation is ex-
to grow (1980-1990 period) at a rate of 15 to 27% compared to
age growth rate of 17 to 25% for all occupations.

tion is expected to be fairly keen among people who are
rative assistants, department heads or assistants for Public
trator/Official positions.

tion will even be strong for persons with graduate degrees in
dministration.

Administrators/Officials gain experience, they may advance to
ommunities with more complex problems.

BY OCCUPATIONS:

irectors (11381)
nent Analysts (11001) See Postal Directors page 258 and
nent Analysts page 257 in the Military Career Guide
89.

D OCCUPATIONS:

nal Administrator (1136)
Administrator (1134)
lations Specialist (1195)
rganization Official (1188)
lanner (2315)

PREPARATION AND TRAINING:

- A Bachelor's degree with a major in political science or
istration is often the minimum educational requirement
Public Administrator/Official. However, a Master's degr
or Municipal Administration is preferred and is becomir
mum requirement..
- During the course of completing a degree in Public Adm
internship program in a Public Administration office wil
as preparation for this occupation.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Math
 - Basic Math Skills
- Social Studies
 - Government
 - Sociology

PROGRAMS OF STUDY AND TRAINING:

- 1503 - City, Community and Regional Planning
- 1702 - Ethnic Studies
- 1803 - Banking and Finance
- 1804 - Business Administration and Management
- 1815 - Transportation Management
- 7204 - Public Administration
- 7306 - Economics
- 7311 - Sociology
- 7312 - Urban Studies



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PUBLIC RELATIONS SPECIALIST

Public Relations Specialist will be able to build a beneficial public image by writing and listening to its employees and the public.

1195
165.067-010
11.09
332
3-Communication & Media (F)
3-Communication & Media (S)
Advertising/Public Relations (F)
Advertising/Public Relations (S)

PERSONAL APTITUDES:

Public Relations Specialist will be able to learn the company and goals, as well as have a working knowledge of human relations.

Public Relations Specialist will be able to read and understand written ideas and use original 'attention getting' ways to present ideas to others.

Ability to use math for budget control and planning will be important in this occupation.

Public Relations Specialist will be able to picture a finished product and layout artwork and text forms.

Ability to see small differences in shape, size and line will be important when composing publications.

- An ability to pay close attention to detail in written information; to avoid or correct errors will be important in this occupation.
- A Public Relations Specialist will be able to hear and see and sit for long periods of time.
- An ability to change from one task to another many times will be important in this occupation.
- A Public Relations Specialist will be able to plan and direct activities of others.
- An ability to work easily with all kinds of people and be able to handle all situations will be important in this occupation.
- A Public Relations Specialist will be able to affect the individual attitudes of people toward the organization represented.
- A Public Relations Specialist will be able to make decisions from experience.
- An interest in work involving business contacts, sharing information and the chance to earn the respect of others will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



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EMPLOYMENT OUTLOOK:

Public Relations Specialists are found throughout the cities of Iowa and throughout the United States.

The Department of Employment Services information shows a 1986 employment level of 749 and a 1989 projected employment level of 749 for Public Relations Specialists.

The Department of Employment Services has projected openings for Public Relations Specialists in 1988-89 to be 45 including 6 openings due to retirements and 39 openings due to replacement.

The Department of Employment Services figures do not include those who are self employed.

The Department of Labor also feels competition for jobs is likely to increase, especially during economic downturns.

Advancement may be to supervisory jobs with more experience and to handling successfully more difficult assignments.

Working for an independent consulting firm handling public relations may be another form of advancement.

RELATED OCCUPATIONS:

Public Information Officers (11950) See Public Information Officer in the 1988-1989 Military Career Guide.

RELATED OCCUPATIONS:

- Advertising Account Executive (1196)
- Personnel Administrator (1186)
- Union/Organization Official (1188)

PREPARATION AND TRAINING:

- Usually the best training for the job of a Public Relations Specialist is in journalism through college preparation or through experience in news media.
- A college background in related fields such as English, business administration, psychology, speech or training in public relations will be helpful. Some firms may require a technical background in a field related to the firm's business.
- Part-time or summer employment in selling, public relations or journalism provide valuable experience that will be helpful in obtaining full-time employment in public relations.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Speech
- Math
 - Basic Math Skills



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PRESS OPERATOR

p and operates power presses to trim, unch,
notch, draw or crimp metal stock.

5474

615.482-022

06.02

7314

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

IB
ES

AL APTITUDES:

Press Operator will be able to learn safe operating methods
achines used.

y to use math for counting and exact measurement to check
s will be important in this occupation.

Press Operator will be able to use eyes and hands together
e a machine safely and make the exact part.

y to reach and see as well as lift loads up to 100 pounds will
tant in this occupation.

Press Operator will be able to do the same task, the same
ny times a day.

Press Operator will be able to complete a task to meet a set

- An interest in working with things that use processes a will help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Punch Press Operator sets up and operates a power p punch, shape, notch, draw, or crimp metal or plastic sto dies.
- The Punch Press Operator adjusts the length of the rarr the particular die and gauge of metal.
- Punch Press Operators place the work piece against the (stops) on the machine bed or die.
- A Punch Press Operator inspects each item to see that i required specifications.
- The Punch Press Operator is responsible for cleaning an machine.
- Punch Press Operators are also responsible for the accu own work.
- Punch Press Operators watch for anything that may go the press and call attention to it so maintenance mechar called for repair.
- A Punch Press Operator may do 'piece work' -- that is, c for the number of pieces completed rather than a straight wage.



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edition
9-51)



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PURCHASING AGENT

uses materials, supplies, equipment or services
ary for the efficient operation of a company or
zation.

1184
162.157-038
11.05
1449
2-Business & Office (F)
2-Business & Office (S)
Management (F)
Management (S)

PERSONAL APTITUDES:

Purchasing Agent will be able to learn the principles of market
ng, production planning and inventory control.

Ability to give and receive information by writing or speaking will
be important in this occupation.

Purchasing Agent will be able to use math for inventory, price
comparison and exact record keeping.

Ability to pay attention to detail in written work to avoid or
errors will be important in this occupation.

Purchasing Agent will be able to plan and direct the activities of

Ability to work with all kinds of people will help to develop good
contacts with suppliers.

- A Purchasing Agent will be able to affect the ideas and others.
- A Purchasing Agent will be able to make decisions based on experience and measurable fact.
- An interest in work that involves business contact with the chance to earn the respect of others will help in this.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- Purchasing Agents purchase raw materials or other unprocessed goods necessary for the operation of the organization.
- A Purchasing Agent may review requests for materials.
- The Purchasing Agent should be able to write clear procedures and have a knowledge of sources of supplies, prices and discounts, and inventory control.
- The Purchasing Agent may find that being familiar with operations will be helpful.
- A Purchasing Agent may interview suppliers to find information about the product.
- The Purchasing Agent selects purchase items by testing or otherwise examining.
- A Purchasing Agent may estimate values using their knowledge of the market price.



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EDUCATION AND TRAINING:

Large companies now require a college degree and prefer applicants with a Master's degree in Business Administration. Knowledge in purchasing, accounting, economics and statistics are very important.

Proficiency with the computer and its uses is desirable.

Regardless of their educational background, beginning Purchasing Agents spend much time learning about company operations and purchasing procedures.

College education is essential for Purchasing Agents who want to advance in their careers.

RELEVANT HIGH SCHOOL SUBJECTS:

Foreign Language Skills

Algebraic Math Skills

Business Education

General Merchandising and Marketing

AREAS OF STUDY AND TRAINING:

Business Economics

Hotel/Motel Management

International Business Management

Marketing Management

Food Marketing

Retailing

SOURCES OF ADDITIONAL INFORMATION

- National Association of Purchasing Management
496 Kinderkamack Road
Oradell, NJ 07649
- Occupational Outlook Handbook
1984-85 edition
pages (38-40)



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Phone (515) 281-5100

QUALITY CONTROL TECHNICIAN

Quality Control Technicians inspect items that are produced in a plant or industry to ensure they meet the standards for that particular product.

2673

012.261-014

02.04

389

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

ESSENTIAL ABILITIES:

Quality Control Technicians will be able to learn the standards to be used and the methods used to measure the quality of the product.

Quality Control Technicians will be able to understand and follow many forms of instructions including written, spoken, diagrams and drawings will be important in this occupation.

Quality Control Technicians will be able to use engineering and formulas to check the quality standards of the product.

Quality Control Technicians will be able to picture whole systems and how the parts fit in place which is important in this occupation.

Quality Control Technicians will be able to see very small differences in size, shape and line.

- The ability to pay attention to detail in written information and to detect or correct errors will be important in this occupation.
- A Quality Control Technician will be able to use eyes, hands and fingers together to conduct tests and handle materials.
- The ability to reach, hear and see as well as lift up to 100 pounds will be important in this occupation.
- A Quality Control Technician will be able to change from one task to another many times in one day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Quality Control Technician will be able to complete tasks to a set standard.
- An interest in scientific or technical work involving thin machines and processes will help in this occupation.
- With employer assistance, some physical requirements such as standing through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Quality Control Technician works in any plant or industry that manufactures products for wholesale or retail sale.
- Quality Control Technicians check all items (at various stages of production) very carefully to see if they meet all of the industry standards.



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RELATIONSHIP TO HIGH SCHOOL SUBJECTS:

Algebra/Geometry

Physics

RELEVANT COURSES OF STUDY AND TRAINING:

Food Science

Renewable Natural Resources, General

Robotics Technology

Environmental Control Technology

Water and Wastewater Technology

Laboratory Technology

Mechanical Design Technology

Dietetics/Human Nutritional Services

Industrial Electronics

Biological Laboratory Technology

Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Factors Society, Inc.

P.O. Box 1369

San Jose, CA 95131



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Phone (515) 281-6300

RADIO/TV ANNOUNCER

The radio/TV announcer reads the news, does commercials, announces sporting events, interviews people and gives station identification; also writes copy.

9824
159.147-010
01.03
333
3-Communications & Media (F)
3-Communications & Media (S)
Radio/TV Broadcasting (F)
Radio/TV Broadcasting (S)

PERSONAL APTITUDES:

The Radio/TV Announcer will be able to learn the broadcast methods and procedures as well as how to develop a personality that carries the station.

The ability to organize information and present the information in a clear, attractive and impressive style will be important in this occupation.

The Radio/TV Announcer will be able to use math to work the strict time schedule needed in broadcasting.

The ability to pay attention to detail in written information to avoid errors will be important in this occupation.

The Radio/TV Announcer will be able to hear as well as sit for long periods of time.

- An ability to change from task to task quickly will be important in this occupation.
- An ability to relate to people individually or as a group will be important in this occupation.
- A Radio/TV Announcer will be able to complete tasks to a high standard.
- An interest in work that includes sharing information and a chance to earn the respect and admiration of others will be important in this occupation.
- With employer assistance, some physical requirements may be necessary through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Radio/TV Announcer may give news and commercial announcements and introduce programs and identify stations.
- A Radio/TV Announcer may also report on sports events and conduct interviews.
- The Radio/TV Announcer may also operate the control room, edit scripts and news copy and sell advertising.
- A Radio/TV Announcer must be a convincing salesperson when presenting commercials.
- The Radio/TV Announcer gives a good description of what is being broadcasted since a radio announcer cannot be seen on pictures.



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RELEVANT OCCUPATIONS:

Radio/TV Technician (5664)
Key

EDUCATION AND TRAINING:

High school graduation is necessary.

Community colleges and universities offer graduate and undergraduate degrees in Radio/TV Broadcasting.

Employers prefer college trained announcers, although no standardized occupational requirements have been established, most TV stations require a four year college degree.

RELEVANT HIGH SCHOOL SUBJECTS:

English
Speech
Mathematics

COURSES OF STUDY AND TRAINING:

Radio/Television, General
Journalism
Radio/Television, General
Speech Debate and Forensics
Dramatic Arts

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (210-212)



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RADIOLOGIC TECHNOLOGIST

X-ray photographs of parts of the body to assist in diagnosing diseases and injuries.

2661

078.362-026

10.02

365

6-Health (F)

6-Health (S)

IB Health Technicians (F)

ES Health Technicians (S)

PERSONAL APTITUDES:

A Radiologic Technologist will be able to learn the operation and controls of the equipment as well as the principles and use of X-rays for diagnosis and treatment.

The ability to understand technical instructions and to give clear and concise directions to patients will be important in this occupation.

A Radiologic Technologist will be able to use math to read gauges, scales and make different measurements.

The ability to picture how a whole system operates so a problem will be diagnosed early will be important in this occupation.

The ability to see small differences in shape, size and line will be important in this occupation.

A Radiologic Technologist will be able to pay attention to details in order to obtain information to avoid or correct errors.

- A Radiologic Technologist will be able to use eyes, hands and feet together to operate the equipment in an exact, safe manner.
- An ability to reach, hear and see as well as handle load up to 100 pounds will be important in this occupation.
- A Radiologic Technologist will be able to work courteously and cooperatively with all kinds of people.
- An ability to make decisions based on measurable facts and figures will be important in this occupation.
- A Radiologic Technologist will be able to complete tasks to a high standard.
- An interest in scientific or technical work that will be helpful and results in a sense of achievement will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Radiologic Technologists use both fixed and movable X-ray equipment to take (radiographs) of specific body parts.
- The Radiologic Technologist positions the patient between the X-ray tube and the film.
- A Radiologic Technologist must apply protective devices to parts of the body which are not to be exposed to the x-rays.



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EDUCATION AND TRAINING:

High school education or its equivalent is required.
Programs in radiologic technology are available in hospitals and vocational schools.
Programs last from two to four years.
Associate degree programs may be offered at community colleges.
Colleges and universities also offer degrees in Radiologic Technology.
Graduates of an approved program must pass a national exam to be registered with the American Registry of Radiologic Technologists.

Specialization is obtainable in radiation therapy, ultrasound and nuclear medicine upon completion of an additional year of training.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Biological Sciences
Mathematics
Physical Education
Health
Radiologic Technology

DEGREES AND CERTIFICATIONS:

Radiologic Technology Medical Technology

SOURCES OF ADDITIONAL INFORMATION:

- The American Society of Radiologic Technologists
1500 Central Avenue S.E.
Albuquerque, NM 87123
- American Registry of Diagnostic Medical Sonographers
32 East Hollister St.
Cincinnati, OH 45219
- Occupational Outlook Handbook
1986-87 edition
pages (200-204)



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RAILROAD WORKER

Involved in the operation and maintenance of trains and their equipment and facilities used in transporting passengers and goods.

6175
910.137-022/910.363-014
05.08
8232
15-Transportation (F)
15-Transportation (S)
Rail Transportation (F)
Rail Transportation (S)

PERSONAL APTITUDES:

Railroad Worker will be able to learn methods and skills needed for occupations they fill.

Railroad Worker will be able to understand and follow both written and oral directions.

Ability to judge distances and speeds will be important in this occupation.

Railroad Worker will be able to see small differences in shapes, sizes, and lines.

Ability to pay attention to detail in written information to avoid errors will be important in this occupation.

Railroad Worker will be able to use eyes and hands together to operate equipment or handle materials.

- An ability to reach, hear and see as well as lift loads up and down will be important in this occupation.
- A Railroad Worker will be able to change from task to task many times in one day.
- A Railroad Worker will be able to plan and direct the activities of others.
- An ability to work with all kinds of people will be important in this occupation.
- A Railroad Worker will be able to make decisions based on past experience and measurable facts.
- An interest in work involving things using machines and tools that are repeated many times will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Yard Conductor supervises and coordinates the switching of road cars with the yard of a railroad, industrial plant or other location to facilitate the loading and unloading of cars.
- The Railroad Worker may notify the Yard Engineer of switching orders.
- A Railroad Worker may keep records of numbers, the location and cargo of cars switched.



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Phone (515) 281-4

illed occupations within a railroad company are filled through
priority system.

with the necessary experience and qualifications advance by
for a vacant position.

RY OCCUPATIONS:

ed military occupations.

D OCCUPATIONS:

tion Worker (4286)
quipment Mechanic (3114)
quipment Operator (6151)
st (5464)

ATION AND TRAINING:

ployers prefer a high school diploma or its equivalent.

ilroad Workers learn their skills through on-the-job training.

ms transfer employees from one work area to another.

can last from six weeks to four years depending upon the
m.

y railroad occupations, the beginner starts as an assistant.

HELPFUL HIGH SCHOOL SUBJECTS:

- Industrial Education
- Transportation
- Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- Training for this occupation is generally received on the

SOURCES OF ADDITIONAL INFORMATION

- United Transportation Union
14600 Detroit Avenue
Cleveland, OH 44107



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

REAL ESTATE SALES AGENT

Real estate sales agents help people who want to buy or sell property and discuss with other people wishing to buy or sell property.

7417
250.357-018
11.12
4123
11-Marketing & Distribution (F)
11-Marketing & Distribution (S)
Buying & Selling (F)
Buying & Selling (S)

PERSONAL ABILITIES:

Real estate sales agents will be able to learn the laws and methods of buying and selling property as well as the principles of human behavior.

The ability to understand detailed laws and contracts and to present information clearly to prevent misunderstandings will be important in this occupation.

Real estate sales agents will use math to compute costs, prepare contracts, prepare offers and counter offers and for detailed record keeping.

The ability to compare the listing space available with houses on the market to meet the needs given by the clients is important in this occupation.

- A Real Estate Sales Agent will be able to see small differences in shape and size to compare properties.
- An ability to pay attention to detail in written information and to correct errors will be important in this occupation.
- A Real Estate Sales Agent will be able to see and hear things that weigh loads up to 10 pounds.
- An ability to plan and direct the activities of others will be important in this occupation.
- A Real Estate Sales Agent will be able to work with all types of people sometimes affecting their attitudes and ideas.
- A Real Estate Sales Agent will be able to make decisions based on both experience and measurable facts.
- An interest in work involving sharing information and working in contact with people will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Real Estate Sales Agents are independent business persons who sell real estate.
- The Real Estate Sales Agent represents property owners and finds buyers for their property.
- A Real Estate Sales Agent should develop a knowledge of real estate techniques.



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DUTIES AND OCCUPATIONS:

Broker (1634)
Owner
Manager
Commission Director
Appraiser (1636)

- For more information regarding the exam, contact:
 - Iowa Real Estate Commission
 - 1918 S.E. Hulsizer
 - Ankeny, IA 50319
- New Real Estate Sales Agents usually receive on-the-job training from the employing agency.

EDUCATION AND TRAINING:

High school diploma is usually required. Some college training is preferred.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Basic Math Skills
- Distributive Education
 - Finances

Additional educational requirements are not usually set for Real Estate Agents. Although some have taken college courses in business administration, finance and economics.

PROGRAMS OF STUDY AND TRAINING:

- 1803 - Banking and Finance
- 1804 - Business Administration and Management
- 1830 - Real Estate, General

Most persons entering this field are college graduates.

Real Estate Sales Agents in Iowa must pass a written examination which requires that the applicant be at least 18 years of age. A license is issued to those who pass and must be renewed every three years.

SOURCES OF ADDITIONAL INFORMATION:

- National Association of Trade and Technical Schools
2251 Wisconsin Ave. NW Suite 200
Washington, D.C. 20007
- Realtors National Marketing Institute
430 North Michigan Avenue
Chicago, IL 60611
- Occupational Outlook Handbook
1986-87 edition
pages (259-261)

Applicant for a sales agent license must have completed a commissioned 30 contact-hour course in real estate.

There is a fee of \$17.00 for the examination, and the license fee is \$45.

Licenses are issued for a three-year period. Licenses expire December 31st. 36 hours are required for renewal. A fee of \$45 is charged to renew the license for 3 years.



OCCUPATIONAL BRIEFS

Career Information System
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Phone (515) 281-4100

RECEPTIONIST

A Receptionist greets visitors coming into an office, determines their needs, and directs them accordingly; also answers the telephone and assists the callers.

1452

237.367-038

07.04

4645

2-Business & Office (F)

2-Business & Office (S)

DB Secretarial & Clerical (F)

ES Secretarial & Clerical (S)

PERSONAL APTITUDES:

A Receptionist will be able to become familiar with the personnel and procedures of the office.

The ability to understand and follow directions and to give clear instructions will be important in this occupation.

A Receptionist will be able to pay attention to detail in written communications, such as schedules, to avoid or correct errors.

The ability to reach and hear as well as sit for long periods of time will be important in this occupation.

A Receptionist will be able to repeat the same task many times.

The ability to work courteously with all kinds of people will be important in this occupation.

- An interest in work that requires tasks to be repeated and offers business contact with people will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Receptionist receives and gives information to visitors and answers telephone calls.
- A Receptionist must always be pleasant because they are the company's representative to the public.
- A Receptionist must deal pleasantly both with people within or from outside the firm.
- A Receptionist must find out what each caller wants and direct them to the proper person or department.
- The Receptionist often acts as an appointment clerk and schedules appointments with company officers for the customers.
- The Receptionist makes a note of the date and time of an appointment in an appointment book and shows in the book when appointments have been rescheduled or cancelled.
- A Receptionist may telephone or write customers to remind them of appointments.
- Receptionists often have other duties including typing, filing, and opening mail.



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Phone (515) 281-8

S OF ADDITIONAL INFORMATION:

onal Secretaries International
t Armour Blvd.
City, MO 64111-1299

ional Outlook Handbook
edition
(78-279)



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100*

RECREATION PROGRAM WORKER

organizes, leads and directs activities that help participants enjoy and benefit from leisure hours.

8487
195.227-010
07.04
6711
8-Hospitality and Recreation (F)
14-Public Service (S)
Recreational Facilities (F)
Utilities and Services (S)

ESSENTIAL APTITUDES:

A Recreation Program Worker will be able to learn teaching and instructional methods to plan and lead informal recreational activities.

The ability to use spoken and written language to understand and give directions and easily understood directions will be required in this occupation.

A Recreation Program Worker will be able to use basic math in keeping records and working within a budget.

A Recreation Program Worker will be able to plan in two-dimensional space or three-dimensional space such as activity rooms or activity spaces.

A Recreation Program Worker will be able to make comparisons of size needed in relationship to the number of participants in a

- The ability to make accurate movements using eyes, hands and fingers together will be required in this occupation.
- A Recreation Program Worker will be able to use hands and fingers for small movements in handling equipment.
- An ability to use hands and feet using sight to guide the movement will be important in this occupation.
- A Recreation Program Worker will be able to do many different kinds of work one day requiring a wide variety of skills.
- A Recreation Program Worker will be able to take responsibility for do the planning for activities involving many different kinds of equipment.
- An interest in working with people in a business setting will be important in this occupation.
- A Recreation Program Worker will be able to lift 20 pounds and carry 10 pound loads.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Recreation Program Worker will lead or conduct a wide variety of recreational activities such as story-telling, music, arts, and games.
- A Recreation Program Worker may be required to maintain discipline within a group activity.



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Basic Math Skills
General Clerical

AREAS OF STUDY AND TRAINING:

- Family and Community Service
- Child Development
- Secondary Education
- Parks and Recreation Management

SOURCES OF ADDITIONAL INFORMATION:

- National Health Care Association
1400 K St. N.W.
Washington, D.C. 20005
- Occupational Outlook Handbook
9th Edition
(pages 16-118)



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Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

REGISTERED NURSE

Registered nurses care for sick or injured persons in hospitals, clinics, or other health institutions; also administer and supervise the use of bed medications/treatments as the doctor directs.

8162
075.374-010
10.02
29
6-Health (F)
6-Health (S)
Nursing (F)
Nursing (S)

RELEVANT APTITUDES:

Registered Nurse will be able to learn the principles of anatomy, physiology, nutrition and other related sciences.

Registered Nurse will be able to follow exact spoken or written instructions as well as give clear definite instructions.

Registered Nurse will be able to use math for exact measurements and record keeping important in this occupation.

Registered Nurse will be able to see detail in pictorial or graph.

Registered Nurse will be able to pay attention to detail in written information to avoid or correct errors will be important in this occupation.

