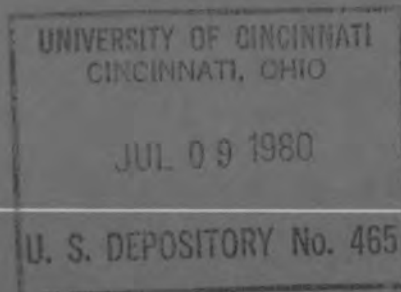


L 2.2:J 57/8/980

769

# Jobs for Which You Can Qualify If You're a High School Graduate

U. S. Department of Labor  
Bureau of Labor Statistics  
May 1980



# Jobs for Which You Can Qualify If You're a High School Graduate

Whether you're looking for your first job or planning to change careers, as a high school graduate you have a wide variety of occupations from which to choose. Your diploma qualifies you for jobs such as correction officer, physical therapist aide, automobile sales worker, and locomotive engineer. With some specialized training, you can become a computer operator, chef, or real estate sales worker. Or you can learn a trade either on the job or through an apprenticeship program and become a machinist, lithographer, plumber, or other skilled worker.

This pamphlet contains a list of occupations—selected from the 1980-81 *Occupational Outlook Handbook* of the Bureau of Labor Statistics—that are open to high school graduates. It highlights the qualifications needed for each.

These summaries cannot provide all the information you need, however. Details on the content of an apprenticeship or other training program are omitted. So too is information on special talents, aptitudes, or interests a job may require. For more information about an occupation, look in the *Occupational Outlook Handbook*. It describes the nature of the work, working conditions, places of employment, job qualifications and advancement prospects, employment outlook, and earnings for hundreds of occupations. It also lists related occupations and other helpful sources of career information.

The *Handbook* is available in offices of school guidance counselors and employment counselors and in school and public libraries. Or it may be purchased for \$8 by check or money order from the nearest regional office of the Bureau of Labor Statistics. A list of offices and their addresses appears at the back of this pamphlet.

Reprints from the *Handbook* also are available, each containing information about several related occupations. At the end of this pamphlet is a list of reprints along with an order form that includes information on prices.

This pamphlet is one in a series of five prepared by the Bureau of Labor Statistics. Each pamphlet discusses a group of occupations for which a particular

educational or training background is applicable. The other titles in the series are: *Jobs for Which You Can Train Through Apprenticeship*; *Jobs for Which You Can Qualify If You're Not a High School Graduate*; *Jobs for Which You Probably Will Need Some College or Specialized Training*; and *Jobs for Which You Probably Will Need a College Education*.

## Industrial Production and Related Occupations

### Foundry Occupations

**Patternmakers.** A 5-year apprenticeship is considered the best way to learn this trade. Vocational school courses in patternmaking, metalworking, and machining may be credited toward completion of the apprenticeship. Because of the precise skills needed, apprenticeships for wood and metal patternmaking are separate. A high school diploma generally is required.

**Molders.** Completion of a 4-year apprenticeship is the recommended way to learn skilled hand molding. Workers who have this training also are preferred for some kinds of machine molding. Less skilled hand molding jobs can be learned on the job in 2 to 6 months. An eighth grade education usually is the minimum requirement for apprenticeship; however, many employers prefer high school graduates.

**Coremakers.** Completion of a 4-year apprenticeship is the recommended way to learn skilled hand coremaking. Workers with this training also are preferred for the more difficult machine coremaking jobs. Although the minimum requirement for apprenticeships is an eighth grade education, most employers prefer high school graduates. Inexperienced workers may learn less skilled coremaking on the job.

### Machining Occupations

**All-round machinists.** A 4-year apprenticeship is the best way to learn the trade; however, some companies have training programs that require less than 4 years for machinists who specialize in one type of product or



machine. Many machinists learn their skills on the job. A high school diploma is strongly