- An ability to use eyes, hands and fingers together to handle delicate equipment in an exact way will be important in this occupation.
- A Registered Nurse will be able to tell one color from another.
- An ability to reach, hear and see as well as lift up to 50 pounds will be important in this occupation.
- A Registered Nurse will be able to work with all kinds of people in many situations where both nurse and patient are under stress.
- An ability to make decisions based on measurable facts, such as blood pressure and heart rate, will be important in this occupation.
- A Registered Nurse will be able to complete tasks to meet a set standard.
- An interest in scientific or technical work that will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Registered Nurses care for sick or injured people.
- A Registered Nurse assesses, plans and evaluates the patient's care.
- The Registered Nurse will maintain charts and records accurately.



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D OCCUPATIONS:

Emergency Medical Technician (8168)
Health Aide (8158)
Licensed Practical Nurse (8164)
Nurse Aide/Orderly (8166)
Nurse Assistant (8121)

EDUCATION AND TRAINING:

High school diploma or its equivalent is required.

Secondary education is also required.

Applicant for a license must be graduates of an approved school of nursing for registered nurses.

Registration fee of \$35.00 payable to the testing service (NCLEX) is required.

Initial exam must be passed, also. The exam fee is \$45.00 and re-examination fee is \$60.00.

License is valid to cover a three-year period with expiration date on the 15th of licensee's birthday month.

Hours of continuing education credit is required for the first license renewal.

Additional hours of continuing education credit is required every three years for additional license renewals.

HELPFUL HIGH SCHOOL SUBJECTS:

Science

- Biological Sciences
- Chemistry

Social Studies

- Sociology

Health

- Nursing Care

Health and Physical Education

- Health

Math

- Algebra and Geometry
- Advanced Math

PROGRAMS OF STUDY AND TRAINING:

- 3659 - Nursing, General

SOURCES OF ADDITIONAL INFORMATION

- American Association of Nurse Anesthetists
216 Higgins Road
Park Ridge, IL 60068
- American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005
- Occupational Outlook Handbook
1986-87 edition
pages (174-177)



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Phone (515) 281-6100

RESEARCHER
organizes and conducts research for use in understanding situations in evaluating projects, products or services, or in providing information for planning and development.

2166
189.117-014
05.01
126
14-Public Service (F)
14-Public Service (S)
Government (F)
Government (S)

PERSONAL APTITUDES:

Researcher will be able to learn the methods of obtaining information, checking the accuracy of the information and running tests or to collect information.

Ability to understand technical information and use language to explain that information to others in reports, lectures or articles will be important in this occupation.

Researcher will be able to use mathematics in several different ways to keep records, read and record data.

Ability to picture the relationships of the whole system to the parts will be important in this occupation.

- The ability to see detail in two and three-dimensional objects is important in this occupation.
- A Researcher will be able to pay close attention to detail in a systematic form to avoid or correct errors.
- The ability to hear as well as sit for long periods of time is important in this occupation.
- A Researcher will be able to do many different tasks in this occupation.
- A Researcher will be able to plan and direct the activities of others.
- A Researcher will be able to work with many different people in many different situations.
- A Researcher will be able to make decisions based on many facts.
- An interest in business contacts with people, resulting in the respect of others, will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Researchers conduct research in a particular field of knowledge and may publicize the findings in professional journals.
- A Researcher designs surveys and experiments and analyzes the data collected.
- A Researcher may work on projects lasting days, months or years.



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RESEARCH OCCUPATIONS:

Research Occupations (21000)
Research (21441)
Research (21447) See Media and Public Affairs Occupations in the
Career Guide 1988-1989 page 50 and 272.

EDUCATIONAL OCCUPATIONS:

Elementary (2146)
Secondary (2331)
University/College Teacher (8454)

EDUCATION AND TRAINING:

Baccalaureate degree is the minimum educational requirement for
teaching jobs in research.

Field, the field of study in which you hold a Baccalaureate degree
describes the type of research you do. (BS Foods and Nutrition may
include Research Dietitian.)

Research work is becoming more important for employment as com-
puter builds and for most promotions to top administrative and
teaching jobs.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Advanced Math

Statistics

- Earth/Space Sciences
- Industrial Education
- Manufacturing
- Energy & Power Systems

PROGRAMS OF STUDY AND TRAINING:

- 1201 - Agricultural Sciences, General
- 1202 - Animal Sciences, General
- 1209 - Livestock
- 1217 - Food Science
- 1220 - Agronomy
- 3712 - Food/Food Sciences
- 3713 - Dietetics/Human Nutrition
- 4930 - Genetics
- 1221 - Horticultural Science
- 1226 - Plant Protection
- 1301 - Renewable Natural Resources, General
- 1326 - Wildlife Management
- 3001 - Engineering
- 3228 - Industrial Technology
- 3711 - Food Sciences and Nutrition
- 3712 - Food/Food Science
- 3714 - Human Nutrition
- 4902 - Biochemistry and Biophysics
- 4903 - Botany
- 4914 - Microbiology
- 4916 - Biometrics and Biostatistics
- 4917 - Ecology
- 4928 - Zoology, General
- 4929 - Entomology
- 4930 - Genetics
- 5001 - Mathematics, General
- 5005 - Statistics



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RESPIRATORY THERAPIST

works with patients under the supervision of a physician for the prevention and treatment of lung problems.

8123

079.361-010

10.02

3031

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

PERSONAL APTITUDES:

A Respiratory Therapist will be able to learn, understand and use the concepts of health and biology as well as the operations of technical equipment.

The ability to read and understand directions, as well as give clear instructions to others, will be important in this occupation.

A Respiratory Therapist will be able to use math to read gauges and quantities and proportions of materials.

The ability to picture the size of equipment needed for a certain job will be important in this occupation.

The ability to see small differences in shapes, forms and lines will be important in this occupation.

The ability to use eyes, arms, hands and fingers together to operate equipment will be important in this occupation.

- A Respiratory Therapist will be able to see, hear and handle up to 10 pounds and/or lift up to 20 pounds.
- A Respiratory Therapist will be able to do many different tasks the same day.
- The ability to make decisions based on measurable facts is important in this occupation.
- A Respiratory Therapist will be able to complete tasks to a high standard.
- An interest in scientific and technical work that helps people is important in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Respiratory Therapist will often be giving daily treatment to a variety of patients in a hospital.
- The Respiratory Therapist will work under a doctor's supervision in the hospital.
- Respiratory Therapists use complex medical equipment to treat people with lung disorders such as asthma, pneumonia and bronchitis.
- The Respiratory Therapist may personally help the people with their therapy.
- A Respiratory Therapist may also work as a member of a health care team treating the seriously ill.



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Phone (515) 281-6

EDUCATION AND TRAINING:

High school completion is required.

A Respiratory Technician will complete a one-year program including treatments, operating equipment and sterilization procedures.

A Respiratory Therapist will complete a two-year, 62-hour program at a community college or university.

There are some colleges and universities that offer a Baccalaureate degree in Respiratory Therapy.

The National Board of Respiratory Therapy will grant certification based on several combinations of completion of programs and, in some cases, experience plus a passing grade on an examination given by the Board.

A Respiratory Therapist may become a Registered Respiratory Therapist by varying combinations of completion of programs and experience plus a passing grade on an examination given by the National Board of Respiratory Therapy.

RECOMMENDED HIGH SCHOOL SUBJECTS:

English and Physical Education
Health

Biological Sciences

Algebra
Advanced Math

PROGRAMS OF STUDY AND TRAINING:

- 3514 - Respiratory Therapist Technology

SOURCES OF ADDITIONAL INFORMATION

- American Association for Respiratory Therapy
1720 Regal Row, Suite 112
Dallas, TX 75235
- The National Board for Respiratory Therapy, Inc.
11015 West 75th Terrace
Shawnee Mission, KS 66214
- Occupational Outlook Handbook
1986-87 edition
pages (177-179)



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OCCUPATIONAL BRIEFS

RESTAURANT MANAGER

Plans and directs the activities of a restaurant and restaurant workers in order to serve food efficiently and profitably.

1131
 187.167-106
 11.11
 1351
 8-Hospitality & Recreation (F)
 8-Hospitality & Recreation (S)
 Food Services (F)
 Food Services (S)

PERSONAL APTITUDES:

Restaurant Manager will be able to make plans and schedules, set priorities and makes sure they will be carried out.

It is important to be able to understand and present information.

Restaurant Manager will be able to use numbers accurately and keep good financial records.

Strength and hearing will be helpful in this occupation as the manager will have to move around the work area.

There will be different duties in this occupation; the manager will have many tasks often during a working day.

It is important to be able to direct and supervise the activities of

- A Restaurant Manager will be able to work with people who are not comfortable eating or working in the restaurant.
- It will be important to be able to make decisions and judge the reliability of information available.
- An interest in earning the respect and admiration of others and in operating the business will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Restaurant Manager will probably start out in a lower position in restaurants owned by others.
- The Restaurant Manager must supervise and direct the activities of all of the restaurant workers.
- Restaurant Managers order and purchase food.
- The Restaurant Manager discusses menu plans with the chef and cooks.
- Restaurant Managers inspect the kitchen, the dining room and equipment for cleanliness.
- A Restaurant Manager arranges catering and other special events.
- The Restaurant Manager hires, instructs and schedules employees.
- A Restaurant Manager may prepare financial reports and be in charge of the bookkeeping.



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Phone (515) 281-4

EDUCATION AND TRAINING:

High school education or its equivalent is usually required.
Training in food services offered by universities, colleges and community colleges are recommended.
On-the-job training is available especially when you are employed in a chain.
Previous restaurant experience is most desirable.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Foreign Language Skills
Basic Math Skills
Physical Education
Quantity Food
Economics
Food Management

COURSES OF STUDY AND TRAINING:

(Some Economics, General
Food/Food Sciences
Dietetics/Human Nutritional Services
Food Management and Production)

SOURCES OF ADDITIONAL INFORMATION

- National Institute for the Foodservice Industry
20 North Wacker Drive
Suite 2620
Chicago, IL 60606
- Council on Hotel, Restaurant and Institutional Education
S-208 Henderson
University Park, PA 16802
- American Hotel and Motel Association
888 7th Avenue
New York, NY 10106
- American Culinary Federation, Inc.
P.O. Box 3466
St. Augustine, FL 32084



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STORE MANAGER

and trains people to work in the store, plans work schedules, orders new products and makes rules on prices.

1149
185.167-046
11.11
403
11-Marketing & Distribution (F)
11-Marketing & Distribution (S)
Management & Research (F)
Buying & Selling (S)

PERSONAL APTITUDES:

Store Manager will be able to learn inventory control, financial management and advertising methods.

Ability to read and understand reports and schedules and ability to give clear, easily understood directions will be important in this occupation.

Store Manager will be able to use math to study financial information, business records, statistical reports and plan budgets.

Ability to see detail in three-dimensional or pictorial objects will be important in this occupation.

Store Manager will be able to pay attention to detail in order to obtain information to avoid or correct errors.

- An ability to hear as well as sit for long periods of time is important in this occupation.
- Retail Store Managers will be able to plan and direct the work of others as they have responsibility for the employees.
- An ability to work with all kinds of people such as customers, employees, suppliers and many others will be important in this occupation.
- An interest in business contact with people resulting in the respect of others will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Retail Store Manager hires and trains people to work in the store and keeps it running smoothly and efficiently.
- A Retail Store Manager plans the work schedules of workers, advises them and sets up pay scales, benefits and retirement plans for them.
- The Retail Store Manager projects sales of merchandise for the coming months/years and buys these items or supervises the purchase.
- The Retail Store Manager sets prices for merchandise to take into account the wholesale cost, overhead costs and a margin for the store.
- The Retail Store Manager plans sales promotions.



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EDUCATION AND TRAINING:

High school graduation or its equivalent is required.

Additional education in some stores, you may need a college degree in Business Administration.

Each store usually has its own required training program. The length varies from store to store.

Often hired as a sales clerk with promotion to higher positions. In some cases, hiring may be specifically for a managerial position.

RELEVANT HIGH SCHOOL SUBJECTS:

Foreign Language Skills

Basic Math Skills

Business Education

General Merchandising & Marketing

AREAS OF STUDY AND TRAINING:

Horticulture

Business Administration and Management

International Business Management

Marketing Management

Fashion Merchandising

Retailing

Petroleum Wholesaling

Retail Marketing

SOURCES OF ADDITIONAL INFORMATION

- American Management Association
135 W. 50th Street
New York, NY 10020
- Food Marketing Institute
Communications Division
1750 K Street, N.W.
Washington, D.C. 20006



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Phone (515) 281-4

REVENUE AGENT

Reviews and prepares income tax returns to verify accuracy.

1612

160.167-050

11.06

1172

14-Public Service

2-Business and Office

Government (F)

Accounting & Bookkeeping (S)

GENERAL APTITUDES:

The Revenue Agent will know and be able to apply the principles of accounting when examining tax returns and their supporting records.

The ability to read accounting reports and to write reports explaining the results of the examinations will be important in this occupation.

The Revenue Agent will be able to apply a knowledge of numbers and mathematical formulas to examine the accuracy of the mathematics in tax returns.

The ability to see small differences in graph information will be important in this occupation.

The Revenue Agent will be able to recognize errors in computations.

The Revenue Agent will be able to work with many different people, and will be asserting enough influence to change attitudes.

- A Revenue Agent will be able to make decisions and evaluate based on both experience and measurable fact.
- An interest in technical work will be helpful in this occupation.
- A Revenue Agent will be able to carry items weighing 100 pounds and be able to lift loads up to 20 pounds.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Revenue Agent will audit or examine the accounting records of both individual and corporate taxpayers.
- A Revenue Agent may work with a taxpayer to determine the correct tax amounts owed.
- Analyzing applications of pension, profit sharing, and stock purchase plans may be one of the duties.
- A Revenue Agent will also be required to issue determinations describing the results of the analysis of the purchase plans.
- The Revenue Agent will work in daily contact with tax preparers, attorneys, and Certified Public Accountants.
- A Revenue Agent must keep up with the constantly expanding field of knowledge, such as, changes in tax law, accounting techniques and changes in business practices.



OCCUPATIONAL BRIEFS

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Phone (515) 281-4100

... materials such as tile, slate and composition
... to the tops of houses and buildings.

4278

866.381-010

05.10

6468

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

DB
ES

AL APTITUDES:

... will be able to learn about the materials used and the
... used to apply them.

... y to use math for measuring will be important in this
... on.

... will be able to picture what the finished job should look like.

... y to see small differences in size, shape and line will be
... t in this occupation.

... will be able to use eyes, feet, hands and fingers together to
... materials and move around safely on high roofs.

... y to climb, stoop, reach and see as well as lift up to 100
... will be important in this occupation.

- An ability to make decisions based on measurable facts is important in this occupation.
- A Roofer will be able to complete tasks to meet a set standard.
- An interest in working with things using machines and tools that are repeated will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Roofer applies composition roofing, such as roll roofing, asphalt shingles, and other materials, such as metal, tile or slate to the roofs of buildings.
- The Roofer places overlapping strips of asphalt or tar-saturated felt over all the surface.
- A Roofer applies a coating of coal-tar pitch, asphalt or bitumen to the roof material.
- The Roofer will use some math to measure and cut material to the correct size.
- A Roofer should be aware of and follow safety rules which apply to the occupation.
- Roofers cut the material to fit corners, pipes and chimneys.
- Roofers cement or nail flashing (strips of felt or metal) where roof surfaces meet.
- A Roofer also does waterproofing work on other parts of buildings such as masonry work, concrete walls and tanks.



OCCUPATIONAL BRIEFS

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Phone (515) 281-4300*

EDUCATION AND TRAINING:

Apprentices must be a high school graduate or have an equivalent education.

The best way to learn this trade is to work for a roofing contractor.

Apprenticeships usually last about three years and applicants for apprenticeships could be between 18 and 30 years old and be in good physical condition.

If available, a vocational school or community college course in roofing trades is helpful.

Advancement to be a Roofer is also possible with on-the-job training, by starting out as a helper.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Science
Physical Education
Mechanics and Maintenance

RELEVANT COURSES OF STUDY AND TRAINING:

Roofing
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Occupational Outlook Handbook
1990 Edition
(800-368-399)



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

ENGINEER

plans and implements a health and safety program to prevent or correct unsafe working conditions in schools and factories.

2425

012.061-014

05.01

1634

10-Manufacturing (F)

10-Manufacturing (S)

Management & Research (F)

Management & Research (S)

IB
ES

ADDITIONAL APTITUDES:

An Engineer will be able to learn the principles of industrial physics, psychology and mechanics as well as principles of chemistry and other related sciences.

The ability to understand technical information and present that information so others can understand how it affects safety will be important in this occupation.

An Engineer will be able to use math formulas including trigonometry and calculus.

The ability to picture objects, their relationship to other objects and the space around them will be important in this occupation.

An Engineer will be able to see small differences in size and shape when comparing objects or pictorial information.

- An ability to pay close attention to detail in written information; the ability to avoid or correct errors will be important in this occupation.
- An ability to use eyes, feet, hands and fingers together to operate delicate equipment and conduct difficult tests will be important in this occupation.
- A Safety Engineer will be able to reach, hear and see, a distance of up to 10 pounds.
- An ability to do many different tasks in the same day will be important in this occupation.
- A Safety Engineer will be able to plan and direct the activities of others.
- An ability to work with all kinds of people, such as students and fellow engineers, will be important in this occupation.
- A Safety Engineer will be able to make decisions based on logic and measurable facts.
- An interest in scientific or technical work, using things to help for many people, will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



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nings for Safety Engineers will be affected by the economic
downs of industry.

. Department of Labor is expecting the employment of Safety
rs to grow (1980-1990 period) at a rate of 28 to 49%
d to an average growth rate of 17 to 25% for all occupations .

ving demand for Safety Engineers exists because of the
ig complexity of manufacturing processes and the increased
ge of the hazards of using chemicals and high energy forms.

s should be best for graduates of occupational safety or
rriculums.

ment may be to plant safety and health manager or cor-
anager over several plants.

BY OCCUPATIONS:

ed military occupations.

D OCCUPATIONS:

(2426)
ental Health Assistant (8157)
l Engineer (2434)
Control Technician (2673)

PREPARATION AND TRAINING:

- Entry level positions generally need at least a Bachelor's
Engineering or Science. A more specialized degree, such
Safety Management, Industrial Safety, or Fire Protecti
ing, is often helpful in getting a job.
- Many employers prefer applicants with a graduate degr
prior industrial work experience.
- Some employers will hire graduates of two-year colleges
cians.
- Continuing education is necessary to stay up to date wit
technology, new ideas and emerging trends.
- The Occupational Safety and Health Administration (OS
courses for safety and health workers.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Algebra/Geometry
 - Advanced Math
- Science
 - Chemistry
 - Physics
- Industrial Education
 - Construction
 - Manufacturing



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Phone (515) 281-4

MANAGER

es the company's sales activities and supervises
es staff.

1162

163.167-018

11.05

125

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Management & Research (F)

Buying & Selling (S)

IB
ES

AL APTITUDES:

Manager will be able to learn the principles of selling,
l management, advertising and customer service.

y to understand spoken and written information from many
to speak and write clearly and to share information and
ons at all levels is needed.

Manager will be able to use math in preparing and under-
statistical reports, financial statements, profit and loss
its, and credit regulations.

y to picture objects and their relationship to other objects and
they use will be important in this occupation.

ty to see detail in three-dimensional and pictorial material
oportant when comparing products.

- A Sales Manager will be able to pay attention to detail information to avoid or correct errors.
- The ability to hear as well as sit for long periods of time important in this occupation.
- A Sales Manager will be able to change quickly from ta
- A Sales Manager will be able to plan and direct the acti supervised.
- An ability to work with many kinds of people in both pl unpleasant situations will be important in this occupati
- A Sales Manager will be able to affect the ideas and att employees and customers.
- A Sales Manager will be able to make decisions based o and measurable fact.
- An interest in sharing information with business contac the respect of others will help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Sales Manager usually works under a great deal of pr
- A Sales Manager must plan and organize to coordinate tives, publications, sales records and orders.
- Sales Managers are the link between the manufacturer, and the salespersons or representatives.



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RELATED OCCUPATIONS:

Management Trainee (1169)
Sales Manager (1411)
Production Supervisor (1154)
Store Manager (1149)
Salesperson (7454)
Wholesale/Retail Buyer (1181)
Customer Service Representative (1165)

- 2033 - Retailing
- 2035 - Wholesaling

SOURCES OF ADDITIONAL INFORMATION

- American Management Association
135 W 50th Street
New York, NY 10020
- Guide for Occupational Exploration
1984 edition
pages (540-542)

EDUCATION AND TRAINING:

High school education or its equivalent is preferred.
High school training and sales experience is helpful in getting

RELEVANT HIGH SCHOOL SUBJECTS:

English
Math
Basic Math Skills
Business Education
General Merchandising & Marketing

COURSES OF STUDY AND TRAINING:

Business Administration and Management
Marketing Management
Real Estate, General
Trade and Industrial Supervision and Management
Office Supervision and Management



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Phone (515) 281-

ROUTE DRIVER

A truck with products to be sold and drives it over a fixed route to the customers' homes or businesses to make sales and deliveries.

7434

292.353-010

08.02

8218

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Packaging & Delivery (S)

OB
ES

PERSONAL APTITUDES:

Route Driver will be able to learn the route, the products and company policies.

Ability to talk easily with people, state facts clearly and speak clearly will be important in this occupation.

Route Driver will be able to use math to total cost of products, make change and fill out sales slips and order forms.

Ability to pay attention to detail in written information to avoid errors will be important in this occupation.

Route Driver will be able to use eyes, feet and arms together to drive the truck and handle the product.

Ability to reach, hear and lift loads up to 50 pounds will be important in this occupation.

- A Sales Route Driver will be able to work with all kinds of people, often affecting the ideas and attitudes of others.
- An interest in work that repeats each day and allows for frequent contact with people will help in this occupation.
- With employer assistance, some physical requirements such as climbing through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Sales Route Driver may be expected to find new customers along their route.
- The Sales Route Driver also works to increase sales among regular customers.
- A Sales Route Driver drives the truck over an assigned route and makes calls on each customer on the route.
- The Sales Route Driver may call at the homes of customers to sell and delivering goods or giving services.
- A Sales Route Driver may have a wholesale route, which involves calling on stores which in turn sell the products to the public.
- The Sales Route Driver often collects payment for the orders that are delivered.
- The Sales Route Driver must turn in a copy of the orders each day so that the truck may be loaded correctly.
- The Sales Route Driver must also listen to customer's comments, requests and act as the company's representative.



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experience as a Salesperson or in some other selling job is good
tion.

are usually put to work packing or loading for a short period
more about the business on a first-hand basis.

in sales techniques, driver training and bookkeeping at a
ity college would be very helpful.

RECOMMENDED HIGH SCHOOL SUBJECTS:

- English Language Skills
- Basic Math Skills
- Business Education
- General Merchandising & Marketing

RECOMMENDED COURSES OF STUDY AND TRAINING:

- Petroleum Wholesaling

SOURCES OF ADDITIONAL INFORMATION:

- For Occupational Exploration
Information
(82-484)



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Phone (515) 281-4

PERSON
merchandise to individuals emphasizing the selling
of the product and may receive payment or credit
ization.

7454

279.357-054

08.02

4359

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Buying & Selling (S)

OB
ES

AL APTITUDES:

erson will be able to learn the principles of selling, the
f the company covering financing, returned goods and service
es.

y to talk easily to people in language they understand, as
rite clear reports and keep records will be important in this
n.

erson will be able to use math to total the cost of purchases,
ange, fill out orders and sales forms and make time payment

ty to pay attention to detail in written information to avoid
t errors will be important in this occupation.

erson will be able to use eyes, hands and fingers together to
ate products.

- An ability to reach and hear as well as lift loads up to 1
be important in this occupation.
- A Salesperson will be able to work with all kinds of peo
courtesy and respect, even in difficult situations.
- An ability to affect the attitudes and ideas of others by
words will be important in this occupation.
- A Salesperson will be able to make decisions based on e
- An interest in work involving sharing information throu
contacts will help in this occupation.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Salesperson will probably work in a retail store.
- A Salesperson may sell many kinds of merchandise such
apparel, shoes and hardware.
- Salespersons meet customers, learn what they need and
what the store has to offer.
- The Salesperson must be able to display the merchandis
its use and qualities.
- A Salesperson makes out the sales slip, rings up the pur
cash register and accepts payment or charges the purcha
customer's account.



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EDUCATION AND TRAINING:

Employers usually require a high school diploma or equivalent.

Employers may give on-the-job training.

Persons selling very specialized merchandise may receive training from the manufacturer.

Community colleges, vocational high schools and trade schools offer courses in retailing and merchandising can be helpful to the person interested in advancing.

Previous selling experience would be very helpful toward employment.

SOURCES OF ADDITIONAL INFORMATION

- Guide for Occupational Exploration
1984 edition
pages (482-484)

RELEVANT HIGH SCHOOL SUBJECTS:

- Foreign Language Skills
- Basic Math Skills
- Economics
- Consumer and Homemaking
- Life Education
- General Merchandising & Marketing

RELEVANT COURSES OF STUDY AND TRAINING:

- Floriculture
- Food Marketing
- Retailing
- Architectural Construction Technology
- Home Furnishings, Design and Management



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RIAN

ts production, processing and public service facili-
to insure the safety of the food people eat, the
they drink and the air they breathe.

2674

079.117-018

11.10

369

12-Natural Resources & Environment (F)

14-Public Service (S)

Sanitation & Health (F)

Government (S)

IB
ES

- A Sanitarian will be able to tell one color from another laboratory tests.
- An ability to hear, see and lift up to 50 pounds will be important in this occupation.
- A Sanitarian will be able to plan and direct the activities of others.
- An ability to make decisions based on measurable facts important in this occupation.
- A Sanitarian will be able to complete a task to meet a schedule.
- An interest in scientific work involving sharing information will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

AL APTITUDES:

Sanitarian will be able to learn the principles of chemistry and laboratory test methods as well as the laws and regulations that apply.

Sanitarian will be able to understand technical information and convey that information so others will understand.

Sanitarian will be able to use math and math formulas of chemical or mechanical nature. Accuracy will be important in this occupation.

Sanitarian will be able to picture objects, their relationship to other objects and the space they use.

Sanitarian will be able to see detail in three-dimensional and pictured materials. Accuracy will be important in this occupation.

OCCUPATION PROFILE:

- A Sanitarian checks the foods and beverages produced by manufacturing and processing plants, dairies and bottlers for the cleanliness.
- A Sanitarian makes inspections of food handling and other establishments such as restaurants, hospitals and other public buildings to check if sanitation rules and regulations are followed.
- A Sanitarian inspects sewage disposal plants, water supply and garbage disposal sites, houses, apartment buildings, public buildings and swimming pools to make sure laws and sanitary conditions are followed.



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EDUCATION AND TRAINING:

Requirements vary, the usual educational requirement for sanitarians is a Bachelor's degree, preferably in Environmental

Sanitary, administrative, teaching and research jobs usually require a graduate degree in some aspects of public health.

To become a federal inspector, an applicant must pass the Professional Administrative Career Examination (PACE). A Bachelor's degree and/or three years of responsible work experience is required to pass this exam. Qualifications for inspectors at the state or local level are similar to those for Federal Inspectors.

RECOMMENDED HIGH SCHOOL SUBJECTS:

English
Language Skills

COURSES OF STUDY AND TRAINING:

Renewable Natural Resources
Water and Wastewater Technology

SOURCES OF ADDITIONAL INFORMATION:

National Outlook Handbook
1980 edition
(2-45)



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Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

SECONDARY TEACHER

teaches one or more subjects, such as English, math or science, to students in public or private secondary schools (grades 7-12).

8456

091.227-010

11.02

233

14-Public Service (F)

14-Public service (S)

Education (F)

Education (S)

PERSONAL APTITUDES:

Secondary Teacher will be able to learn the principles of teaching, methods of learning and basic knowledge of a subject matter field.

Ability to listen as well as give information by speaking or writing is important in this occupation.

Secondary Teacher will be able to use math for record keeping and calculations.

Ability to see small differences in size, shape and line will be important in this occupation.

Secondary Teacher will be able to pay close attention to detail in classroom management.

Ability to hear and lift up to 10 pounds will be important in this occupation.

- A Secondary Teacher will be able to plan and direct the work of others.
- An ability to work with all kinds of people in many different situations will be important in this occupation.
- A Secondary Teacher will be able to affect the ideas and actions of others by words or actions.
- A Secondary Teacher will be able to make decisions based on experience.
- An interest in work that involves sharing information that is helpful to people will be important in this occupation.
- With employer assistance, some physical requirements such as changes to the work site or equipment.

OCCUPATION PROFILE:

- Secondary Teachers instruct students individually or in groups.
- A Secondary Teacher may teach one or more subjects to students in different groups.
- Secondary Teachers design units of study and classroom activities to provide a balanced curriculum and to meet the interests of the students.
- The Secondary Teacher may use schools and community resources to build and enhance the units.
- A Secondary Teacher makes and uses audiovisual materials to report and reinforce units of learning.



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Additional education and experience are the major basis for advancement. These factors may allow the Secondary Teacher to seek positions in larger school districts with higher pay scales.

Advancement may be made to supervisory and administrative positions with at least an additional year of professional education and several years of successful classroom teaching.

Additional special preparation and perhaps special certification, fields such as psychology or guidance counseling may be encouraged.

RELEVANT OCCUPATIONS:

Includes military occupations.

RELATED OCCUPATIONS:

- Principal (8414)
- Superintendent (1136)
- Secondary Teacher (8455)
- Specialist (8434)
- Postsecondary/College Teacher (8454)

EDUCATION AND TRAINING:

To be eligible for employment in grades 7 through 12 in Iowa, you must complete an approved four-year teacher education program with a recognized postsecondary level teaching major, including supervised student teaching at the secondary level and an approved human relations component, earn a baccalaureate degree from, a recognized institution and hold a valid Iowa teacher's certificate.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Literature
 - Composition
 - Speech
 - Foreign Languages
- Math
 - Basic Math Skills
 - Algebra/Geometry
 - Advanced Math
- Social Studies
 - History
 - Government
 - Sociology
 - Geography
- Industrial Education
 - Communications
 - Energy & Power Systems
 - Transportation
- Science
 - Biological Sciences
 - Chemistry
 - Physics
 - Earth/Space Sciences
- Art
 - Studio Arts and Crafts
 - Drama
 - Music
- Health and Physical Education
 - Health
 - Physical Education
- Office
 - General Clerical



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ARY

dictation in shorthand or uses a dictating ma-
types letters and reports, makes appointments,
les meetings and handles incoming mail.

1442

201.362-030

07.01

4622

2-Business & Office (F)

2-Business & Office (S)

EB Secretarial & Clerical (F)

ES Secretarial & Clerical (S)

AL APTITUDES:

ary will be able to learn basic office procedures, some type of
d and how to organize time and activities.

y to understand and follow instructions as well as to compose
eters and reports will be important in this occupation.

ary will be able to see small differences in size, shape and

y to pay close attention to detail in written information will
tant in this occupation.

ary will be able to use eyes, hands and fingers together to
ffice equipment without errors.

y to reach, hear and see as well as sit for long periods of
be important in this occupation.

- A Secretary will be able to change from task to task qu
- An ability to work with all kinds of people courteously i
different situations will be important in this occupation.
- A Secretary will be able to make decisions based on exp
- A Secretary will be able to complete tasks to meet a set
- An interest in work involving information and business
help in this occupation.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Secretary may work in public and private organizatio
size and kind.
- The Secretary schedules appointments, gives informatio
and shows visitors to the right person.
- A Secretary may place incoming and outgoing calls for t
- Secretaries often read and route incoming mail.
- A Secretary may write routine letters and memos for th
sign.
- The Secretary must find and attach the appropriate file
dence to be answered by the employer.
- The Secretary handles many kinds of typing and filing d



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ies may advance to administrative assistant, office supervi-
utive secretary or manager.

lge of computers and word processing equipment will give a
oice of employment opportunities.

BY OCCUPATIONS:

ies and Stenographers (14420) See Secretaries and Stenogra-
the Military Career Guide 1988-1989 page 111.

D OCCUPATIONS:

porter (1415)
nist (1452)
pher (1414)
1417)

ATION AND TRAINING:

ployers prefer to hire persons with a high school diploma or
alent and some business training or experience.

academic education plus post-secondary training after high
recommended and sometimes required.

ciate of Applied Science Degree in Secretarial Training is
y community colleges.

colleges and schools offer courses to train office personnel
rom a few months to two years.

- The ability to take shorthand or transcribe from machin
and type with speed and accuracy is almost always nec

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Office
 - Secretarial and Typing

PROGRAMS OF STUDY AND TRAINING:

- 1920 - Office Supervision and Management
- 1927 - Executive Secretarial
- 1928 - Legal Secretarial
- 1929 - Medical Secretarial
- 1930 - Secretarial
- 1944 - Word Processing
- 1933 - Tourism and Travel

SOURCES OF ADDITIONAL INFORMATION

- Professional Secretaries International
301 East Armour Blvd.
Kansas City, MO 64111-1299
- Occupational Outlook Handbook
1986-87 edition
pages (281-284)



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Des Moines, IA 50
Phone (515) 281-4

SECURITIES/COMMODITIES SALES AGENT

as the sales representative for a client who is buying or selling stocks and bonds or agricultural products.

7415

251.157-010

11.06

4124

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Buying & Selling (S)

IB
ES

GENERAL APTITUDES:

Securities/Commodities Sales Agent will be able to learn the basics of economics and the stock exchange operations.

Ability to understand technical information and present that information so others will understand will be important in this occupation.

Securities/Commodities Sales Agent will be able to use math in financial transactions such as interest rates, stock yields and dividends.

Ability to see small differences in size, shape and line in pictorial information will be important in this occupation.

Securities/Commodities Sales Agent will be able to pay close attention to detail in written information to avoid or correct errors.

- An ability to reach and hear as well as sit for long periods will be important in this occupation.
- A Securities/Commodities Sales Agent will be able to plan and direct the activities of others as in developing financial plans.
- A Securities/Commodities Sales Agent will be able to work cooperatively with all kinds of people in many different situations.
- An ability to affect the attitudes and ideas of others by persuasion will be important in this occupation.
- A Securities/Commodities Sales Agent will be able to make decisions based on experience and measurable facts.
- An interest in work involving information and business people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Financial Planning and selling securities are the main activities of a Securities/Commodities Sales Agent.
- A Securities/Commodities Sales Agent spends most of his or her time with customers explaining the advantages and disadvantages of a particular transaction.
- A Securities/Commodities Sales Agent will offer suggestions for the purchase or sale of a particular security or commodity.



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Employment Services has projected openings for Securities/Commodities Sales Agents in 1988-89 to be 64 including 5 due to expansion and 59 openings due to replacement.

Department of Employment Services figures do not include those who are self employed.

There are a number of factors involved in the increased need for Securities/Commodities Sales Agents.

Demand for securities sales workers fluctuates as the economy expands and contracts. Thus in an economic downturn the number of workers seeking jobs exceeds the number of openings sometimes by as much as 50%. Over the long run, however, job opportunities for securities sales workers should see the supply equal the demand.

Securities/Commodities Sales Agents usually work for brokerage firms.

Advancement usually comes in the form of increases in the number of accounts handled thus increasing the salary. Securities/Commodities Sales Agents with a good deal of experience may advance to managerial positions supervising other Securities/Commodities Sales Agents.

RELATED OCCUPATIONS:

Includes related military occupations.

RELATED OCCUPATIONS:

- Insurance Sales Agent (7416)
- Industrial Products Salesperson (7429)
- Loan Officer (1636)
- Manufacturer's Representative (7414)
- Real Estate Sales Agent (7417)

PREPARATION AND TRAINING:

- A Baccalaureate degree in business or economics is good preparation for Securities/Commodities Sales Agents, although it is not required by any major firm.
- Experience and an interest in selling or in business management are very helpful.
- Almost all Securities/Commodities Sales Agents must be registered with their firms according to the regulations of the securities exchange(s) where the firms transact business or those of the National Association of Securities Dealers or both. This registration requires the successful completion of the Securities and Exchange Commission's General Securities Examination. Most firms provide assistance to their employees in meeting the requirements for registration.
- To be licensed in Iowa, Securities/Commodities Sales Agents must be 18 years old and show proof of passing the National Association of Securities Dealers General Securities Examination and the Iowa Securities Applicants State Law Exam. The license fee is usually paid by the employing firm.



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SECURITY GUARD

Security Guard is the property of the employer against loss and damage by criminals.

9476
372.667-034
04.02
5144
14-Public Service (F)
14-Public Service (S)
Protection (F)
Protection (S)

PERSONAL APTITUDES:

Security Guard will be able to learn the security procedures of the employer as well as the use of fire arms or other security equipment.

Ability to record time and traffic will be important in this occupation.

Security Guard must be able to hear, see and lift up to 10 pounds.

Ability to repeat the same task many times in one day will be important in this occupation.

Security Guard will be able to work with all kinds of people and situations in difficult situations.

Security Guard should be able to work with the stress of possible danger, as well as the responsibility of others' lives and property.

- An interest in work that is repeated from day to day and business contacts with people will be important in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- Security Guards protect industrial, commercial or personal property against fire, theft and destruction.
- A Security Guard walks around the building or property of the employer checking for unusual things.
- The Security Guard usually follows an exact route.
- A Security Guard checks for broken water lines, power lines and sources of fire.
- A Security Guard should be familiar with state and local laws pertaining to fires, break ins, etc.
- The Security Guard may be required to prepare reports.
- The Security Guard must know where every gate, door and window is placed.
- Security Guards must check all entrances and exits to be sure they are locked when they should be.
- The Security Guard may register at guard stations to receive reports of the inspection.
- A Security Guard may be on the lookout for signs of illegal activity or disturbance.



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D OCCUPATIONS:

Teacher (9426)
Officer (9414)
Cooper (9416)

EDUCATION AND TRAINING:

High school diploma or its equivalent is usually needed.
A large number of jobs for Security Guards are filled by retired police officers.
Most jobs are with the larger companies.
A year of law enforcement training or experience as a police officer, jailer or detective is good preparation.

Military service is also good training for employment as a Security Guard.

Employers provide on-the-job training in areas such as the use of firearms, first aid, and how to handle emergencies.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Physical Education

COURSES OF STUDY AND TRAINING:

Criminal Justice
Law Enforcement
Security Services

SOURCES OF ADDITIONAL INFORMATION

- Federal Job Information Center
210 Walnut Street
Des Moines, Iowa 50309
- Guide for Occupational Exploration
1984 edition
pages (156-158)
- Occupational Outlook Handbook
1986-87 edition
pages (301-303)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

MACHINE OPERATOR

Sewing machines in the textile industry; machines are heavier and sew faster than the machines used in the home.

4448

787.682-046

06.02

7655

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

IB
ES

PERSONAL APTITUDES:

A Sewing Machine Operator will be able to picture how the pieces fit together.

A Sewing Machine Operator will be able to use eyes, arms, hands and feet to see small differences in size, shape and line will be able to work with precision in this occupation.

A Sewing Machine Operator will be able to use eyes, arms, hands and feet to work together to operate the machine and guide garment pieces through the machine.

A Sewing Machine Operator will be able to reach, see and lift up to 25 pounds.

A Sewing Machine Operator will be able to do the same task the same way many times in one day.

- A Sewing Machine Operator will be able to complete tasks to a set standard.
- An interest in working with things that use machines and doing tasks that are repeated many times will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Sewing Machine Operator follows written and spoken instructions.
- A Sewing Machine Operator uses different kinds of machines that are heavier and run faster than home models.
- A Sewing Machine Operator may be classified by the type of machine used, such as a 'single-needle sewing machine operator'.
- Sewing Machine Operators usually specialize in a single task such as sewing shoulder seams; putting in place pieces such as sleeves; hemming shirts; making garment pieces such as collars, cuffs, and sleeves.
- A Sewing Machine Operator may work on an assembly line doing particular jobs and then passes the items along to other workers.
- The Sewing Machine Operator must choose the thread that matches the color of the cloth.
- The Sewing Machine Operator places the spool on the spooler and draws the thread through the machine guides, tensions, and the needle eye.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

EDUCATION AND TRAINING:

High school graduation is desirable, but it is not a must.
Sewing Machine Operators begin by sewing straight seams and to perform various operations with the least movement under the supervision of an experienced operator. On-the-job training of new workers is usually informal and short term.
Employers like to hire persons who have some training or experience.
Training in sewing is given in public Adult Education programs.

RELEVANT HIGH SCHOOL SUBJECTS:

Adult Education
Manufacturing
Textile/Leather/Upholstering

RELEVANT COURSES OF STUDY AND TRAINING:

Upholstering

SOURCES OF ADDITIONAL INFORMATION:

International Ladies Garment Workers Union
100 Broadway
New York, NY 10019



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

METAL WORKER

Sheet metal worker cuts, fits, and joins sheet metal by hand or machine for use on heating, air conditioning, refrigeration, and roofing jobs; also rivets, bolts or screws pieces of sheet metal.

5484
804.281-010
05.05
6824
4-Construction (F)
4-Construction (S)
Building Trades (F)
Building Trades (S)

PHYSICAL APTITUDES:

Metal Worker will be able to learn the characteristics of the equipment used as well as the operation of the equipment needed.

Ability to read and follow directions including blueprints and drawings will be important in this occupation.

Metal Worker will be able to use math to measure, estimate and figure dimensions.

Metal Worker will be able to picture how the finished product will look.

Ability to see small differences in size, shape and line will be important in this occupation.

Metal Worker will be able to use eyes, hands and fingers to handle materials and equipment exactly as planned.

- An ability to climb, stoop, reach and see as well as lift up to 50 pounds will be important in this occupation.
- A Sheet Metal Worker will be able to change from task to task several times in one day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Sheet Metal Worker will be able to complete tasks to a high standard.
- An interest in working with things that use machines and tools to produce a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Sheet Metal Workers are usually employed by firms that manufacture and install heating, refrigeration and air conditioning systems.
- A Sheet Metal Worker may work with building contractors and specialize in metal roofing work.
- The Sheet Metal Worker puts together metal siding, panels and store fronts.
- A Sheet Metal Worker may find a knowledge of welding and the properties of various metals to be helpful.
- A Sheet Metal Worker will build scaffolds.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

RELATED OCCUPATIONS:

Sheet Metal Worker (5426)
Press Operator (5474)
Industrial Steel Worker (5487)
Welder (5492)

EDUCATION AND TRAINING:

Workers are expected to be high school graduates or have an equivalent education.

A career apprenticeship program is usually recommended.

An apprenticeship program includes on-the-job training and classroom instruction in such subjects as shop, math, blueprint reading, welding, heating and air conditioning.

Essential skills may be learned by working for a Sheet Metal Worker.

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills
Science
Mechanics
Technical Education
Instruction
Metalworking
Manufacturing

PROGRAMS OF STUDY AND TRAINING:

- 9001 Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (399-401)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

SHIPPING AND RECEIVING CLERK

The clerical work necessary to enable manufacturers and other businesses to keep track of goods transferred from place to place.

7116

222.387-050

05.09

4753

2-Business & Office (F)

11-Marketing & Distribution (S)

Secretarial & Clerical (F)

Stock Control (S)

IB
ES

GENERAL APTITUDES:

The Shipping & Receiving Clerk will be able to learn the methods of shipping and receiving as well as the record keeping process needed.

The ability to follow spoken and written directions will be important in this occupation.

The Shipping & Receiving Clerk will be able to use math to keep track of inventory and estimate quantities.

The Shipping & Receiving Clerk will be able to see small differences in shape.

The ability to pay attention to detail in written information to avoid errors will be important in this occupation.

The Shipping & Receiving Clerk will be able to use hands to measure, store or move large and small objects.

- An ability to reach and see as well as lift up to 50 pounds is important in this occupation.
- A Shipping & Receiving Clerk will be able to change from one task to another quickly.
- An ability to make decisions based on measurable facts is important in this occupation.
- A Shipping & Receiving Clerk will be able to complete tasks to a set standard.
- An interest in working with things that use machines and machinery that repeat many times will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Shipping & Receiving Clerk does the clerical work necessary to keep track of goods sent out and received by wholesalers, manufacturing companies and other business firms.
- The Shipping & Receiving Clerk places finished products in boxes using packing materials to prevent damage.
- Shipping & Receiving Clerks may use staplers, strapping devices, stencils, labeling devices and wire cutters when preparing for shipping.
- The Shipping & Receiving Clerk also weighs packages and determines the required postage.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300

D OCCUPATIONS:

Route Driver (7434)
Clerk (7118)
Inventory Control (6144)
Warehouse Handler (7114)

EDUCATION AND TRAINING:

High school diploma is preferred.

Postsecondary, vocational distributive education and marketing education are recommended.

Math courses and legible handwriting is important.

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills
General Clerical

REQUIREMENTS OF STUDY AND TRAINING:

Stock Clerk

SOURCES OF ADDITIONAL INFORMATION:

For Occupational Exploration
Information
(515) 281-235



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-4444

SHOE REPAIRER

Repairs and restyles shoes and other leather and canvas shoes for customers.

4496

365.361-014

05.05

6854

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Clothing Maintenance (F)

Clothing Maintenance (S)

GENERAL APTITUDES:

Shoe Repairer will be able to learn the principles of shoe construction and repair as well as business management methods.

Ability to follow spoken and written instructions will be important in this occupation.

Shoe Repairer will be able to picture the finished product.

Shoe Repairer will be able to see small differences in size, shape and color.

Ability to use eyes, feet, hands and fingers together to operate machinery and handle both large and small objects will be important in this occupation.

Shoe Repairer will be able to reach and see as well as lift up to 10 pounds.

- An ability to make decisions based on measurable facts is important in this occupation.
- An interest in working with things, machines and processes that result in a product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Shoe Repairer will use and maintain the required tools and equipment of the trade.
- Shoe Repairers remove the worn heel or sole, choose the replacement part and attach it to the shoe.
- The Shoe Repairer must then trim it to the correct shape and match the shoe and polish and buff the new part.
- Shoe Repairers replace insoles, mend broken straps and patches and tears in seams.
- Shoe Repairers dye shoes and place metal taps at places where the wear is greatest.
- A Shoe Repairer designs, makes alters and repairs shoes for aesthetic purposes.
- A Shoe Repairer may have to build up parts of the shoe with staples or stitching additional material to the sole.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

EDUCATION AND TRAINING:

A high school diploma is required.

Most shoe repairers learn their trade on the job as helpers to experienced repairers.

In many areas, vocational schools offer training in this occupation.

There are a few schools for shoe repair scattered over all the states. These schools are usually 6 months in length.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Industrial Education
Product Services

REQUIREMENTS OF STUDY AND TRAINING:

On-the-job training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:

Occupational Outlook Handbook
1990-1991 edition
(Bureau of Labor Statistics, 301-332)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-4100

APPLICATOR

Steel, aluminum, wood and other material to cover the outside of a building to protect it and make it more attractive.

4277

863.684-014

05.10

6479

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

PHYSICAL APTITUDES:

Siding Applicator will be able to learn the uses of each kind of material as well as the method of applying materials.

Siding Applicator will be able to measure and estimate materials.

Ability to see small differences in size, shape and line will be important in this occupation.

Siding Applicator will be able to use eyes, feet, hands and fingers to use tools and handle materials.

Ability to climb, stoop, reach and see as well as lift loads up to 50 pounds will be important in this occupation.

Ability to do the same task the same way many times will be important in this occupation.

- A Siding Applicator will be able to complete a task to meet the standard.
- An interest in working with machines and processes that are repeated many times will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Siding Applicator must have all of the basic skills and abilities of a carpenter.
- A Siding Applicator may find a knowledge of blueprint reading helpful.
- Siding Applicators need to do accurate measurements and solve math problems.
- A Siding Applicator needs a tool belt, drills, hammers, compasses, squares, measuring tapes, a staple gun, a caulking gun, and a level.
- First, the Siding Applicator must carefully measure the building and find out if it is level. This will show the low points of the house and this is where siding begins.
- A Siding Applicator must carefully cut and shape the siding under eaves, in gables and in dormers.
- Siding Applicators seal the siding with a caulking gun and clean up the entire area.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-4300

ENGINE MECHANIC

installs and rebuilds small gasoline, diesel or electric engines.

3118

625.281-034

05.05

6114

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Machine Maintenance (F)

Machine Maintenance (S)

PERSONAL APTITUDES:

Engine Mechanic will be able to learn the principles of small combustion engines.

Ability to follow both written and spoken instructions will be important in this occupation.

Engine Mechanic will be able to picture the whole system and each part fits.

Ability to see small differences in shape and size will be important in this occupation.

Engine Mechanic will be able to use eyes, hands and fingers to use equipment and tools.

Ability to reach, hear and lift up to 50 pounds will be important in this occupation.

- A Small Engine Mechanic will be able to do the same tasks in one day.
- An ability to make decisions based on measurable facts is important in this occupation.
- A Small Engine Mechanic will be able to complete tasks to a standard.
- An interest in working with machines and processes resulting in a product that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Small Engine Mechanic works in a factory service department or a repair shop.
- A Small Engine Mechanic must be able to use a shop manual to take apart, repair and reassemble motors and transmissions.
- A Small Engine Mechanic may need to use basic math.
- A Small Engine Mechanic should be aware of the proper maintenance of tools and equipment.
- The Small Engine Mechanic tests the engine to find out if it is working properly.
- Small Engine Mechanics may take the engine apart and work on parts as cylinder heads, pistons, ring grooves, piston and cylinder sleeves.



OCCUPATIONAL BRIEFS

Career Information System

Iowa Dept. Of Education

Grimes State Office

Des Moines, IA 50319

Phone (515) 281-6300

EDUCATION AND TRAINING:

High school graduates are preferred.

Additional training at a vocational school is the best way to learn this occupation.

Occupational skills may also be learned by working as a helper with experience in Small Engine Mechanics for several years.

Experience in fixing or adjusting your own or the equipment of other people will help in this field.

RELEVANT HIGH SCHOOL SUBJECTS:

Physical Education
Energy & Power Systems
Mathematics
Mechanics
Science of Technology

COURSES OF STUDY AND TRAINING:

Agricultural Power Machinery
Automotive Mechanics
Small Engine Repair
Apprenticeship

SOURCE OF ADDITIONAL INFORMATION:

International Assn of Machinists and Aerospace Workers
1100 Connecticut Avenue, N.W.
Washington, D.C. 20036



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

WORKER

individuals, families and groups in the most effective use of the services of social agencies to solve problems.

8417

195.107-010

10.01

2032

14-Public Service (F)

14-Public Service (S)

Legal & Social Service (F)

Legal & Social Service (S)

FB
ES

ADDITIONAL APTITUDES:

Worker will be able to learn the principles of human behavior as well as the policies of social welfare.

Ability to listen and communicate with others is important in this occupation.

Worker will be able to use basic math to help others with budgeting, money managing and applications for financial help.

Ability to hear as well as sit for long periods of time will be important in this occupation.

Worker will be able to change quickly from task to task.

Worker will be able to plan and direct the activities of others.

- An ability to work with different kinds of people in many situations will be important in this occupation.
- An ability to affect the attitudes and ideas of others will be important in this occupation.
- A Social Worker will be able to make decisions based on sound judgment.
- An interest in sharing information helpful to people in need gives a chance to earn the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Social Worker identifies the problems of individuals and families through interviews.
- Social Workers aid in understanding and solving problems and secure needed services, education and job training.
- Social Workers refer clients to community resources and organizations.
- A Social Worker should be familiar with local resources and geographic location.
- A Social Worker may secure supplementary information on employment, medical records or school reports.
- The Social Worker may determine client's eligibility for assistance.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100*

D OCCUPATIONS:

8436)
r (8414)
n Officer (8422)
gist (8434)
Aide (8428)

EDUCATION AND TRAINING:

lor's degree, preferably in Social Welfare or Social Work,
y is the minimum educational requirement for entry level jobs
work.

al specialized areas and in teaching positions, a Master's
1 Social Work is required.

1 licensing is not required to seek employment, Iowa does
icensing for Social Workers. It may be to a Social Worker's
ge to be licensed. The application fee is \$100.00, the exami-
e is \$75.00 and the biennial renewal fee is \$120.00. A Social
may file inactive and pay a \$60.00 biennial fee to retain
.

should obtain as much related work experience as possible
chool to gain practical knowledge and to determine if they
interest and skill to do professional social work. Camps,
nt houses, hospitals, community centers and social welfare
provide these experiences.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Home Economics
 - Consumer & Homemaking
- Social Studies
 - Sociology
- Health
 - Health & Physical Education

PROGRAMS OF STUDY AND TRAINING:

- 1701 - Area Studies
- 1702 - Ethnic Studies
- 2964 - Teaching English as a Foreign Language
- 3703 - Family Community Services
- 6502 - Religion
- 6901 - Psychology, General
- 7202 - Community Services
- 7210 - Social Work
- 7301 - Social Sciences
- 7311 - Sociology
- 7312 - Urban Studies

SOURCES OF ADDITIONAL INFORMATION

- American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005
- U.S. Department of Health and Human Services
Public Health Service
Alcohol, Drug Abuse and Mental Health Administration



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-4100

SOCIOLOGIST
The sociologist studies the behavior and interaction of groups, traces their origin and growth, and analyzes the influence of social activity on individual members.

2145
054.067-014
11.03
1916
14-Public Service (F)
14-Public Service (S)
Government (F)
Government (S)

PERSONAL APTITUDES:

A sociologist will be able to learn the principles of social behavior of groups such as families, tribes, communities and governments as well as the principles of research.
The ability to understand complex ideas and language and present them in a way that as so others can understand will be important in this occupation.
The sociologist will be able to use math in understanding and gathering data.
The ability to pay close attention to detail in written work to avoid errors will be important in this occupation.
The ability to hear as well as be able to sit for long periods of time will be important in this occupation.

- A Sociologist will be able to plan and direct the activities of a group.
- A Sociologist will be able to make decisions based on both qualitative and measurable facts.
- An interest in scientific or technical work that involves the use of data and offers a chance to earn the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Sociologists work in three basic but overlapping areas; teaching, research and policymaking administration, regardless of the size of the employer.
- Sociologists study groups of people such as families, tribes, communities and government along with social, religious, political and business organizations.
- A Sociologist studies the behavior and interaction of the members of a group, follows their development and the influence they have on each other.
- A Sociologist may work only with social groups and institutions, or may be explaining their characteristics and patterns.
- Sociologists may specialize in social organization, social structure, rural or urban sociology, intergroup relations, population and the analysis of public opinion.
- The Sociologist may apply sociology to education, public administration, architecture and community planning.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Educa
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

EDUCATIONAL OCCUPATIONS:

Psychologist (2146)
Scientist (2134)
Teacher (2166)
Worker (8417)
University/College Teacher (8454)

EDUCATION AND TRAINING:

A Bachelor's degree with a major in Sociology is usually the minimum requirement for employment as a Sociologist.

A Bachelor's degree is essential for a professional position at most colleges and universities. It is also required for most upper administration jobs, for leadership of major research projects and for consulting positions.

Students who have Master's degrees may qualify for some college professorships. Usually, graduate work beyond the Master's is preferred.

Students with Bachelor's degree holders in Sociology usually are not recognized by the profession as Sociologists. However, these people can fill positions as workers, research assistants or as high school sociology teachers, but they must obtain the required state certification.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Science
History
Government
Sociology
Foreign Language
Computer Skills

PROGRAMS OF STUDY AND TRAINING:

- 7311 - Sociology

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (107-109)



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

NSERVATIONIST

as farmers, ranchers and others with assistance
serving soil and water through adjusting land
ducing soil erosion and rebuilding depleted soils.

2644

040.061-054

02.02

1852

12-Natural Resources & Environment (F)

14-Public Service (S)

Research Regulation & Control (F)

Government (S)

IB
ES

AL APTITUDES:

onservationist will be able to learn about such problems as
and lack of water, as well as learn to work with farmers,
and other land managers.

y to talk with people and write easily understood reports will
tant in this occupation.

onservationist will be able to use math to run tests, keep
nd compute yields.

ty to picture the expected results of a trial solution to a
will be important in this occupation.

ty to see small differences in size and shape will be impor-
is occupation.

- A Soil Conservationist will be able to use eyes, hands and feet together to use tools and equipment.
- A Soil Conservationist will be able to see and lift up to 50 pounds.
- The ability to plan and direct the activities of others will be important in this occupation.
- An ability to work with all kinds of people in many different situations will be important in this occupation.
- A Soil Conservationist will be able to make decisions based on experience and measurable facts.
- An interest in scientific work will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Soil Conservationist provides technical assistance in the area of soil and water conservation to farmers, ranchers and other land managers.
- The Soil Conservationist should be able to use tools such as power augers, aerial cameras, map making and laboratory equipment.
- The Soil Conservationist takes soil samples and analyzes them according to type and reaction to various tests.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Educa
Grimes State Office
Des Moines, IA 50
Phone (515) 281-6

D OCCUPATIONS:

ist (2643)
(4164)
(4124)
logist (2633)

EDUCATION AND TRAINING:

achelor's degree in Soil Conservation or Agronomy (Soil Science)
is the minimum requirement for a Soil Conservationist.

During summer months or while in school, you may gain additional
experience working on a farm or ranch or with a soil conservation
technician as an aide.

Participation in organizations such as 4-H or Future Farmers of
Iowa (FFA) may also offer opportunities to work on soil projects
during high school.

A master's degree is required for university teaching.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Biological Sciences
Mathematics
Agricultural Production

DEGREES OF STUDY AND TRAINING:

Agricultural Science, General
Renewable Natural Resources, General

SOURCES OF ADDITIONAL INFORMATION

- Iowa Department of Soil Conservation
Wallace State Office Building
Des Moines, IA 50319
- Occupational Outlook Handbook
1986-87 edition
pages (91-93)



OCCUPATIONAL BRIEFS

Career Information Sys

Iowa Dept. Of Edu

Grimes State Office

Des Moines, IA 50

Phone (515) 281-4

SPECIAL EDUCATION TEACHER

Special Education Teachers instruct students who are handicapped in obtaining an education because of a physical, mental, communication or learning disability.

8459

094.227-022

10.01

235

14-Public Service (F)

14-Public Service (S)

Education (F)

Education (S)

IB
ES

GENERAL APTITUDES:

Special Education Teachers will be able to learn the principles of psychology, the theories of learning and the effect of the disabilities on learning.

Ability to listen and talk with children will be very important in this occupation.

Special Education Teachers will use basic math in record keeping and teach basic math to students.

Ability to see small differences in size and shape in both two and three dimensional materials will be important in this occupation.

Special Education Teachers will be able to pay close attention to written material.

- An ability to hear as well as lift up to 10 pounds will be important in this occupation.
- A Special Education Teacher will be able to plan and direct the activities of others.
- An ability to work with all kinds of people with patience and understanding will be important in this occupation.
- A Special Education Teacher will be able to act or speak in a way that will affect the attitudes and ideas of others.
- An ability to make decisions based on experience considering the feelings as well as the feelings of others will be important in this occupation.
- An interest in work that helps people and involves sharing information will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Special Education Teacher instructs students individually or in small groups.
- A Special Education Teacher may teach several subjects and skills and may work with the same students for several days or for a short time.
- Special Education Teachers design units of study and classroom presentations to provide a balanced curriculum and to meet the needs of the students.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

ment may be to supervisory and administrative positions
least one additional year of professional education and several
successful classroom teaching experience.

r, with declining enrollments and federal budget cuts, the
of positions available are projected to decrease causing more
ion for existing jobs.

ditional special preparation and special certification, you may
lds such as school psychology or audiology.

BY OCCUPATIONS:

ed military occupations.

D OCCUPATIONS:

r (8414)
ary Teacher (8455)
l Teacher (8457)
y Teacher (8456)
Instructor (8423)

ATION AND TRAINING:

in special education in Iowa, you must hold either a general
ry or secondary teaching endorsement (see the preparation
ing requirements set forth for either the elementary or
y teacher) and complete the necessary preparation require-
one of the areas of special education: mental disabilities
avioral disorders (BD), hearing impaired (HI), visually
(VI), learning disabled (LD), and physically handicapped

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
 - Speech
- Social Studies
 - Sociology
- Health and Physical Education
 - Health
 - Physical Education
- Home Economics
 - Consumer and Homemaking
 - Child Care

PROGRAMS OF STUDY AND TRAINING:

- 2901 - Education, General
- 2923 - Special Education, General
- 2964 - Teaching English as a Foreign Language
- 3538 - Sign Language Interpreting
- 6901 - Psychology, General

SOURCES OF ADDITIONAL INFORMATION

- National Council for Accreditation of Teacher Education
1919 Pennsylvania Ave., N.W., Suite 202
Washington, D.C. 20006
- National Information Center for Handicapped
Children and Youth
P.O. Box 1492
Washington, DC 20013



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

SPECIALTY INSTRUCTOR

teach students of all ages in such areas as dance, music; may teach in private trade and technical schools or in adult education programs.

8453

099.227-030

11.02

239

14-Public Service (F)

14-Public Service (S)

Education (F)

Education (S)

IB
ES

GENERAL APTITUDES:

Specialty Instructor will be able to learn the principles of teaching theories of learning as well as the subject matter of the specialty.

Ability to understand and explain the vocabulary of the specialty and to understand will be important in this occupation.

Ability to use math to the level needed by the specialty will be important in this occupation.

For Specialty Instructors dealing with visual areas, the ability to understand objects and the space they use will be important.

Ability to make comparisons in three-dimensional or two-dimensional work will be important in this occupation.

- For all Specialty Instructors, the ability to pay attention to written work to avoid or correct errors will be important in this occupation.
- Most Specialty Instructors will be able to use eyes, hands, and feet together to handle small and large equipment and materials.
- For Specialty Instructors, the ability to tell the difference between colors will be important.
- The ability to reach and hear as well as lift up to 10 pounds will be important in this occupation.
- A Specialty Instructor will be able to plan and direct the work of others.
- A Specialty Instructor will be able to work with all kinds of people in many different situations, affecting their ideas and attitudes or actions.
- An ability to make decisions based on experience will be important in this occupation.
- An interest in work that helps people and involves sharing ideas will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



OCCUPATIONAL BRIEFS

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Des Moines, IA 50319
Phone (515) 281-4100*

KEY OCCUPATIONS:

Specialty and Instructors (84540)
Instruction and Training Directors (84580) See Teachers and Instructors page 264 in the Military Career Guide 1988-1989.

- 6602 - Bible Studies
- 6604 - Religious Education
- 8016 - Dramatic Arts
- 8024 - Fine Arts General
- 8035 - Music, General

RELATED OCCUPATIONS:

Elementary Teacher (8455)
Middle School Teacher (8457)
Secondary Teacher (8456)
Education Teacher (8459)
University/College Teacher (8454)

SOURCES OF ADDITIONAL INFORMATION

- American Assn for Adult and Continuing Education
1201 Sixteenth Street, N.W., Suite 301
Washington, D.C. 20036
- Music Educators National Conference
1902 Association Drive
Reston, VA 22091

REQUIREMENTS AND TRAINING:

Amount of education and/or experience required to become a Specialty Instructor varies widely with each subject area and employment situation. However, generally a Baccalaureate degree or equivalent experience is necessary in becoming a Specialty Instructor.

RELEVANT HIGH SCHOOL SUBJECTS:

Science and Math would be helpful for all areas. Choices from other subject areas would depend on the chosen specialty.

REQUIREMENTS OF STUDY AND TRAINING:

Teaching
Cosmetology
Secondary Education
Teaching English as a Foreign Language



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-6

STATE TROOPER

patrols the state highways enforcing the laws and regulations that govern their use; assists other law officers from various agencies.

9416

375.263-018

04.01

5132

14-Public Service (F)

14-Public Service (S)

Protection (F)

Protection (S)

IB
ES

GENERAL APTITUDES:

State Trooper will be able to learn the laws and regulations of state and federal, as well as those rules governing the Highway Patrol.

Ability to understand the information received from others and to clearly hear, easily understood information will be important in this occupation.

State Trooper will be able to judge distance as they spend much time in an automobile.

Ability to see small differences in size and shape when comparing objects will be important in this occupation.

State Trooper will be able to use eyes and hands together to inspect vehicles and handle firearms safely and accurately.

- An ability to reach, hear and see, as well as lift loads up and down will be important in this occupation.
- A State Trooper will be able to change from task to task.
- A State Trooper will be able to work with many kinds of people in stressful situations.
- An ability to make decisions based on both experience and knowledge of a fact will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A State Trooper patrols the state highways in order to monitor and control and direct the movement of traffic.
- State Troopers are responsible for the enforcement of the Iowa Vehicle Laws of Iowa.
- State Troopers are also involved in safety, emergency and accident activities.
- The State Trooper must be familiar with Iowa laws and regulations.
- A State Trooper must be able to use police equipment and vehicles.
- A State Trooper will need to write clear and concise reports.
- The State Trooper must deal effectively with the public in normal and stressful situations.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Applicants must be a U.S. citizen.

Some states require applicants to be at least 22; most other states require a minimum age limit.

Applicants must willfully take a polygraph (lie detector) test and undergo a background examination.

Applicants are given pre-entrance I.Q. (intelligence quotient), associating, writing, and spelling tests.

Applicants must successfully complete twelve weeks of training at the Iowa Law Enforcement Academy. An additional six months is spent working with a field training officer.

For applicants who meet the qualifications, a stipend is given at the Iowa Law Enforcement Academy, Camp Dodge, Des Moines, Iowa.

Upon employment, the State Trooper is on probation for one year.

RECOMMENDED HIGH SCHOOL SUBJECTS:

English
Language Skills
Mathematics
Science
Physical Education
Social Education

PROGRAMS OF STUDY AND TRAINING:

- 7004 - Criminal Justice
- 7007 - Law Enforcement

SOURCES OF ADDITIONAL INFORMATION:

- Iowa Department of Public Safety
Personnel & Training
Wallace State Office Building
Des Moines, IA 50319
- Occupational Outlook Handbook
1986-87 edition
pages (303-305)



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

STATIONARY ENGINEER

operates and maintains boilers, industrial air conditioning systems and power generating equipment in large facilities.

5944

950.382-026

05.06

6931

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Building Maintenance (F)

Building Maintenance (S)

PERSONAL APTITUDES:

A Stationary Engineer will be able to learn the operation method for producing machines in industry such as steam boilers, diesel engines and turbines.

The ability to follow spoken or written instructions will be important in this occupation.

A Stationary Engineer will be able to use math to read many kinds of drawings and figure the amount of fuel needed.

A Stationary Engineer will be able to picture the whole system and how the parts fit.

The ability to pay attention to detail in written information to avoid errors will be important in this occupation.

- A Stationary Engineer will be able to use their hands to operate equipment, controls and repair tools.
- A Stationary Engineer will be able to do many different tasks in a day.
- An ability to make decisions based on measurable facts is important in this occupation.
- A Stationary Engineer will be able to complete tasks to a high standard.
- An interest in working with things that use machines and machinery that repeat will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Stationary Engineer operates and services the machinery that provide power for industry, light for cities and controls the power in large buildings.
- Stationary Engineers are responsible for the safe operation and maintenance of all kinds of steam boilers and other equipment such as generators, air compressors, turbines, pumps and air conditioning units.
- A Stationary Engineer must be alert to faulty operation or its safety devices and when needed, make repairs.
- Stationary Engineers test the pneumatic (air operated), hydraulic and electronic safety controls to be sure they are working properly.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

D OCCUPATIONS:

Maintenance Worker (3422)
al Maintenance Mechanic (3144)
lant Operator (5948)
ater Plant Operator (5946)

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (432-434)

ATION AND TRAINING:

chool diploma or its equivalent is required.

experience working with machinery and tools is helpful.

apprenticeship programs, about four years in length, are
e and are the best preparation for this occupation.

ates and many large and medium size cities require Station-
neers to be licensed according to their own laws.

training or experience in this field will be helpful.

L HIGH SCHOOL SUBJECTS:

ic Math Skills
s of Technology
l Education
ergy & Power Systems

MS OF STUDY AND TRAINING:

pprenticeship



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

STATISTICAL CLERK

...s, arranges and computes data used to develop
...ics.

1622

216.382-062

07.02

4794

2-Business & Office (F)

2-Business & Office (S)

Secretarial & Clerical (F)

Accounting & Bookkeeping (S)

IB
ES

PHYSICAL APTITUDES:

...tical Clerk will be able to learn the operation of several
... machines as well as the principles of statistical reports.

...tical Clerk will be able to use math to compute, tabulate and

...y to see small differences in sizes and shapes will be
...it in this occupation.

...tical Clerk will be able to pay close attention to detail in
...r table form to avoid or correct errors.

...ty to use eyes, hands and fingers together to operate calcula-
...mputers will be important in this occupation.

...y to reach, see and lift up to 10 pounds will be important in
...pation.

- A Statistical Clerk will be able to do the same tasks, th
many times in one day.
- A Statistical Clerk will be able to complete tasks to mee
standard.
- An interest in working with things that use machines a
that repeat many times will help in this occupation.
- With employer assistance, some physical requirements
through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Statistical Clerk compiles data and computes statistic
statistical studies using calculators, adding machines an
- A Statistical Clerk compiles statistics from source mate
production and sales records, timesheets, survey sheets
naires.
- Statistical Clerks assemble and classify statistics, follow
procedures.
- The Statistical Clerk may verify exactness of the source
- Statistical Clerks may be named according to the type o
work with.
- A Statistical Clerk needs to do prompt and accurate wor
supervision.
- Statistical Clerks must become familiar with the items o
which they observe and record.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-4111*

SOURCE OF ADDITIONAL INFORMATION:

International Secretarial Association
1000 North Armour Blvd
Des Moines, MO 64111-1299

International Statistical Association
1000 North Street
Alexandria, VA 22314



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

STATISTICIAN

Statistician analyzes and interprets numerical data as it relates to a particular subject such as economics, human resources, or engineering.

2331

020.167-026

11.01

1733

2-Business & Office (F)

2-Business & Office (S)

Management (F)

Management (S)

IB
ES

GENERAL APTITUDES:

Statistician will be able to learn the principles of statistical methods and the principles of other fields such as economics, business administration or engineering.

Ability to understand language and numbers and present them in a way others can understand will be important in this occupation.

Statistician will be able to use math at a high level including algebra and trigonometry.

Ability to picture the finished form or table will be important in this occupation.

Ability to see very small differences in size and shape in pictorial representations will be important in this occupation.

- A Statistician will be able to pay close attention to detail and examine materials to avoid or correct errors.
- An ability to reach and hear as well as sit for long periods will be important in this occupation.
- A Statistician will be able to make decisions based on both qualitative and measurable facts.
- A Statistician will be able to complete tasks to meet set deadlines.
- An interest in scientific work will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Statisticians design surveys and experiments and analyze data collected through these methods.
- A Statistician explains a number data base using the known statistical methods and of subjects such as human behavior or economics.
- A Statistician may use the data to predict population growth, economic conditions, help business managers and government administrators make decisions and evaluate new programs or quality control tests for manufactured products.
- The Statistician usually selects the sources for the data and determines on the people to be surveyed to represent a cross-section of the population.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100*

and universities will employ others to teach a growing number of students as the broader use of statistical methods makes statistics increasingly important to persons in fields other than education and statistics.

KEY OCCUPATIONS:

Operations Analysts (23310) See Operations Analysts page 310 in the Career Guide 1988-1989.

RELATED OCCUPATIONS:

Statistician (2146)

Statistician (2145)

Statistician/College Teacher (8454)

EDUCATION AND TRAINING:

A Bachelor's degree in Statistics or Mathematics is the minimum educational requirement for many beginning jobs in statistics.

For many beginning statistical jobs, however, a Bachelor's degree in Statistics or another applied field and a minor in Statistics is preferred.

A Master's degree in Mathematics or Statistics is essential for college-level university teaching and helpful for promotion to top administrative or consulting jobs.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
 - Algebra/Geometry
 - Advanced Math
- Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- 5001 - Mathematics, General
- 5005 - Statistics

SOURCES OF ADDITIONAL INFORMATION:

- American Statistical Association
1429 Duke Street
Alexandria, VA 22314
- Insurance Information Institute
110 William Street
New York, NY 10038
- Occupational Outlook Handbook
1986-87 edition
pages (77-79)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

STENOGRAPHER

dictation in shorthand or from a dictating machine, types letters and reports, operates office machines and performs other clerical duties.

1414
202.362-014
07.05
4623
2-Business & Office (F)
2-Business & Office (S)
Secretarial & Clerical (F)
Secretarial & Clerical (S)

ESSENTIAL APTITUDES:

- Stenographer will be able to learn the methods of shorthand, typing and general office practices.
- Stenographer will be able to follow spoken and written instructions exactly and will be able to work in this occupation.
- Stenographer will be able to see very small differences in size and detail in pictorial materials.
- Stenographer will be able to pay close attention to detail in written materials to avoid transcription errors will be important in this occupation.
- Stenographer will be able to use eyes, hands and fingers together to operate office machines or take dictation.
- Stenographer will be able to reach, hear and see as well as sit for long periods of time will be important in this occupation.

- A Stenographer will be able to complete tasks to meet schedule.
- An interest in work where tasks are often repeated and sharing information will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Stenographers take dictation for correspondence, report copy or forms and then transcribe the documents with a typewriter.
- A Stenographer may record notes in shorthand, use a stenographic machine and type these notes in finished form.
- The Stenographer may also transcribe material from a dictating machine.
- A Stenographer may take dictation in medical, legal or other terms.
- Stenographers may type the material in a standard form or follow general instructions for composing a letter or arranging dictation in another way.
- A Stenographer may work for one or more persons or a group of people in a steno pool.
- The Stenographer may also perform other clerical duties depending on the size and type of the office.
- A Stenographer may take dictation in a foreign language.
- A Stenographer may work for a public stenographic service.



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Career Information System
*Iowa Dept. Of Educa
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4*

RELATIONSHIP TO HIGH SCHOOL SUBJECTS:

Foreign Language Skills

Administrative and Typing

REQUIREMENTS OF STUDY AND TRAINING:

Administrative

SOURCES OF ADDITIONAL INFORMATION:

Shorthand Reporters Association
1000 K Street, S.E.
Arlington, VA 22180

National Secretaries International
1000 K Street, S.E.
Arlington, VA 22180

National Outlook Handbook
1000 K Street, S.E.
Arlington, VA 22180



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

STOCK CLERK

Stock Clerk receives, examines, stores and keeps records of the quantity of the goods and materials used by a store.

7118
222.387-058
05.09
4754
2-Business & Office (F)
11-Marketing & Distribution (S)
Secretarial & Clerical (F)
Stock Control (S)

PERSONAL APTITUDES:

Stock Clerk will be able to learn or plan the storage arrangement and inventory control methods.

Ability to understand and follow both spoken and written directions is important in this occupation.

Stock Clerk will be able to use basic math for counting and measuring.

Stock Clerk will be able to picture the space available for storage and determine if the material will fit that space.

Ability to see small differences in size and shape of three-dimensional objects will be important in this occupation.

Ability to pay close attention to detail in written work to avoid errors will be important in this occupation.

- A Stock Clerk will be able to stoop and reach as well as lift up to 50 pounds.
- An ability to make decisions based on measurable facts is important in this occupation.
- A Stock Clerk will be able to complete tasks to meet a schedule.
- An interest in working with things, using machines and equipment that are repeated many times, will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Stock Clerk may work in stores, warehouses, storage areas, and stockrooms.
- Stock Clerks count, sort and weigh incoming articles and prepare them off the shipping list.
- The Stock Clerk must keep orderly records that are easy to read.
- A Stock Clerk marks the stock according to style, size or color of material.
- Stock Clerks store the articles in bins, on the floor or on shelves.
- A Stock Clerk must keep a running inventory of these articles and check the inventory often.
- The Stock Clerk must reorder stock to keep a supply on hand.



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Phone (515) 281-6100*

EDUCATION AND TRAINING:

High school diploma or its equivalent is recommended.
Some post high school education is required.
Part-time work, while in high school, is good preparation.
Where available, a vocational course in distributive education is helpful.

RECOMMENDED HIGH SCHOOL SUBJECTS:

Basic Math Skills
General Clerical

RECOMMENDED COURSES OF STUDY AND TRAINING:

Stock Clerk

SOURCES OF ADDITIONAL INFORMATION:

Marketing Institute
Communications Division
3000 K Street, N.W.
Washington, D.C. 20006



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

MASON
structures such as walls, bridge abutments and
sing stone and mortar.

4247
861.381-038
05.05
6413
4-Construction (F)
4-Construction (S)
Building Trades (F)
Building Trades (S)

AL APTITUDES:

Mason will be able to learn the characteristics of the material
to use it in several different ways.

Mason will be able to picture how the finished product will
vell as work from a numbered drawing.

y to see small differences in sizes and shapes in both
nensional objects and in drawings will be important in this
n.

Mason will be able to use eyes, feet, hands and fingers
to use both small and large equipment, materials and tools.

y to climb, stoop, reach and see as well as lift up to 100
will be important in this occupation.

y to make decisions based on measurable fact will be impor-
his occupation.

- A Stone Mason will be able to complete tasks to meet a
- An interest in working with things using machines and help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Stone Mason builds stone structures, such as piers, w bridge abutments.
- Stone Masons also lay walks, curbstone and do special t work.
- The Stone Mason works mainly with two types of stone cut stone, such as marble, granite, limestone or sandstone. - artificial stone, which is made marble chips or other types of masonry materials.
- A Stone Mason often works from a set of drawings in w stone has been numbered for identification.
- Stone Masons may have to lift some large stones into pl hoist.
- The Stone Mason sets the stone in mortar and moves it with a mallet, hammer or crowbar.
- The Stone Mason aligns the stone with a plumb line (a c weight at one end) and finishes area between the stones trowel.



OCCUPATIONAL BRIEFS

Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

EDUCATION AND TRAINING:

High school diploma or its equivalent is recommended.

The best way to train for this work is through a four-year apprenticeship.

Workers do learn the necessary skills on the job from skilled masons.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematical Education
Instruction and Maintenance

RELEVANT COURSES OF STUDY AND TRAINING:

Brick, Block and Stone Masonry
Apprenticeship

SOURCE OF ADDITIONAL INFORMATION:

Institute of America
Commerce Park Drive
VA 22091

National Outlook Handbook
1980 Edition
(79-381)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

DESCRIPTION:
Performs operations using a variety of surgical instruments to repair injuries, prevent disease and/or correct deformities.

8116
070.101-094
02.03
261
6-Health (F)
6-Health (S)
Doctor (F)
Doctor (S)

RELEVANT APTITUDES:

Person will be able to learn and understand the complex systems of the body as well as the surgical techniques to be used.

Person will be able to understand information using technical language and the ability to explain the information so others can understand will be important in this occupation.

Person will be able to accurately use the math formulas required in anatomy, physiology, pharmacology and related sciences.

Person will be able to picture the systems and organization of the body in detail as well as picture possible changes needed to correct deformities.

Person will be able to see very small differences in size and shape when comparing three-dimensional objects will be important in this occupation.

- An ability to pay attention to detail in written information will be important in this occupation.
- A Surgeon will be able to use eyes, hands and fingers to operate very delicate instruments without error.
- A Surgeon will be able to tell one color from another.
- An ability to reach, hear and see as well as lift up to 50 pounds will be important in this occupation.
- An ability to plan and direct the activities of others will be important in this occupation.
- A Surgeon will be able to work with all kinds of people in various different situations.
- A Surgeon will be able to work calmly in life and death situations.
- An ability to make decisions based on both experience and knowledge of the body will be important in this occupation.
- An interest in scientific or technical work that helps people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Educa
Grimes State Office
Des Moines, IA 50
Phone (515) 281-6

EDUCATION AND TRAINING:

The first two years of medical study are usually spent learning basic sciences such as anatomy, biochemistry, physiology and chemistry.

During their remaining years of study, students spend most of their time working in hospitals under the supervision of experienced Surgeons.

Residency and internship training may last from three to seven years depending on the specialization.

Applicants in Iowa must be graduates of a school of medicine and must complete at least a one-year internship at an approved institution.

A written examination is given twice a year in June and December. A fee is charged for the exam.

A temporary license may be issued for one year on the basis of a written examination or endorsement of credentials at the discretion of the Board.

The application fee is \$150.

REQUIREMENTS FOR HIGH SCHOOL SUBJECTS:

Biological Sciences
Chemistry
Mathematics
and Physical Education
Health

PROGRAMS OF STUDY AND TRAINING:

- 3630 - Medicine
- 3668 - Osteopathic Medicine

SOURCES OF ADDITIONAL INFORMATION:

- American Osteopathic Association
142 East Ontario Street
Chicago, IL 60611
- American Medical Association
535 North Dearborn Street
Chicago, IL 60610
- Occupational Outlook Handbook
1986-87 edition
pages (149-153)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

SURGICAL TECHNICIAN

prepares trays of surgical instruments, and hands the instruments to the surgeon as requested during the operation.

8155

079.374-022

10.03

369

6-Health (F)

6-Health (S)

Health Technicians (F)

Health Technicians (S)

B
ES

PERSONAL APTITUDES:

A Surgical Technician will be able to learn surgical procedures, instrument use, instrument care and pre-operative patient care.

A Surgical Technician will be able to understand and follow, exactly, written and spoken instruction.

Ability to pay attention to detail in written information to avoid errors will be important in this occupation.

A Surgical Technician will be able to use hands and fingers to handle medium equipment quickly and without error.

Ability to reach and hear as well as lift loads up to 10 pounds will be important in this occupation.

Ability to work under stress will be important in this occupation.

- A Surgical Technician will be able to make decisions based on a reasonable fact.
- An interest in scientific work involving things using mechanical processes will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Surgical Technician helps prepare the operating room by sterilizing and wrapping trays of instruments.
- A Surgical Technician also prepares the patient for surgery by shaving and washing the area of the body on which the surgery will operate.
- A Surgical Technician may transport patients to the operating room and help drape and position them on the operating table.
- Surgical Technicians are scrubbed in the operating room and are not allowed to touch the sterilized things such as the surgeon's hands or the area of the patient that has been cleaned for surgery, and the instruments which they have prepared.
- The Surgical Technician works under the direction of the surgeon and the circulating nurse.
- A Surgical Technician must know the names of all the instruments used and arrange them in a useful manner.
- The Surgical Technician must be steady and quick in handling and passing surgeon instruments as needed.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

D OCCUPATIONS:

l Practical Nurse (8164)
n Assistant (8121)
ed Nurse (8162)
(8116)

ATION AND TRAINING:

chool education or its equivalent is required.

spitals offer on-the-job training.

ity colleges offer one or two-year courses in operating room
y.

ork includes: anatomy, physics, operative terminology, use
ent and care of the patient before and after surgery.
work in operating rooms for practical experience while
urse work.

Technicians may become certified by passing the qualifying
ion of the National Association of Operating Room Techni-

L HIGH SCHOOL SUBJECTS:

onomics
sumer and Homemaking

ical-Technology
Physical Education
lth

PROGRAMS OF STUDY AND TRAINING:

- 3515 - Surgical Technology (3515)
- 3578 - Orthopedic Assisting (3578)

SOURCES OF ADDITIONAL INFORMATION

- Association of Surgical Technologists, Inc.
8307 Shaffer Parkway
Littleton, CO 80127
- American Medical Association
535 North Dearborn Street
Chicago, IL 60610
- Occupational Outlook Handbook
1986-87 edition
pages (204-206)



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-t

OR
exact measurements and determines locations of lines, curves and elevations on the earth's sur-

2421

018.167-018

05.03

1643

4-Construction (F)

4-Construction (S)

Engineering (F)

Engineering (S)

B
ES

AL APTITUDES:

or will be able to learn what information is needed, how to record the information in the most useful form.

y to follow directions exactly and make clear reports will be t in this occupation.

or will be able to work with the formulas of geometry and etry without error.

y to picture three-dimensional objects and how they fit in oundings will be important in this occupation.

y to see small differences in size and shape in both pictorial -dimensional objects will be important in this occupation.

- An ability to use eyes, feet, hands and fingers together with large and small equipment without error will be important in this occupation.
- A Surveyor will be able to tell one color from another.
- An ability to climb, reach, hear and see as well as lift up to 100 pounds will be important in this occupation.
- A Surveyor will be able to plan and direct the activities of a crew.
- A Surveyor will be able to make decisions based on measurements.
- A Surveyor will be able to complete tasks to meet a set schedule.
- An interest in scientific work using machines and processes will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Surveyor plans, organizes and directs work of one or more parties which survey the earth's surface to determine exact locations and measurements of points, lines and contours for construction, land division, etc.
- A Surveyor may work in the following areas: Geodetic Surveying, Land Surveying, Engineering Surveying, Hydrographic Surveying, Photogrammetry and Cartography.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6600

EDUCATION AND TRAINING:

A minimum of two years of postsecondary education is required for licensure as a land surveyor and

candidates in Iowa must be licensed. The minimum requirements to pass the Fundamentals Examination are graduation from high school with a course of credit in two or more in mathematics, physical sciences, mapping and surveying, or engineering and six years of practical experience. The fee for this exam is \$44.50.

After successful completion of this exam and four years of surveying experience, it is necessary to qualify for the Professional Land Surveying Examination.

A professional land surveyor's license will be granted to those who pass the Fundamentals examination. The fee for this exam is \$80. For more information contact: Iowa State Board of Engineering and Land Surveying Examining Board 1918 S.E. Hulsizer Ankeny, IA 50021
Phone (515) 281 5602

RECOMMENDED HIGH SCHOOL SUBJECTS:

Algebra/Geometry
Advanced Math
Foreign Language
Language Skills
Physical Education
Construction
Earth Science

PROGRAMS OF STUDY AND TRAINING:

- 3204 - Civil Technology
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION

- Canadian Institute of Surveying and Mapping
Box 5378, Station F
Ottawa Ontario K2C 3J1
(Careers in Surveying and Mapping \$15.00)
- Occupational Outlook Handbook
1986-87 edition
pages (57-59)



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

SURVEYOR HELPER

a surveyor in measuring the form, size and
n of a tract of land.

2472

869.567-010

05.12

6196

4-Construction (F)

4-Construction (S)

IB Engineering (F)

ES Engineering (S)

GENERAL APTITUDES:

Surveyor Helper will be able to use hands to move, lift, and
surveying instruments and equipment.

Surveyor Helper will be able to do the same things in the same
day.

Tasks to a set standard will part of this occupation.

Best in working with things using a preset

will be necessary in this occupation.

Surveyor Helper will be able to carry 25 pound loads

up to 50 pounds.

OCCUPATION PROFILE:

- A Surveyor Helper will work under immediate supervis
- A Surveyor Helper may hold the rod or chain during the
work.
- A Surveyor Helper will cut and clear brush that may in
the required tasks.
- Running tapes to measure distances will be part of this
- A Surveyor helper may make standard arithmetic comp
- Recording field notes in log books may be part of this oc
- A Surveyor Helper may operate a transit and level.
- A Surveyor Helper may have to deal tactfully with the p
contractors.

WAGES:

Hours per week	40
Average Wage (entry level)	\$6.69
Average Wage (all experience levels)	\$7.98
Average Range	\$7.05-\$9.15
	\$14,664-\$19,000

(Wage information from national sources.)



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50
Phone (515) 281-t

ANALYST

es business procedures and problems to re-
nvert/program for computers.

1683

012.167-066

11.01

1712

2-Business & Office (F)

2-Business & Office (S)

Data Processing (F)

Data Processing (S)

B
ES

AL APTITUDES:

ns Analyst will be able to learn and understand computer
e, languages and operations, as well as business or scientific

y to understand and use technical terms, math and computer
as well as complex charts and graphs will be important in
ation.

is Analyst will be able to use advanced math and statistics.

7 to picture how a whole system works and how the parts fit
will be important in this occupation.

is Analyst will be able to see small differences in size and
pictorial material.

7 to pay attention to detail to avoid or correct errors will be
; in this occupation.

- A Systems Analyst will be able to hear and see, as well as lift, up to 10 pounds.
- An ability to work with all kinds of people in many different situations will be important in this occupation.
- A Systems Analyst will be able to make decisions based on a single fact.
- An interest in scientific work that uses machines and precision help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Systems Analyst uses a computer to solve business, engineering problems through data processing.
- The Systems Analyst decides the nature of the problem and solves it with help from specialists in the subject area.
- A Systems Analyst logically structures the problem, identifies the data needed and determines the most efficient way to change the data into useful information.
- A Systems Analyst may, in addition, plan the distribution of the results and test the system for operational accuracy.
- The Systems Analyst uses various techniques, such as comparing, sampling, and mathematical model building to analyze and devise a new system.



OCCUPATIONAL BRIEFS

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Phone (515) 281-6100

KEY OCCUPATIONS:

Computer Systems Analysts (1683)
Data Processing Managers (16831)
Computer Systems Development Officers (16832)
Computer Systems Specialists (56009) See Computer Systems Analyst,
Computer Systems Engineers page 300, Computer Systems
Development Officers page 299, Data Processing Managers page 250
Computer Systems Specialists page 92 and Space Operations Officer
in the Military Career Guide 1988-1989.

RELATED OCCUPATIONS:

Computer Peripheral Equipment Operator (1686)
Computer Programmer (1684)

EDUCATION AND TRAINING:

There is no universally acceptable way of preparing for work in
computer analysis. Some employers prefer applicants who have a
Bachelor's degree and experience in a specific subject matter related
to the employer's area such as engineering, science, accounting,
mathematics, or education. Educational preparation and experience often
determine the kind of job opportunities available.

Employers prefer people who have had some training and
experience in computer programming.

Without a Bachelor's degree in Computer Science, it is very difficult
to enter the computer field as a Systems Analyst.

- As more people enter the computer field, employers will establish higher criteria for hiring new employees. It may be necessary to get more education than is currently required.

HELPFUL HIGH SCHOOL SUBJECTS:

- Math
- Algebra/Geometry
 - Advanced Math
- Office
- Data Processing
- Principles of Technology

PROGRAMS OF STUDY AND TRAINING:

- 1821 - Management Information Systems
- 2701 - Computers and Information Sciences, General
- 2702 - Computer Programming
- 2704 - Information Sciences and Systems
- 7306 - Economics

SOURCES OF ADDITIONAL INFORMATION

- American Federation of Information Processing Societies
1899 Preston White Drive
Reston, VA 22091
- Data Processing Management Association
505 Busse Highway
Park Ridge, IL 60068
- Human Factors Society, Inc.
P.O. Box 1369
Santa Monica, CA 90406



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

and alters clothing in dry cleaning businesses, department stores, or makes clothes in garment stores and tailor shops.

4446

785.261-010

05.05

6852

7-Home Economics (F)

9-Maintenance & Repair (S)

Textiles & Clothing (F)

Clothing Maintenance (S)

IB
ES

ADDITIONAL APTITUDES:

will be able to learn, understand and use the principles of construction.

Ability to use language to understand and the ability to follow directions will be important in this occupation.

Basic math to accurately measure and figure amounts of fabric needed will be important.

will be able to picture what the finished garment will look like and pay attention to details in shape and color.

Ability to handle very small items, such as needles, to large items weighing not more than 10 pounds, will be important.

will be able to make decisions based on facts.

- A Tailor will be able to complete tasks to meet a set standard.
- An interest in working alone, with things instead of people, and with a finished product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be necessary through changes to the work site or equipment.

OCCUPATION PROFILE:

- Tailors may work in department stores' alterations departments to alter ready-made clothing to fit the customer who buys it.
- A Tailor may work in dry cleaning establishments to re-clean and remodel clothing. Garment factories and industries also employ tailors to sew together the pieces of fabric which need special attention such as upper detailing or hand sewing.
- Tailors must use hand tools such as, needles, scissors, thread, and pins.
- The Tailor will use a power sewing machine to alter all garments made from all kinds of fabric.
- A Tailor must be able to mend holes and tears in knits, sweaters, and suedes as well as cotton or polyester fabrics.
- A Tailor must be able to put linings into unlined clothing such as darts and seams to adjust them to fit the customer, then press and sew these in.
- Tailors may repair or replace defective garment parts, such as buttons, pockets, pocket flaps and coat linings.



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RELATIONSHIP TO HIGH SCHOOL SUBJECTS:

Basic Math Skills
Civics and Social Education
Manufacturing
Economics
Clothing, Textiles & Home
Furniture, Leather and Upholstering

RELEVANT COURSES OF STUDY AND TRAINING:

Fashion Merchandising
Home Economics
Fashion Design
Upholstering
Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

National Ladies Garment Workers Union
100 Broadway
New York, NY 10019



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

TAXI DRIVER

provides transportation for people by automobile, some-
times performing some personal services for the taxi
drivers.

6142

913.463-018

09.03

8216

13-Personal Services (F)

15-Transportation (S)

08B Special Human Services (F)

08ES Highway Transportation (S)

PERSONAL APTITUDES:

A Taxi Driver will be able to learn the city streets, operation of the
company policies and local traffic regulations.

The ability to follow both spoken and written directions will be impor-
tant in this occupation.

A Taxi Driver will be able to use basic math to make changes and
the fare schedule.

The ability to judge distances will be important for safe driving.

A Taxi Driver will be able to use eyes, feet, fingers, and hands
to handle small and large objects for passengers.

The ability to reach, hear and see as well as lift up to 50 pounds will
be important in this occupation.

- An ability to work with all kinds of people in a polite way
and a customer is difficult will be important in this occupation.
- A Taxi Driver will be able to make decisions based on business
and measurable facts.
- An interest in work that has business contact with people
and machines and processes that are repeated many times
will be important in this occupation.
- With employer assistance, some physical requirements
may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Taxi Drivers are needed as part of the transportation system
in all cities.
- A Taxi Driver must be a good driver and work under conditions
that test and improve skills behind the wheel.
- A Taxi Driver should be familiar with state and local motor
vehicle laws and regulations.
- A Taxi Driver may be called a taxicab driver.
- The Taxi Driver may work directly for a cab company or
may be hired from a company.
- Taxi Drivers may pick up and deliver packages.
- The Taxi Driver may help riders, especially older people
with bags and luggage.



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Phone (515) 281-t

on a chauffeur's license, an eye examination and a driving test passed. A license may be issued for two or four years at a fee of \$15 or \$30, respectively.

RELEVANT HIGH SCHOOL SUBJECTS:
courses leading to a high school diploma.

REQUIREMENTS OF STUDY AND TRAINING:
No formal training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION:

1. Occupational Exploration
Center (515-281-5000)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Educa
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

TEACHER AIDE

The teacher aide assists the teacher with various clerical duties and may be responsible for directing the children with activities in and out of the classroom.

1422

249.367-074

07.01

4795

2-Business & Office (F)

14-Public Service (S)

Secretarial & Clerical (F)

Education (S)

IB
ES

PERSONAL APTITUDES:

The Teacher Aide will be able to learn the classroom routine and some basic teaching principles.

The ability to understand and follow both written and spoken directions, as well as give clear instructions will be important in this occupation.

The Teacher Aide will be able to use basic math for computations and record keeping.

The Teacher Aide will be able to pay attention to detail in written reports in order to avoid or correct errors.

The ability to use eyes, hands and fingers together to handle both large and small objects will be important.

- The ability to hear and sit for long periods of time will be important in this occupation.
- A Teacher Aide will be able to change from task to task.
- An ability to work patiently with all kinds of people in various situations will be important in this occupation.
- A Teacher Aide will be able to make decisions based on the situation.
- An interest in work that helps people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Teacher Aide assists so that the teacher has more time to teach the students learn.
- Teacher Aides may help students under a teacher's supervision.
- The Teacher Aide may play school games with the students.
- The Teacher Aide may perform many different jobs depending on the age level of the classes, the ability of the students, and the wishes of the classroom teacher.
- A Teacher Aide sets up and runs audiovisual equipment.
- A Teacher Aide works with small groups or individual children and may need help in reading or some other skill.



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Phone (515) 281-4

D OCCUPATIONS:

ty Care Worker (8449)
ary Teacher (8455)
Office Clerk (1418)
l Teacher (8457)
l417)

ATION AND TRAINING:

chool education or its equivalent is required.

ndary education in programs such as educational assistant
; Area Schools is recommended.

ory work experience with children and youth is desirable.

L HIGH SCHOOL SUBJECTS:

ourses leading to a high school diploma.

MS OF STUDY AND TRAINING:

eacher Assisting
hild Development Care and Guidance
econdary Education

§ OF ADDITIONAL INFORMATION:

onal Outlook Handbook
edition
(515-288)



OCCUPATIONAL BRIEFS

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Des Moines, IA 50319
Phone (515) 281-6100

TECHNICAL WRITER

prepares and writes reports, instruction books and re-publications concerning the installation, operation and maintenance of equipment and machinery.

CISEC 2177
131.267-026
11.08
398
3-Communication & Media (F)
10-Manufacturing (S)
Newspaper/Magazine/Book (F)
Product Sales (S)

PERSONAL APTITUDES:

A Technical Writer will be able to learn a subject matter field very quickly in addition to learning the principles of writing.

The ability to instruct and inform by putting scientific information in a form that is easy to understand will be important in this occupation.

A Technical Writer will be able to use math for making and interpreting graphs and charts.

A Technical Writer will be able to picture the finished article or book and work closely with graphic artists.

The ability to see small differences in size and shape in two and three dimensional material will be important in this occupation.

- A Technical Writer will be able to pay attention to detail and use information to avoid or correct errors.
- An ability to reach, hear and see, as well as sit for long periods of time will be important in this occupation.
- An ability to change from task to task many times in one day will be important.
- A Technical Writer will be able to make decisions based on past experience and measurable facts.
- An interest in scientific or technical work that involves reading and understanding information will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Technical Writer may research, write and edit technical documents such as manuals, catalogs, parts lists and instructional materials needed by sales representatives who sell machinery or scientific equipment.
- A Technical Writer may develop instructions to help people use complex equipment.
- The Technical Writer may prepare reports on research and development reports for company use only.
- Technical Writers prepare proposals (request for money) for projects or research.



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EDUCATION AND TRAINING:

There are no set requirements for entry into the field. Employers often hire those people whose education, work experience and writing experience show both writing skills and technical/scientific background.

Some degree of publication production such as graphics and layout is helpful.

Employers require a degree and prefer a degree in science or engineering with an English or journalism minor.

Employers look for an English or journalism degree with a scientific or technical background.

Technical Writers do not enter the field until they have worked as mechanics, electricians, engineers, research assistants or editorial assistants.

Some colleges offer graduate or undergraduate programs in technical writing. Many engineering, math and science departments offer courses in technical writing.

Employers often help experienced Technical Writers by doing research and preparing drafts.

Advancement is usually to technical editor or a management position such as publications manager.

Successful Technical Writers conduct industrial seminars or workshops at colleges and universities in addition to their regular job.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
- Composition

PROGRAMS OF STUDY AND TRAINING:

- 2201 - Communications, General
- 2202 - Advertising
- 2204 - Journalism
- 2207 - Radio/Television, General
- 4301 - English, General
- 4306 - Linguistics
- 4310 - Speech, Debate and Forensics
- 4917 - Ecology
- 4930 - Genetics
- 6501 - Philosophy
- 7308 - History

SOURCES OF ADDITIONAL INFORMATION

- 3M Company
3M Center - Bldg. 224-1W
St. Paul, MN 55101
- Society for Technical Communication
815 15th Street, N.W.
Suite 506
Washington, D.C. 20005
- Occupational Outlook Handbook
1986-87 edition
pages (215-217)



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Phone (515) 281-4

ONE EQUIPMENT INSTALLER

and repairs telephones and associated equipment
es and businesses.

3166

822.261-022

05.05

6158

9-Maintenance & Repair (F)

14-Public Service (S)

Machine Maintenance (F)

Utilities & Services (S)

IB
ES

AL APTITUDES:

One Equipment Installer will be able to learn basic electricity
s the methods of installation of all the equipment used.

One Equipment Installer will be able to understand and
th spoken and written directions.

One Equipment Installer will be able to use arithmetic and
metry to figure the amount of materials needed and the
ns to be followed.

One Equipment Installer will be able to picture how the
work should look.

7 to see small differences in size and shape among three-
ial objects will be important in this occupation.

- A Telephone Equipment Installer will be able to use eye and fingers together to handle both small and large object equipment.
- An ability to see differences in color and shades of color important in this occupation.
- A Telephone Equipment Installer will be able to climb, s and see as well as lift up to 10 pounds.
- An ability to change from task to task many times in or important in this occupation.
- A Telephone Equipment Installer will be able to work w people in many different situations.
- An ability to make decisions based on measurable fact w tant in this occupation.
- A Telephone Equipment Installer will be able to complet meet a set standard.
- An interest in working with things using machines and p result in a product that can be seen and touched will hel occupation.
- With employer assistance, some physical requirements r through changes to the work site or equipment.



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EDUCATION AND TRAINING:

High school education or its equivalent is preferred.

Applicants may have to take a mechanical aptitude test.

Technological changes and the increasing level of difficulty in this work require continued training.

Companies have training programs which include classroom sessions for three or more weeks, as well as on-the-job training.

Trainers are equipped with actual apparatus; and trainees learn in conditions very close to what they will find on the job.

On-the-job training consists of working with an experienced crew.

RELEVANT HIGH SCHOOL SUBJECTS:

Mathematics
Physical Education
Construction
Communications
Electrical/Electronic
Energy & Power Systems

METHODS OF STUDY AND TRAINING:

Apprenticeship
On-the-job training

SOURCES OF ADDITIONAL INFORMATION

- Occupational Outlook Handbook
1986-87 edition
pages (360-362)



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Phone (515) 281-6100

ONE OPERATOR

People make calls they cannot make themselves by using extensions and working with keys and dials.

1454

235.662-022

07.04

4732

3-Communication & Media (F)

14-Public Service (S)

Telecommunication (F)

Utilities & Services (S)

VB
ES

ADDITIONAL APTITUDES:

A Telephone Operator will be able to learn the operation of the standard used as well as the personnel and organizational information involved.

A Telephone Operator will be able to listen and understand as well as talk easily with others who are important in this occupation.

A Telephone Operator will be able to pay attention to detail in written information to avoid or correct errors.

A Telephone Operator will be able to use eyes, hands and fingers together to operate the equipment. It will be important in this occupation.

A Telephone Operator will be able to reach, hear and see as well as work long periods of time.

A Telephone Operator will be able to do the same task the same way many times in one day. It will be important in this occupation.

- A Telephone Operator will be able to be patient and courteous to people.
- An interest in work that is done in the same way every day and involves business contacts with people will help in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Telephone Operators work for telephone companies or in other businesses.
- The Telephone Operator works in the central offices of telephone companies to help callers complete long distance calls.
- A Telephone Operator must use tact when dealing with callers.
- A Telephone Operator should be able to work quickly and patiently when incoming calls waiting too long.
- The Telephone Operator collects information such as phone numbers and names so the call can be placed.
- Telephone Operators write down the time of the call and the name of the customer so that the customer can be billed.
- The Telephone Operator may work as Directory Assistant in central telephone offices and give callers the number they need.
- A Telephone Operator may be asked to place telephone calls to police or for medical help in an emergency.



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RELEVANT OCCUPATIONS:

Office Clerk (1418)
Telephone Operator (1452)
Telephone Equipment Installer (3166)
Dispatcher (1426)

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (288-290)

EDUCATION AND TRAINING:

Employers of Telephone Operators prefer them to have a high school diploma or its equivalent.

Business courses in and after high school help prepare one for a job as a Telephone Operator. They also prepare for private branch exchange (PBX) jobs. A few schools will teach students how to work a telephone board.

Experience and/or training in the military may be helpful in this occupation.

RELEVANT HIGH SCHOOL SUBJECTS:

Language Skills

General Clerical

RELEVANT COURSES OF STUDY AND TRAINING:

Clerical
Telephone Receptionist and Communication Systems



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ONE SALES/SURVEY REPRESENTATIVE

Telephone Sales/Survey Representatives contact people by telephone for orders or information on merchandise, services or surveys.

7432

299.357-014

08.02

4366

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Public Relations & Advertising (F)

Public Relations & Advertising (S)

IB
ES

PERSONAL APTITUDES:

Telephone Sales/Survey Representatives will be able to learn and use the method of telephone sales and/or interviewing.

Ability to present information and ideas clearly as well as to listen and understand will be important in this occupation.

Ability to use basic math for keeping records and simple statistics for surveys will be important in this occupation.

Telephone Sales/Survey Representatives will pay attention to detail to avoid errors in written information and tables.

Coordination of hands and fingers in handling small objects will be important in this occupation.

Ability to affect the attitudes and ideas of others will be important in this occupation.

- An interest in sharing information with business contacts that is the same from day to day will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Telephone Sales/Survey Representative interviews customers and records their responses on public issues or consumer buying habits.
- The Telephone Sales/Survey Representative may, as part of an interview, follow a prepared outline of questions or a prepared script.
- A Telephone Sales/Survey Representative may share information about products and local population surveys.
- A Telephone Sales Representative develops a list of prospective customers from city telephone directories.
- The Telephone Sales/Survey Representative must call prospective customers to describe the product or service in a way that convinces the customer to buy.
- The Telephone Sales/Survey Representative will record customer addresses, purchases and comments of customers.
- A Telephone Sales/Survey Representative may refer orders to a salesperson.
- The Telephone Sales/Survey Representative may contact a Route Driver to deliver the product.



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...s and pays out money and keeps a record of all
...er transactions at banks, savings and loan asso-
...s, and other financial institutions.

- 1644
- 211.362-018
- 07.03
- 4791
- 2-Business & Office (F)
- 2-Business & Office (S)
- Secretarial & Clerical (F)
- Finance & Investing (S)

AL APTITUDES:

... will be able to learn the basics of the operation of regular
... as well as the operation of equipment or method of keeping
... of transactions.

... will be able to follow both written and spoken directions.

... will be able to use math for basic computation as well as use
... sic accounting procedures if posting is done.

... y to see small differences in sizes and shapes in pictorial
... will be important in this occupation.

... y to pay close attention to detail in written information to
... correct errors will be important in this occupation.

... will be able to use eyes, hands and fingers together to use an
... achine, calculator or computer terminal.

- An ability to reach, hear and see as well as carry loads to 10 pounds will be important in this occupation.
- A Teller will be able to do the same task in the same w: times in one day.
- An ability to work patiently and courteously with many people will be important in this occupation.
- A Teller will be able to complete tasks to meet a set sta
- An interest in work that is the same everyday and invo contact with people will help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- Tellers help customers make deposits, cash checks, or w during the work hours.
- A Teller may be an 'all around' teller who takes care of of bank's savings and loan business.
- A Teller may be assigned to one part of the bank's savi operations.
- A Teller must prove the identity of the customer and be funds are in the account to cover the payment.
- The Teller may use computer systems or office machine changes and to total deposits.



OCCUPATIONAL BRIEFS

Career Information Sys
Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

EDUCATION AND TRAINING:

Banks and other financial institutions prefer high school graduates with experience in clerical work.

For business school training is helpful.

Personal attributes such as maturity, neatness, tact, and courtesy are important to banks.

The length of on-the-job training depends on the employee's education and prior work experience; however, the usual amount of time ranges from a few days to three weeks or longer.

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills

Accounting
General Clerical

COURSES OF STUDY AND TRAINING:

Banking and Finance
International Business Management
Teller

SOURCES OF ADDITIONAL INFORMATION

- American Bankers Association
Bank Personnel Division
1120 Connecticut Avenue, N.W.
Washington, D.C. 20036
- Occupational Outlook Handbook
1986-87 edition
pages (269-271)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

AGENT

Agents for transportation agencies such as airlines, companies, railroads and steamship lines.

1425

238.367-026

07.03

4644

11-Marketing & Distribution (F)

15-Transportation (S)

Buying & Selling (F)

Research & Regulation (S)

0B
ES

AL APTITUDES:

Agent will be able to learn the scheduling, reservation and the operation of computer reservation systems.

Ability to follow both spoken and written directions will be important in this occupation.

Agent will be able to figure total costs of tickets, make and read tables and schedules quickly and accurately.

Agent will be able to pay attention to detail to avoid or errors.

Ability to reach and hear as well as lift up to 20 pounds and carry loads will be important in this occupation.

Agent will be able to do the same task the same way many one day.

- A Ticket Agent will be able to work courteously with all people in many different situations.
- An interest in work that is the same each day and involves contact with people will help in this occupation.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- Ticket Agents sell tickets for all types of transportation.
- The Ticket Agent may plan routes and compute ticket costs, schedules and rate books.
- A Ticket Agent should be able to read timetables, tax charts, fare scales and other travel-related materials.
- A Ticket Agent ensures that cabins, seats and spaces are available.
- The Ticket Agent answers questions regarding airplane, boat schedules and accommodations.
- The Ticket Agent may check baggage and direct passengers to correct concourse, pier or track for loading.
- A Ticket Agent may make public address announcements and departures.
- A Ticket Agent may sell travel insurance.
- The Ticket Agent may receive or collect money from the passengers.



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Iowa Dept. Of Edu
Grimes State Office
Des Moines, IA 50
Phone (515) 281-4

PLANS OF STUDY AND TRAINING:

Tourism and Travel
Receptionist and Communication Systems

SOURCES OF ADDITIONAL INFORMATION:

Employees Association International
1400 North Central Avenue
Chicago, Illinois 60638

Department of Transportation
Aviation Administration
400 Independence Avenue, S. W.
Washington, D.C. 20591

Training, Inc.
1400 North Avenue South
St. Paul, MN 55450

Occupational Outlook Handbook
1980 edition
(202-279-281)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

TILE SETTER

in building construction or remodeling putting walls, floors or ceilings using blueprints or other instructions.

4249

861.381-054

05.05

6414

4-Construction (F)

4-Construction (S)

Building Trades (F)

Building Trades (S)

IB
ES

PERSONAL APTITUDES:

Tile setter will be able to learn about materials used and the methods of applying those materials.

Ability to picture things in three-dimensional from two-dimensional plans, such as blueprints, will be important in this occupation.

Tile setter will be able to see small differences in size and shape when comparing three-dimensional objects.

Ability to use eyes, hands and fingers together to use hand tools to fit small pieces of tile will be important in this occupation.

Physical ability to stoop, reach and see as well as lift up to 50 pounds will be important in this occupation.

Tile setter will be able to make decisions based on measurable facts.

- A Tile Setter will be able to complete tasks to meet a schedule.
- An interest in working with things using machines and tools will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Tile Setter uses many hand tools such as trowels, hand levels, and tile cutters.
- A Tile Setter applies tile to floors, walls, counter tops and splashbacks, stoves, cornices, fireplaces, vanities, kitchens and bathrooms.
- Tile Setters plan and mark off according to blueprints or instructions where the tiles will be placed so that no edge of unfurnished or rows of tile pieces will be awkwardly shaped.
- A Tile Setter uses a plumb or strike line and level for finding the highest point on the floor and that point is used to make a level around the room.
- The Tile Setter uses cement to set tiles on a screen cover. To use mastic to set tiles, a flat solid surface such as drywall, concrete or wood is used.
- Tile Setters cut and shape the tile with a tile cutter.
- The Tile Setter positions the tile and taps it with the trowel to affix the tile to the plaster or adhesive base.



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Career Information System
*Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6300*

; for this job may include classroom work.

RELEVANT HIGH SCHOOL SUBJECTS:

al Education
struction
struction and Maintenance

RELEVANT COURSES OF STUDY AND TRAINING:

brick, Block and Stone Masonry
pprenticeship

SOURCES OF ADDITIONAL INFORMATION:

ional Outlook Handbook
edition
03-404)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

TIRE BUILDER

The tire builder assembles all the parts of a tire together, then sets up and operates a drum-type machine to build pneumatic (air-filled) tires.

5925
750.684-022
05.12
7759
10-Manufacturing (F)
10-Manufacturing (S)
Assembly & Production (F)
Assembly & Production (S)

PERSONAL APTITUDES:

- The tire builder will be able to learn the method of tire construction as well as the operation of necessary equipment.
- The tire builder will be able to see small differences in size and shape when comparing three-dimensional objects.
- The ability to use eyes, hands and fingers together to handle medium weight equipment and materials will be important in this occupation.
- The tire builder will be able to reach and lift up to 100 pounds.
- The ability to do the same task in the same way many times in one day will be important in this occupation.
- The tire builder will be able to make decisions based on measurable

- A Tire Builder will be able to complete tasks to meet a schedule.
- An interest in working with things using machines and tools and repeating many times will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Tire Builders bring all parts of the tire together and construct them on a semi-automatic machine with a collapsible drum that rotates during turning.
- The Tire Builder first applies rubber cement to the edge of the casing using brush or spray gun to prepare for applications of new rubber treads.
- A Tire Builder selects camelbark according to tire width and thickness specified, and whether tire is to be retreaded or new.
- A Tire Builder may place rebuilt casing in a mold for vulcanization (chemical treating process).
- The Tire Builder places the first ply on the drum, runs it around and splices the ends together.
- Tire Builders add the needed number of plies in the same manner.
- A Tire Builder starts the tread and sidewall unit on the drum.
- Tire Builders run the tread on and splice it securely.
- A Tire Builder handstitches the tread splice and finishes with automatic stitching.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

TOOL AND DIE MAKER

The tool and die maker uses a lathe, mill, and other machine tools to make the molds, fixtures and dies that other machinists use to manufacture metal parts.

5462
601.280-046
05.05
6811
10-Manufacturing (F)
10-Manufacturing (S)
Assembly & Production (F)
Assembly & Production (S)

PERSONAL APTITUDES:

The Tool and Die Maker will be able to learn the properties of the materials they work with as well as the process involved.

The ability to understand complex written and spoken directions as well as read blueprints will be important in this occupation.

The Tool and Die Maker will be able to use math and shop geometry to determine the amounts of material needed and dimensions to be followed.

The ability to picture the finished product and the steps necessary to produce it will be important in this occupation.

The Tool and Die Maker will be able to see very small differences in shape when comparing three dimensional objects.

- A Tool and Die Maker will be able to use eyes, hands and feet together to handle materials and equipment in the exact manner planned.
- An ability to reach and see as well as lift up to 50 pounds will be important in this occupation.
- A Tool and Die Maker will be able to change from task to task many times in one day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Tool and Die Maker will be able to complete tasks to a high standard.
- An interest in working with things, machines and processes that result in products that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Tool & Die Maker makes dies, metal forms and tools, jigs, guiding and holding devices which are used in the mass production of metal and plastic parts.
- A Tool & Die Maker spends much time doing precision hand work, such as sanding, filing, scraping and polishing parts.
- The Tool & Die Maker makes gauges and measuring tools.



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

EDUCATION AND TRAINING:

Apprenticeship training is available for learning this job. Applicants for apprenticeship training should have a high school diploma or its equivalent. Trade school training is also helpful. Apprentices learn to use major machine tools and hand tools for grinding and assembling. Heat treating and other metal working processes, mathematics, shop theory, mechanical drawing, tool design, blueprint reading are all a part of the training given to the apprentice. The first four years of a Tool and Die apprenticeship are spent in the shop training; however, some classroom training is also given.

SOURCES OF ADDITIONAL INFORMATION:

- National Tooling and Precision Machining Association
9300 Livingston Road
Ft. Washington, MD 20744
- Occupational Outlook Handbook
1986-87 edition
pages (428-430)

RELEVANT HIGH SCHOOL SUBJECTS:

Basic Math Skills
Science of Technology
Physical Education
Metalworking
Manufacturing

RELEVANT COURSES OF STUDY AND TRAINING:

Tool and Die Making
Apprenticeship



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

TRAVEL AGENT

Travel agents help people plan vacations and trips to various places, make reservations for transportation and lodging, and plans activities.

1424

252.157-010

08.02

4369

2-Business & Office (F)

8-Hospitality & Recreation (S)

Secretarial & Clerical (F)

Recreation Travel (S)

OB
ES

PERSONAL APTITUDES:

Travel Agent will be able to understand, compare and make decisions concerning time tables, travel fares and room rate scales.

Travel Agent will be able to use information to present ideas to others in both written and spoken forms.

Travel Agent will be able to use basic math for records and reports.

Travel Agent will be able to use detailed written tables and schedules and avoid errors.

Travel Agent will work at a desk most of the time.

Vision and hearing will be important on this job.

- It is important to be able to work easily with all kinds of people and to understand what they want and help them arrange their travel.
- An agent will be able to make decisions about information. The agent will be able to guide the choices of the customer and explain the consequences of these decisions.
- An interest in business contact with people exchanging information is helpful.
- An agent will be able to do several things at one time.
- With employer assistance, some physical requirements may be necessary through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Travel Agent handles the details of a vacation or trip.
- Travel Agents make reservations for transportation, arrange for hotels, plan activities and buy the tickets.
- The Travel Agent also works with tour companies, hotels, travel agencies and entertainment places.
- A Travel Agent must know all about places to go, how to estimate the cost, and how to arrange for whatever the customer wants.
- Travel Agents may rent cars, plan routes and arrange for transportation stop over.
- The Travel Agent must know about regulations for visa and passport requirements.



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100*

KEY OCCUPATIONS:

Travel Agent (14240)
Travel Managers (71161)

RELATED OCCUPATIONS:

Administrative Clerk
Administrative Clerk
Sales Agent (1425)
Sales Representative

EDUCATION AND TRAINING:

High school education or its equivalent is usually required. Agencies prefer people with some college experience in liberal arts or business.

New employees begin in an agency as an office clerk or secretary to gain experience before they work as a Travel Agent.

On-the-job training is also given by travel agencies.

Some agencies may give training which lasts as long as six to eight weeks. Smaller agencies may train the person by showing them the actual basic job routines and letting the person work under a Travel Agent until the person learns the basic skills.

Courses are offered at vocational schools, community colleges and 2-year colleges. A few colleges offer a Bachelor's degree in Travel Service/ marketing.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Math
 - Basic Math Skills
- Distributive Education
 - Services

PROGRAMS OF STUDY AND TRAINING:

- 1933 - Tourism and Travel
- 3301 - Foreign Languages

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (265-267)
- Guide for Occupational Exploration
1984 edition
pages (482-484)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

DRIVER

food, clothing, equipment and many other provisions from place to place in straight or semi-trailer

6144
905.663-014
05.08
8213
15-Transportation (F)
15-Transportation (S)
Highway Transportation (F)
Highway Transportation (S)

PHYSICAL APTITUDES:

Driver will be able to learn the operation, loading of the routes and material carried.

Ability to judge distances and to picture the space used by the rig all operations will be important in this occupation.

Driver will be able to use eyes, feet and hands together to drive truck safely and often load and unload the materials.

Ability to stoop, reach and see as well as lift loads up to 100 lbs will be important in this occupation.

Driver will be able to do the same task the same way many days in one day.

Interest in working with things using machines and repeated tasks will help in this occupation.

- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Truck Driver drives tractor trailers or trucks with a gross weight of more than three tons.
- A Truck Driver may transport goods and materials of various weights which must be delivered safely and promptly.
- The Truck Driver will be responsible for keeping record of delivery times, invoices and delivery receipts.
- A Truck Driver may deliver goods over long distances and work long hours or nights.
- A Truck Driver spends nearly all the working time driving.
- The Truck Driver may have to unload the goods to be delivered at stores at night when there is no one else to unload.
- The Truck Driver may have the buyer sign an invoice to certify that the delivery was made.
- Local Truck Drivers may receive payment for some items and may be able to make change for this payment.
- A Truck Driver must be able to use several gears to control the truck.
- A Truck Driver may position blocks and tie a rope around the truck to secure the cargo during transit.
- A Truck Driver may service the truck.



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

RELEVANT OCCUPATIONS:

- Truck Driver (6141)
- Truck Driver (6158)
- Equipment Operator (6151)
- Truck Driver (7434)
- Truck Driver (6142)

EDUCATION AND TRAINING:

Applicant must be at least 18 years of age to get a chauffeur's license. If one will be driving in several states, a U.S. Department of Transportation physical exam which requires applicants be at least 21 years old is necessary.

Truck Driver's license may be issued for a two or four year period at a cost of \$15 and \$30 respectively.

Persons over the age of 70 are eligible for a two-year license only.

Licenses are renewed by passing an eye examination and paying the fee. For more information contact:
Iowa Department of Transportation
Vehicle Division
Truck Drivers Services
Grimes State Office Building
Des Moines, Iowa 50319

Commercial driving permit is required by many companies and in some areas of the United States.

Truck Driver must be familiar with traffic laws and safety mea-

- Experience as a Truck Driver's helper as well as previous experience in driving a truck is helpful.

HELPFUL HIGH SCHOOL SUBJECTS:

- Industrial Education
- Transportation

PROGRAMS OF STUDY AND TRAINING:

- 7912 - Truck and Bus Driving

SOURCES OF ADDITIONAL INFORMATION:

- American Trucking Association
2200 Mill Road
Alexandria, VA 22314-4654
- Occupational Outlook Handbook
1986-87 edition
pages (458-461)



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

TV & RADIO REPAIRER

...s and services radios, televisions and other elec-
...appliances in customers' homes or in a repair

3168

720.281-018

05.10

6155

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Household Appliance Maintenance (F)

Household Appliance Maintenance (S)

OB
ES

ADDITIONAL APTITUDES:

...dio Repairer will be able to learn the principles of electricity,
...ves and the operation of test equipment used in repair.

...y to understand technical languages and diagrams will be
...t in this occupation.

...dio Repairer will be able to use basic math and the simple
...equations used in electrical measurement.

...y to read a schematic (wiring diagram) and picture the parts
...will be very important in this occupation.

...dio Repairer will be able to see very small differences in size,
...d line when comparing objects or reading coding on electronic

- An ability to use eyes, hands and especially fingers together to manipulate very small objects in the exact way planned will be important in this occupation.
- A TV/Radio Repairer will be able to tell one color from another.
- An ability to reach, hear and see as well as lift up to 50 pounds will be important in this occupation.
- A TV/Radio Repairer will be able to change from one task to another many times in one day.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A TV/Radio Repairer will be able to complete tasks to meet a set standard.
- An interest in working with things using machines and tools that are repeated will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A TV/Radio Repairer uses a knowledge of electricity and electronics to install and repair electronics products.
- TV/Radio Repairers work with radios, televisions, phonographs and stereo-sound equipment.
- A TV/Radio Repairer may also repair tape recorders and address systems.



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Des Moines, IA 50319
Phone (515) 281-5100

KEY OCCUPATIONS:

Equipment Repairers (31680)
Radar and Sonar Equipment Repairers (31681)
Radio and Television Equipment Repairers (31682) See Radio, Equipment Repairers page 149, and Teletype Equipment Repairers page 149, and Teletype Equipment Repairers page 153 in the Military Career Guide 1988-1989.

RELATED OCCUPATIONS:

Refrigerator and Air Conditioning Repairer (3169)
Electronics Technician (2461)
Cooling Mechanic (3146)
Machine Servicer (3164)

EDUCATION AND TRAINING:

High school education or its equivalent is needed.
Electronics experience is available in the armed services.
About two years of training and two to four years of work experience to become a qualified TV/Radio Repairer.
Advanced TV repair courses are offered by vocational and technical schools and community colleges, which could be helpful in gaining experience.

RELEVANT HIGH SCHOOL SUBJECTS:

Physical Education
Electronics
Mechanical Services
Science of Technology

PROGRAMS OF STUDY AND TRAINING:

- 3211 - Electronics Technology
- 3212 - Laser-Optics Technology
- 3901 - Industrial Arts
- 7603 - Communications Electronics
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- International Brotherhood of Electrical Workers
1125 15th Street N.W.
Washington, D.C. 20005
- Occupational Outlook Handbook
1986-87 edition
pages (355-356)



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

letters, reports, stencils, forms or other straight material from rough draft or corrected copy.

1417
203.582-066
07.06
4624
2-Business & Office (F)
2-Business & Office (S)
Secretarial & Clerical (F)
Secretarial & Clerical (S)

PHYSICAL APTITUDES:

- will be able to learn correct typing format and office procedures.
- Ability to follow both spoken and written instructions will be important in this occupation.
- will be able to pay close attention to detail in written material to avoid or correct errors.
- will be able to use eyes, hands, and fingers together to operate a typewriter of any kind with speed and accuracy.
- Ability to reach and see as well as sit for long periods of time will be important in this occupation.
- will be able to complete tasks to meet a set standard.

- An interest in work that is the same from day to day and with typewriters and machines will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Typist operates a typewriter or word processor to copy typed or handwritten material into a neatly typed form.
- A Typist produces finished, neat copies of letters and envelopes, forms, reports, records, stencils and statements.
- A Typist may type mailing labels or legal documents.
- The Typist may also type from a transcribing machine or dictation cases, from information that has been gathered.
- Typists must be able to notice details and proofread well.
- A Typist must also work rapidly, accurately and keep a steady work flow.
- The Typist may use calculating and duplicating equipment.
- A Typist may also do other clerical jobs, such as answering the telephone, act as receptionist, sort and distribute incoming mail and operate other office machines.
- A Typist may be employed by almost any organization.



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Word Processing

SOURCE OF ADDITIONAL INFORMATION:

International Secretaries International
1000 Armour Blvd
Des Moines, MO 64111-1299

Job Information Center
1000 Walnut Street
Des Moines, IA 50309

Occupational Outlook Handbook
10th Edition
(1992-294)



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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

ORGANIZATION OFFICIAL

and coordinates activities of a labor union or a professional/trade association in accordance with established policies to achieve goals, objectives and standards for the group.

1188
189.117-010
11.07
1354
2-Business & Office (F)
2-Business & Office (S)
Management (F)
Management (S)

ESSENTIAL ABILITIES:

Organization Official will be able to learn both the employer's and employee's position as well as the principles of negotiating union rules or policies.

Ability to listen, as well as write for or talk easily with people of various backgrounds, experience and interests, will be important in this occupation.

Organization Official will be able to use math to negotiate contracts and work with budgeting.

Organization Official will be able to pay attention to detail in written material to make sure the meaning is clear and not misunderstood.

- An ability to hear and sit for long periods of time will be important in this occupation.
- An ability to change from task to task often in one day will be important in this occupation.
- A Union/Organization Official will be able to plan and direct the activities of others.
- A Union/Organization Official will be able to work with people often speaking or acting in ways that would affect the attitudes and ideas of others.
- An ability to work calmly under the stress of being between disagreeing sides or the pressure of a heavy workload will be important in this occupation.
- A Union/Organization Official will be able to make decisions based on experience as well as measurable fact.
- An interest in work that shares information with others and business contact with the possibility of earning the respect will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5111

Early keen competition is anticipated for jobs in labor relations, going to the U.S. Department of Labor.

Advancement may be to supervisory positions with more experience successfully handling difficult assignments.

KEY OCCUPATIONS:

Includes military occupations.

RELATED OCCUPATIONS:

Personnel Administrator (1136)
Labor Administrator (1186)
Administrator/Official (1138)
Labor Relations Specialist (1195)

EDUCATION AND TRAINING:

Amount of education and/or training required varies greatly with position/organization.

A large number of people enter the labor relations field directly as graduates. They usually are graduates of Master's degree programs in labor relations, accounting, journalism or some may have a law degree.

Few people, however, begin in personnel work,

and a graduate may gain experience in that area, and later move into a labor relations job. Education is important, but it is not the only way to enter this field. Many Union/Organization Officials work their way to this position through the ranks.

HELPFUL HIGH SCHOOL SUBJECTS:

Language

- Composition
- Speech

Math

- Basic Math Skills

Health & Physical Education

- Health

Social Studies

- Sociology

PROGRAMS OF STUDY AND TRAINING:

- 1804 - Business Administration and Management
- 1820 - Labor - Industrial Relations

SOURCES OF ADDITIONAL INFORMATION:

- American Management Associations
135 W 50th Street
New York, NY 10020



OCCUPATIONAL BRIEFS

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Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

UNIVERSITY/COLLEGE TEACHER

Provides instruction in a particular area of study to students in a post-secondary educational institution and conducts research and writes for publication.

8454
090.227-010
11.02
22
14-Public Service (F)
14-Public Service (S)
Education (F)
Education (S)

ESSENTIAL ABILITIES:

A University/College Teacher will be able to learn one field in depth, understand the principles of teaching and in most cases, be able to research and write articles/ books published.

The ability to gain knowledge by reading, listening and experiencing as well as to inform others by writing or speaking will be very important in this occupation.

A University/College Teacher will be able to use basic math and some more advanced math depending on the field of study.

A University/College Teacher will be able to do abstract thinking, explain the operation of a theory or picturing things as they will be when the work is done. This work can be written as a novel, a music composition, a sculpture or an engineering machine.

- Depending on the field, an ability to see small differences in shape and line when comparing three-dimensional or two-dimensional materials could be important in this occupation.
- A University/College Teacher will be able to pay close attention to detail in written information to avoid or correct errors.
- The ability to hear and lift loads under 10 pounds will be important in this occupation.
- An ability to plan and direct the activities of others will be important in this occupation.
- A University/College Teacher will be able to work with people often acting or speaking in ways that affect other people's attitudes.
- A University/College Teacher will be able to make decisions based on experience.
- An interest in work that shares information and is helpful to others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- University/College Teachers lecture, initiate classroom discussions, lead group discussions and employ other methods to present information on a matter effectively.
- A University/College Teacher may work with students on class projects, student study projects, in laboratories or on an individual basis.



OCCUPATIONAL BRIEFS

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University/College Teachers can advance in rank from instructor to assistant professor to associate professor to professor. Many professions have advancement to administration positions, allowing them to teach only one semester thereafter, if at all.

Advancement to advanced study and college-level teaching experience, along with academic, administrative and professional contributions are necessary for advancement.

Research, publication and work experience in a subject area may help with advancement.

UNIVERSITY OCCUPATIONS:

Assistant Professor (84540)
Associate Professor and Instructors (84560)
Professor in Trainers and Directors (84580) See Trainers page 116,
Associate Professor and Instructors page 264 and Education Trainers and
Directors page 251 in the Military Career Guide 1988-1989.

COLLEGE OCCUPATIONS:

Assistant Professor (8414)
Associate Professor and Instructors (1136)
Associate Professor Teacher (8456)
Associate Professor Instructor (8453)

EDUCATION AND TRAINING:

For an initial appointment on a university/college faculty, an applicant must have a Master's degree in the subject area. For advancement to higher ranks, the applicant will need further academic training and experience.

- Usually during the period of graduate studies, a teaching assistantship (assistantship) and/or a research apprenticeship (apprenticeship) is served.
- It is helpful to be able to type well.
- Debate or journalistic extracurricular activities are also helpful.

HELPFUL HIGH SCHOOL SUBJECTS:

Language

- Language Skills
- Literature
- Composition
- Speech
- Foreign Languages

Science

- Chemistry
- Physics
- Earth/Space Science

Studio Arts and Crafts

- Drama

Social Studies

- History
- Government
- Sociology
- Geography

Math

- Basic Math Skills
- Algebra/Geometry
- Advanced Math

Health & Physical Education

- Health

NOTE: Language and Math would be helpful for all subject areas. Choices from other areas could be made depending on the applicant's interests.



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UPHOLSTERER

repairs or replaces upholstery in vehicles or on furniture. May rebuild certain parts of furniture.

4494
780.381-018
05.05
6853
9-Maintenance & Repair (F)
9-Maintenance & Repair (S)
Household Appliance Maintenance (F)
Household Appliance Maintenance (S)

PERSONAL APTITUDES:

- Upholsterer will be able to learn the principles of upholstery and furniture construction.
- Ability to follow both written and spoken directions will be important in this occupation.
- Upholsterer will be able to use math to measure and figure the amount of materials needed.
- Upholsterer will be able to picture how the finished product will look.
- Ability to see very small differences in size, shape and line when working with three-dimensional objects will be important in this occupation.
- Upholsterer will be able to use eyes, hands and fingers together to select tools and materials as planned.

- An ability to tell one color from another and how colors mix will be important.
- An ability to stoop, reach and see as well as lift up to 50 pounds will be important in this occupation.
- An Upholsterer will be able to make decisions based on experience and fact.
- An Upholsterer will be able to complete tasks to meet a deadline.
- An interest in working with things using machines and tools will be important. A product that can be seen and touched will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Upholsterers mend and/or replace fabric in automobiles, boats, vehicles and furniture.
- An Upholsterer may make coverings for auto seats, floor mats, panels and convertible tops.
- The Upholsterer uses several kinds of tools including: upholstery needles, knives, screwdrivers, special pliers, wrenches, stretchers, tack hammers, mallets and measuring tapes.
- An Upholsterer also uses heavy duty sewing machines and sergers.



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D OCCUPATIONS:

/Dry Cleaning Worker (4464)
Machine Operator (4448)
pairer (4496)
.446)

ATION AND TRAINING:

Upholsterers learn their trade on the job over a period of years.
Upholsterers apprenticeship programs available.
High school education is an advantage, but not required.
Training in upholstering at a vocational school would be very helpful.

L HIGH SCHOOL SUBJECTS:

Math Education
Textile/Leather/Upholstery

MS OF STUDY AND TRAINING:

Upholstering
Apprenticeship

S OF ADDITIONAL INFORMATION:

National Outlook Handbook
1990 Edition
(30-431)



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Phone (515) 281-5100

URBAN PLANNER

Urban planners provide programs to provide for future growth and the development of urban communities.

2315
199.167-014
11.03
192
12-Natural Resources & Environment (F)
14-Public Service (S)
Environmental Planning (F)
Government (S)

PERSONAL APTITUDES:

Urban planners will be able to learn principles of sociology, economics, and environmental studies as well as the problems and conflicts in related areas.

Ability to gain information by reading and listening, as well as clear, easily understood and convincing information will be important in this occupation.

An Urban Planner will be able to use math in budget planning, cost accounting and similar activities.

An Urban Planner will be able to picture how the finished product will look and also picture the effect on the people and land involved.

Ability to see very small differences in three dimensional objects and to distinguish between two-dimensional materials will be important in this occupation.

- An ability to pay attention to detail in written information will be important in this occupation.
- An Urban Planner will be able to use fingers to use writing instruments for charts, model making and calculations.
- An Urban Planner will be able to change from task to task many times in one day.
- An ability to work patiently with all kinds of people in various situations will be important in this occupation.
- An Urban Planner will be able to make decisions based on facts.
- An interest in working in scientific or technical work involving information, business contacts and a chance to earn money will help in this occupation.
- With employer assistance, some physical requirements such as changes to the work site or equipment.

OCCUPATION PROFILE:

- Urban Planners try to remedy problems such as declining property values and residential areas, limited park and recreation facilities and air pollution.
- The Urban Planner examines community facilities such as clinics and schools to be sure that these facilities can meet the demands placed upon them.
- Urban Planners keep informed of the legal issues which affect community development and changes in housing and building codes.



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With more experience, Urban Planners may advance to assignments of greater responsibility which demand a high degree of independent judgment.
They may also advance to planning director positions and do more supervisory work than actual planning activities.

Advancement usually comes in the form of a move to a larger city where the problems are more complex and the responsibilities are

- It is possible to enter the planning field with a Bachelor's degree in Architecture, Sociology or related fields.
- Candidates for Urban Planner jobs in government agencies must pass a Civil Service examination in order to become eligible for the position.

HELPFUL HIGH SCHOOL SUBJECTS:

- Language
 - Language Skills
- Social Studies
 - Government
 - Sociology

PROGRAMS OF STUDY AND TRAINING:

- 1301 - Renewable Natural Resources, General
- 1502 - Architecture
- 1503 - City, Community and Regional Planning
- 1506 - Landscape Architecture

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (109-111)

RELATED OCCUPATIONS:

includes military occupations.

ADDITIONAL OCCUPATIONS:

- Architect (2316)
- Engineer (2428)
- Interior Designer (2426)
- Industrial Designer (2375)
- Administrator/Official (1138)
- Urban Planner (2421)

EDUCATION AND TRAINING:

Employers often seek workers who have advanced training in urban planning. Two years of graduate study in urban planning or the equivalent in work experience are required for most entry jobs in state and local government agencies.

People with Bachelor's degrees in Urban Planning may qualify for supervisory planning positions.



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VEHICLE DISPATCHER

Coordinates the activities of taxicab, truck, bus or other transport vehicles in response to requests for such services.

1426

249.167-014

07.05

4751

2-Business & Office (F)

15-Transportation (S)

Secretarial & Clerical (F)

Highway Transportation (S)

IB
ES

PERSONAL APTITUDES:

The Vehicle Dispatcher will be able to learn the business routine and number and use of vehicles involved.

The ability to follow both written and spoken instructions as well as give directions, especially by speaking, will be important.

The Vehicle Dispatcher will be able to pay attention to detail in written reports in order to avoid or correct errors.

The ability to hear as well as sit for long periods of time will be important in this occupation.

The Vehicle Dispatcher will be able to change from task to task quickly and efficiently in one day.

The ability to plan and direct the activities of others will be important in this occupation.

- A Vehicle Dispatcher will be able to work courteously and cooperatively with all kinds of people in many different situations.
- An interest in work involving the sharing of data, business information with people and a chance to gain the respect of others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- The Vehicle Dispatcher compiles a list of available vehicles.
- The Vehicle Dispatcher assigns vehicles according to facility length and purpose of the trip, freight or passenger's needs of users.
- A Vehicle Dispatcher issues keys, record sheets and credentials to drivers.
- The Vehicle Dispatcher records time of departure, destination and the expected time of return.
- Vehicle Dispatchers may maintain a record of mileage, fuel, repairs made and other expenses.
- The Vehicle Dispatcher may establish service or delivery routes.
- A Vehicle Dispatcher may supervise loading and unloading of vehicles.
- The Vehicle Dispatcher may issue equipment, such as hand trucks, dollies and blankets, to drivers.
- A Vehicle Dispatcher may assign helpers to drivers.



OCCUPATIONAL BRIEFS

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Grimes State Office
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Phone (515) 281-5

OBJECTIVES OF STUDY AND TRAINING:

Transportation Management

OBJECTIVES OF ADDITIONAL INFORMATION:

For Occupational Exploration
Information
(515-281-6346)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
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Phone (515) 281-6100

VENDING MACHINE REPAIRER

power tools and hand tools to assemble, install and service vending machines.

3172

639.281-014

05.10

6179

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Machine Maintenance (F)

Machine Maintenance (S)

IB
ES

GENERAL APTITUDES:

A Vending Machine Repairer will be able to learn the basics of the operation and repairs of the vending machines as well as the route to service them.

The ability to picture how the whole machine works will be important in diagnosing problems.

A Vending Machine Repairer will be able to see small differences in shape when comparing three dimensional objects.

The ability to reach, stoop and see as well as lift up to 50 pounds will be important in this occupation.

A Vending Machine Repairer will be able to change from one task to another many times in one day.

The ability to make decisions based on measurable fact will be important in this occupation.

- A Vending Machine Repairer will be able to complete tasks to a set standard.
- An interest in work using machines and processes involving things that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Vending Machine Repairer assembles machines following manufacturer instructions.
- The Vending Machine Repairer fills the machines with products such as gum, candy, pop or other coin operated machine merchandise.
- Vending Machine Repairers work on many different models of vending machines.
- A Vending Machine Repairer must learn about new vending machines as well as remember everything about the older ones.
- A Vending Machine Repairer may have the opportunity to specialize in servicing only a few types or brands of vending machines.
- The Vending Machine Repairer must understand and be able to repair refrigeration units and microwave ovens as well as electrical wires, lights and other broken parts.
- Vending Machine Repairers discover troubles in machines while making routine deliveries and coin collections for service companies.



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Phone (515) 281-6

RELATIONSHIP TO HIGH SCHOOL SUBJECTS:

General Education
Automotive Repair/Small Engine Repair
Product Services
Applications of Technology

REQUIREMENTS OF STUDY AND TRAINING:

Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

Occupational Outlook Handbook
1980 Edition
(OS 73-375)



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5000

VETERINARIAN

Diagnoses, treats and controls diseases and disorders among animals.

8132
073.101-010
02.03
27
6-Health (F)
1-Agriculture/Agri-Business (S)
Doctor (F)
Service & Supply (S)

ESSENTIAL ABILITIES:

A veterinarian will be able to learn the anatomy, diseases and disorders of animals, including knowledge of chemistry, biology and sciences.

The ability to understand and use technical information and be able to explain this information so others will understand will be important in this occupation.

A veterinarian will be able to use math as well as the basic formulas and concepts by chemistry and other sciences.

A veterinarian will be able to picture a complicated system, as the internal system of an animal, and picture the role of each part of the system.

A veterinarian will be able to see very small differences in size, weight and color when comparing three-dimensional and two-dimensional objects.

- An ability to pay attention to detail in written work to avoid and correct errors will be important in this occupation.
- An ability to use eyes, hands and fingers together in the way planned while handling delicate instruments and materials will be important in this occupation.
- An ability to reach and see as well as lift loads up to 50 pounds will be important in this occupation.
- A Veterinarian will be able to change from task to task during the day.
- An ability to work with all kinds of people in many different situations will be important in this occupation.
- A Veterinarian will be able to make decisions based on scientific information.
- A Veterinarian will be able to complete tasks to meet a schedule.
- An interest in scientific work that will help people will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- Veterinarians diagnose and treat diseases and disorders of animals.
- A Veterinarian needs to keep up to date on any new developments in the veterinary medicine field.
- Veterinarians determine the nature of the disease or injury of the animal with surgical techniques or with medication.



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terinarians begin as employees or partners in established s. A few start their own practice as soon as they complete /eterinarians may also be employed by private companies or or state government.

rians may advance to ownership of more successful prac- supervisory positions in business or government, or to re- r teaching positions.

RY OCCUPATIONS:

rians (81320) See Veterinarians page 282 in the Military Guide 1988-1989.

D OCCUPATIONS:

- Caretaker (4174)
- mental Health Assistant (8157)
- ty/College Teacher (8454)
- Conservation Aide (4134)

ATION AND TRAINING:

rians must be licensed to practice in all states and the of Columbia. To obtain a license, in Iowa, applicants must be ate of an accredited or approved college of veterinary medicine lder of of a certificate granted by the Educational Commis- Foreign Veterinary Graduates. They must also pass a state amination, a National Board Examination, and a Clinical ncy Test prepared by the Professional Examination Service ved by the Veterinary Board.

- In Iowa, these exams are given in May and December i with the state veterinary examination. Both exams mus before the applicant can be granted a license in the Stat
- Licenses are issued for a three-year period from July 1 the third year. Renewal fee for the three year license is
- Reciprocity (recognition of other state's degrees) can be for licensed practicing Veterinarians with 5 years exper other states at the discretion of the Iowa Board of Veter iners.
- A Master's or Ph.D. degree is usually required for resear teaching in Pathology, Physiology or Bacteriology.
- Minimum requirements for the Doctor of Veterinary Me are two years of pre-veterinary college work followed by study in a college of veterinary medicine. However, bec petition for admission to Veterinary Medicine programs preprofessional time in college exceeds three years.

HELPFUL HIGH SCHOOL SUBJECTS:

- Science
 - Biological Sciences
 - Chemistry
- Math
 - Algebra & Geometry
- Language
 - Language Skills
 - Composition



OCCUPATIONAL BRIEFS

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Phone (515) 281-6300

DISPLAY ARTIST

A display artist draws the design, builds the props, arranges the merchandise, places the price signs and adjusts the lights.

2372
298.081-010
01.02
322
11-Marketing & Distribution (F)
11-Marketing & Distribution (S)
Public Relations & Advertising (F)
Public Relations & Advertising (S)

PERSONAL APTITUDES:

A Display Artist will be able to learn and use the principles of color and display.

The ability to understand written information and present that information by color and shape will be important in this occupation.

A Display Artist will be able to use math for measuring and determining the materials needed.

The ability to see small differences in form, shape and line will be important in this occupation.

A Display Artist will be able to use hands to handle medium-sized objects.

The ability to tell one color from another as well as know how to use color to affect mood and feeling will be important in this occupation.

- A Visual Display Artist will be able to stoop, reach, see and handle loads up to 25 pounds and sometimes lift up to 50 pounds.
- A Visual Display Artist will be able to change attitudes and influence people by the way the products are displayed.
- An ability to make decisions based on experience, personal judgment and the feelings of others will be important in this occupation.
- An interest in working with things and original ideas for a new product that can be seen and touched will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Visual Display Artist plans and puts together display merchandise in a way that will get people's attention and them to buy the merchandise.
- Visual Display Artists may meet regularly with the manager, buyer, the department heads and the fashion coordinator to help decide on a theme and a schedule for the displays.
- The Visual Display Artist may dress mannequins for use in the store.
- Visual Display Artists arrange mannequins, furniture, lighting, descriptive signs and backdrop according to plans.
- A Visual Display Artist uses all types of materials such as paper, plastic, metal, paint and glue.



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EDUCATION AND TRAINING:

High school graduation is preferred.
Additional technical training in art, design and decorating would be helpful.
Experience and or training in marketing will be helpful in this position.
An individual can usually become skilled in one to two years.

RELEVANT HIGH SCHOOL SUBJECTS:

- Art
- Business Education
- General Merchandise & Marketing
- Mathematics
- Physical Education
- Commercial Art/Graphic Art/Photography

RELEVANT COURSES OF STUDY AND TRAINING:

- Art
- Floriculture
- Fashion Merchandising
- Home Economics General
- Textiles and Clothing
- Home Furnishings Design and Management
- Visual Arts, General

SOURCES OF ADDITIONAL INFORMATION:



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Des Moines, IA 50319
Phone (515) 281-6100

WAITRESS

the customer's food order, serves the food and totals the check.

7854

311.477-026/030

09.04

5213

8-Hospitality & Recreation (F)

8-Hospitality & Recreation (S)

Food Services (F)

Food Services (S)

ADDITIONAL APTITUDES:

Waitress will be able to quickly learn the routine of order and serving.

In this occupation, it will be important to understand the customer's order and write clearly so that others can read your order.

It is important to use simple math without errors and add up bills for customers.

Ability to carry both large and small items, will be part of the duties. Ability to carry 10-20 pound loads will be important in this occupation.

Working in a team will help in this occupation.

Waitress will be able to be courteous to both pleasant and impatient people.

- An interest in working where you know the same tasks expected every day will help.
- A Waiter/Waitress will be able to work as part of a team.
- With employer assistance, some physical requirements through changes to the work site or equipment.

OCCUPATION PROFILE:

- Waiters/Waitresses work in many kinds of eating places: lunchrooms, large night clubs, educational institutions, drugstores, hotels and other institutions.
- The Waiter/Waitress presents a menu to the diner, suggests courses and appropriates wine and answers questions re preparation.
- A Waiter/Waitress should be familiar with the menus and prices.
- The Waiter/Waitress writes the order on a check or menu.
- The Waiter/Waitress observes diners to fulfill any additional requests.
- The Waiter/Waitress totals bills and accepts payment or passes it to the cashier.
- The Waiter/Waitress may carve meat, prepare flaming salads or ladle soups at the diner's table.
- Waiters/Waitresses must be able to serve food properly, and quickly.



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EDUCATION AND TRAINING:

There are no specific educational requirements for this work.
Employers prefer people who have had two or three years of school.
Jobs which include the serving of alcoholic beverages can only be held by those 19 or older.
Economics courses are offered by some public and private schools to help train Waiters/Waitresses.
Retail counter workers or carhops are good preparation.
Restaurants often hire high school students to work in dining rooms if they have some background in serving food.

RELEVANT HIGH SCHOOL SUBJECTS:

- Basic Math Skills
- Economics
- Consumer & Homemaking
- Vocational Education
- Services
- Physical Education
- Quantity Food

REQUIREMENTS OF STUDY AND TRAINING:

On-the-job training for this occupation is generally received on the job.

SOURCES OF ADDITIONAL INFORMATION

- National Institute for the Food Service Industry
20 North Wacker Drive, Suite 2620
Chicago, IL 60606
- The Culinary Institute of America
Hyde Park
New York, NY 12538
- Occupational Outlook Handbook
1986-87 edition
pages (310-311)



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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-5100

WARD CLERK
acts as a receptionist and performs various clerical duties for the nursing staff.

1436
245.362-014
07.05
463
2-Business & Office (F)
6-Health (S)
Secretarial & Clerical (F)
Health Care Administration (S)

- An ability to reach and hear as well as lift up to 10 pounds is important in this occupation.
- A Ward Clerk will be able to change from one task to another several times in one day.
- A Ward Clerk will be able to complete tasks to meet a schedule.
- An interest in work involving sharing information in business with people will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

GENERAL APTITUDES:

Ward Clerk will be able to learn the routine of the hospital or nursing home.

Ability to understand and follow both written and spoken directions will be important in this occupation.

Ward Clerk will be able to use basic math for keeping the hours of staff, inventory of supplies and other record keeping.

Ability to see small differences in size and shape in pictorial material will be important in this occupation.

Ward Clerk will be able to pay attention to detail in written material to avoid or correct errors.

Ability to use eyes, hands and fingers together to handle materials and equipment will be important in this occupation.

OCCUPATION PROFILE:

- Ward Clerks are generally in charge of the records kept in which you are working.
- The Ward Clerk must make sure that these records are accurate.
- A Ward Clerk also acts as a receptionist, greeting patients, hospital personnel and answering questions.
- The Ward Clerk may also answer the phone and receive messages.
- Ward Clerks distribute mail, newspapers and flowers to patients.
- The Ward Clerk may keep a record of attendance of unit patients.
- A Ward Clerk also helps admit patients into the hospital.
- The Ward Clerk may be in charge of ordering and maintaining the supply of medicines for their ward.



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SOURCES OF ADDITIONAL INFORMATION:

American Health Care Association
1100 14th Street
Washington, DC 20009

American Hospital Association
535 North Dearborn Lake Shore Drive
Chicago, IL 60611

Health Council
100 West 34th Ave 34th Floor
New York, NY 10017 6765



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Phone (515) 281-6000

WASTEWATER PLANT OPERATOR

Wastewater treatment plant equipment which reduces pollution of wastewater before it enters rivers or streams.

5946
955.362-010
05.06
691
12-Natural Resources & Environment (F)
14-Public Service (S)
Pollution Prevention & Control (F)
Government (S)

PERSONAL APTITUDES:

- Wastewater Plant Operator will be able to learn the principles of wastewater treatment as well as the operation of the equipment.
- Ability to understand technical information and use the technical information in speaking and writing will be important in this occupation.
- Wastewater Plant Operator will be able to use math for record keeping, reading and checking gauges.
- Ability to picture how the whole system works and how each part fits together will be important in this occupation.
- Wastewater Plant Operator will be able to see small differences in color and shape.
- Ability to pay attention to detail in written information to avoid transcription errors will be important in this occupation.

- A Wastewater Plant Operator will be able to use eyes, ears and fingers together to operate equipment and make minor adjustments.
- An ability to reach, hear and see as well as lift loads up to 50 pounds will be important in this occupation.
- A Wastewater Plant Operator will be able to change from one task to another quickly.
- The ability to make decisions based on measurable facts will be important in this occupation.
- A Wastewater Plant Operator will be able to complete tasks to a set standard.
- An interest in working with things that use machines and machinery that are repeated will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Wastewater Plant Operator runs equipment which controls pollution in wastewater before it enters rivers.
- A Wastewater Plant Operator should keep accurate records. This information is collected and used monthly in preparing reports to the state regulating agency.
- The Wastewater Plant Operator will have a variety of responsibilities depending upon the size of the plant.



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RELEVANT OCCUPATIONS:

Environmental Engineer (2428)
Plant Operator (5948)
Observationist (2644)
Process Control Engineer (5944)

EDUCATION AND TRAINING:

High school education or its equivalent is required.

Apprenticeship work with experienced workers for about six months to a year before they are qualified to run a wastewater treatment plant.

In about half of the states, including Iowa, have adapted mandatory licensing laws providing for the examination of operators and certification of their skill to supervise the operation of treatment plants.

The education and experience requirements in Iowa varies according to the different classifications of wastewater treatment plants.

- high school diploma or its equivalent plus one year of experience.

- high school education or its equivalent plus three years of experience.

- two years of post high school education plus four years of experience.

- four years of post high school education plus four years of experience plus one year of supervisory experience.

HELPFUL HIGH SCHOOL SUBJECTS:

- General courses leading to a high school diploma.

PROGRAMS OF STUDY AND TRAINING:

- 1301 - Renewable Natural Resource General
- 3220 - Environmental Control Technology
- 3224 - Water and Wastewater Technology
- 3236 - Laboratory Technology,
- 6802 - Biological Laboratory Technology
- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- Occupational Outlook Handbook
1986-87 edition
pages (434-435)



OCCUPATIONAL BRIEFS

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Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

JEWELRY REPAIRER

adjusts and repairs all types of timing devices, pairs or reshapes jewelry such as rings and neck-

3184

715.281-010

06.01

6171

9-Maintenance & Repair (F)

9-Maintenance & Repair (S)

Clothing Maintenance (F)

Clothing Maintenance (S)

IB
ES

GENERAL APTITUDES:

Jewelry Repairer will be able to learn the principles of both mechanical and electronic watch as well as the repair methods for

Jewelry Repairer will be able to understand written, spoken and printed instructions.

Ability to use math to estimate materials needed and for basic measuring will be important in this occupation.

Jewelry Repairer will be able to picture objects, their relationships to other objects and the space they use.

Ability to see very small differences in size, shape and line when measuring three-dimensional objects will be important in this occupation.

- The ability to use eyes, hands and especially fingers together with tools and materials in exactly the same way planned will be important in this occupation.
- A Watch/Jewelry Repairer will be able to reach and see for long periods of time.
- An ability to make decisions based on measurable facts will be important in this occupation.
- A Watch/Jewelry Repairer will be able to complete tasks to a set standard.
- An interest in working with things, using processes and tools will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Watch/Jewelry Repairer should be able to polish, cast and repair all types of jewelry.
- A Watch/Jewelry Repairer may find a knowledge of the properties of precious metals helpful.
- A Watch/Jewelry Repairer will need to identify precious metals.
- A Watch/Jewelry Repairer should be familiar with the uses and equipment of the trade.
- The Watch/Jewelry Repairer cleans and fixes instruments, watches, timeclocks, and time-switches.



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RELEVANT OCCUPATIONS:

Selected military occupations.

RELATED OCCUPATIONS:

- Electrician (1634)
- Electronics Technician (2461)
- Instrument Repairer (3188)
- Instrument Technician (7454)

EDUCATION AND TRAINING:

High school education or its equivalent is recommended, but not a requirement.

Repairing is usually learned as an apprentice working under an experienced watchmaker in retail stores.

Apprenticeship takes three years in Iowa.

Manufacturing establishments in the major production centers of New York and California offer the best opportunities for a person to acquire all-around skills. The manufacturers accept a number of trainees.

Watch repair schools offer programs lasting from 18-24 months depending on whether you enroll full-time or part-time. A portion of training time is spent in taking apart and reassembling watches, replacing defective parts, and learning how to use repairing machines.

HELPFUL HIGH SCHOOL SUBJECTS:

General courses leading to a high school diploma.

PROGRAMS OF STUDY AND TRAINING:

- 9001 - Apprenticeship

SOURCES OF ADDITIONAL INFORMATION:

- American Watchmakers Institute
3700 Harrison Avenue
Cincinnati, OH 45211



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new metal products or repairs old ones by joining
of metal using great heat or pressure.

5492

819.361-010

05.05

7714

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

IB
ES

AL APTITUDES:

will be able to learn the characteristics of the metals used
s the methods of welding.

y to follow written and spoken instructions will be important
cupation.

r will be able to use math and shop geometry to figure
needed and dimensions to be followed.

r will be able to picture what the finished product will look
the steps needed to finish the work.

ty to see very small differences in size, shape and line will be
t in this occupation.

r will be able to use eyes, fingers and especially hands
to handle materials and tools in the exact way planned.

- An ability to climb, reach and see as well as lift up to 100 lbs. will be important in this occupation.
- A Welder will be able to make decisions based on measurements.
- A Welder will be able to complete tasks to meet a set standard.
- An interest in working with things using machines and tools will be helpful in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Welder joins two pieces together, usually metal, by melting them together.
- A Welder controls the melting of the metal surfaces by controlling the heat to the edges.
- Welders use an electric arc or a gas welding torch.
- An Arc Welder creates heat as electricity flows across a gap between the top of the welding electrode (welding rods) to the metal.
- A Gas Welder melts the metal with heat from the combustion of burning gases.
- A Welder adds filler metal wherever it is needed to complete the joint.
- A Welder must be able to plan and lay out the work.
- The Welder uses drawings, blueprints and other written instructions.



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EDUCATION AND TRAINING:

High school diploma or its equivalent is recommended.

Workers can be trained on the job, but many employers prefer people who have had vocational training in welding.

Many industries offer apprenticeship programs which last about four years.

Apprentices may be required to pass certification exams.

Washington, D.C. 20036

- Occupational Outlook Handbook
1986-87 edition
pages (446-448)

RECOMMENDED HIGH SCHOOL SUBJECTS:

Basic Math Skills
Science
Mechanics
Physical Education
Manufacturing
Metalworking

COURSES OF STUDY AND TRAINING:

Welding, Brazing and Soldering

SOURCES OF ADDITIONAL INFORMATION:

1. American Welding Society, Inc.
500 N. Le Juene Road P. O. Box 351040
Tulsa, OK 74113

2. National Assn of Machinists and Aerospace Workers
1000 Connecticut Avenue, N.W.



OCCUPATIONAL BRIEFS

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Phone (515) 281-5100

WELFARE AIDE

People with financial problems with their applications for special assistance.

8428

195.267-010

07.01

4784

2-Business & Office (F)

14-Public Service (S)

Secretarial & Clerical (F)

Legal & Social Services (S)

B
ES

PERSONAL APTITUDES:

The Welfare Aide will be able to learn the regulations concerning the rules and programs as well as learn some principles of human behavior.

The Welfare Aide will be able to listen and gain information from others, spoken or written, as well as present information that is not easily misunderstood. This ability will be important in this occupation.

The Welfare Aide will be able to use math for record keeping and administrative procedures.

The Welfare Aide will be able to pay attention to detail in written information will be important in this occupation.

The Welfare Aide will be able to hear as well as sit for long periods of time will be important in this occupation.

- A Welfare Aide will be able to work patiently and courteously with all kinds of people in many different situations.
- A Welfare Aide will be able to make decisions based on sound judgment and measurable facts.
- An interest in work sharing information and being helpful will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Welfare Aide works under the supervision of a Social Worker.
- The Welfare Aide works with individuals and families receiving the assistance of a social service agency.
- The Welfare Aide interviews people who apply for and provide information to receive financial aid from the agency.
- A Welfare Aide explains the services the agency provides to the client.
- The Welfare Aide helps people fill out application forms and information forms that will be used by agency personnel to determine need for aid.
- A Welfare Aide makes referrals to other agencies and services that would better address the needs of the person.
- The Welfare Aide may validate information and gather secondary data.



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COURSES OF STUDY AND TRAINING:

Family and Community Services
Psychology, General
Social Work
Sociology

SOURCES OF ADDITIONAL INFORMATION:

Job Information Center
Des Moines, IA 50309



OCCUPATIONAL BRIEFS

Career Information System
Iowa Dept. Of Education
Grimes State Office
Des Moines, IA 50319
Phone (515) 281-6100

WHOLESALE/RETAIL BUYER

Wholesale/Retail Buyer purchases merchandise or commodities for resale, checks quality and prices to determine their value and potential yield.

1181

162.157-018

08.01

1442

11-Marketing & Distribution (F)

11-Marketing & Distribution (S)

Buying & Selling (F)

Buying & Selling (S)

B
ES

PERSONAL APTITUDES:

Wholesale/Retail Buyer will be able to learn the products of suppliers, the methods for judging the quality of goods, and the value or popularity of goods with the customers.

Wholesale/Retail Buyer will be able to receive information from spoken and written sources, as well as the ability to ask questions and give clear, easily understood answers, will be important.

Wholesale/Retail Buyer will be able to use math to compute prices on merchandise and quote special rates on material purchases.

Wholesale/Retail Buyer will be able to see small differences in size and shape when comparing materials will be important in this occupation.

Wholesale/Retail Buyer will be able to pay attention to detail in order to obtain information to avoid or correct errors.

- An ability to reach, hear and see as well as lift 20 pounds up to 10 pounds will be important in this occupation.
- A Wholesale/Retail Buyer will be able to change from task to task many times in one day.
- A Wholesale/Retail Buyer will be able to plan and direct the work of others.
- An ability to work with all kinds of people, often affecting attitudes and ideas by words or actions, will be important in this occupation.
- A Wholesale/Retail Buyer will be able to make decisions based on past experience.
- An interest in technical work involving business contacts and a chance to earn the respect of others will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Wholesale/Retail Buyer must know both the merchandise needs and wants of the customers.
- A Wholesale/Retail Buyer may start as a stock person or clerk and then be selected as a buyer trainee based on sales record.
- Wholesale/Retail Buyers inspect, grade or appraise durable goods such as apparel, furniture or other merchandise offered for sale.



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Department of Labor is expecting the employment of Wholesale/Retail Buyers to grow (1980-1990 period) at a rate of 6 to 17% compared to an average growth of 17 to 25% for all occupations. Wholesale stores increasingly rely on a centralized buying rate.

Competition is anticipated because merchandising attracts large numbers of college graduates.

As the competition is keen, there is always a demand for qualified people.

Advancement from trainee to Wholesale/Retail Buyer may be possible in 1 to 2 years or less.

KEY OCCUPATIONS:

Includes military related occupations.

RELEVANT OCCUPATIONS:

Wholesale Products Buyer (1183)
Sales Agent (1184)
Store Manager (1149)
Buyer (1162)

EDUCATION AND TRAINING:

High school education or its equivalent is necessary.

Work experience in sales work is essential, even part-time while in school.

Employers are placing increasing emphasis on college training.

- Community college or vocational school training in retail marketing is strongly recommended.
- Applicants with less than some college education usually advance way up from a sales position. Those with post-high school education may enter the profession through the store's formal training program.
- Retail sales experience would help an applicant.

HELPFUL HIGH SCHOOL SUBJECTS:

Language

- Language Skills

Math

- Basic Math Skills

Distributive Education

- General Merchandising and Marketing

PROGRAMS OF STUDY AND TRAINING:

- 1217 - Food Science
- 1811 - Hotel/Motel Management
- 1825 - Marketing Management
- 2002 - Fashion Merchandising
- 2023 - Food Marketing
- 2031 - International Marketing
- 2033 - Retailing
- 2035 - Wholesaling
- 3701 - Home Economics, General



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WILDLIFE/CONSERVATION AIDE

Plans, manages and promotes the conservation of natural resources, land, water, air, and animal life.

4134

379.267-010

03.01

5149

12-Natural Resources & Environment (F)

14-Public Service (S)

Resource Regulation & Control (F)

Government (S)

B
ES

GENERAL APTITUDES:

Wildlife/Conservation Aide will be able to learn conservation methods, wildlife management principles and state laws covering conservation and game.

Ability to understand instructions, regulations and other information on both written and spoken will be important in this occupation. Presenting information to others both by speaking and writing will be important in this occupation.

Ability to use basic math for record keeping and wildlife inventory will be important.

Ability to see small differences in size, shape and line when comparing objects will be important in this occupation.

Wildlife/Conservation Aide will be able to use eyes, hands and feet together to handle equipment and delicate objects.

- A Wildlife/Conservation Aide will be able to stoop, reach, bend, and lift as well as lift up to 50 pounds.
- The ability to change from task to task many times in one day will be important in this occupation.
- A Wildlife/Conservation Aide will be able to work with a variety of people in many different situations.
- An ability to work in spite of the stress of some dangerous situations, animals or unpleasant situations during enforcement of laws will be important in this occupation.
- A Wildlife/Conservation Aide will be able to make decisions based on a measurable fact.
- An interest in work involving business contact with people and helpful to others will be important in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Wildlife/Conservation Aide may work in one of the following specialties: Wildlife Management, Wildlife Research, Wildlife Education, Wildlife Law Enforcement or Wildlife Law Enforcement.
- A Wildlife/Conservation Aide performs many different tasks in the management of fisheries, wildlife research areas and forests.
- A Wildlife/Conservation Aide may help build the habitat and plantings on state game areas.



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Phone (515) 281-5400

OCCUPATIONAL BRIEFS

WOODWORKING MACHINE OPERATOR

From blueprints, operates and maintains a machine to produce smooth surfaces, cut and join lumber.

4555

669.380-014

05.05

6832

10-Manufacturing (F)

10-Manufacturing (S)

Assembly & Production (F)

Assembly & Production (S)

PERSONAL APTITUDES:

A Woodworking Machine Operator will be able to learn the characteristics of the woods used, the operation of the machines and the process of production.

A Woodworking Machine Operator will be able to use math and shop geometry to figure amounts needed and decisions to be followed will be important.

A Woodworking Machine Operator will be able to read blueprints and draw and picture the item to be produced or repaired.

A Woodworking Machine Operator will be able to see small differences in size, shape and line when measuring objects will be important.

A Woodworking Machine Operator will be able to use eyes, hands and feet together to operate the machines safely and in the way

- An ability to reach and see as well as lift up to 50 pounds is important in this occupation.
- A Woodworking Machine Operator will be able to change tasks many times in one day.
- An ability to make decisions based on measurable facts is important in this occupation.
- A Woodworking Machine Operator will be able to complete a task to meet a set standard.
- An interest in working with things, processes and machinery is important in this occupation.
- With employer assistance, some physical requirements can be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Woodworking Machine Operator examines blueprints, work orders and patterns to determine the size and shape of the product.
- The Woodworking Machine Operator sets up and installs necessary machines, saws, knives and hand tools.
- A Woodworking Machine Operator runs woodworking machines to produce smooth surfaces, cut to size and join lumber. The machine produces grooves, angles (bevels), beaded rims or molding patterns.
- A Woodworking Machine Operator must choose the attachment and will do one of these functions and then attach it to the machine.



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WORD PROCESSING OPERATOR

Word processing involves routine typing, transcription, typesetting and editing of documents from dictation or rough drafts.

1462
203.582-034
07.06
4793
2-Business & Office (F)
2-Business & Office (S)
Data Processing (F)
Data Processing (S)

PERSONAL APTITUDES:

A Word Processing Operator will be able to learn and use the operation of operating word processors using various types of software programs.

The ability to understand words and ideas and their relationship through reading and proofreading will be important in this occupation.

The ability to picture what the printed page will look like before it's printed will be important to set up letters and reports in proper form.

A Word Processing Operator will be able to see slight differences in spacing and spaces.

The ability to use eyes, hands and fingers rapidly together to make precise movements will be important in this occupation.

The ability to do work that is done in the same way each day will help in this occupation.

- A Word Processing Operator will be able to sit most of the day and lift 10 pounds.
- An ability to make decisions using measurable facts will be important in this occupation.
- A Word Processing Operator will be able to do tasks to the standard.
- An interest in work that repeats each day and uses machine processes will help in this occupation.
- With employer assistance, some physical requirements may be met through changes to the work site or equipment.

OCCUPATION PROFILE:

- A Word Processing Operator will be able to operate a word processor or micro-computer to type a proof copy and produce additional copies after correction.
- Word Processing Operators set up margins, spacing and format for the copy form.
- The Word Processing Operator proofs the typewritten copy and returns it to the author for proofing.
- The Word Processing Operator corrects the proofed copy and at the same time sets up the corrections on the magnetic tape or disk.
- A Word Processing Operator makes final copies from corrected copy.
- The Word Processing Operator may make a number of final copies by combining two tapes.



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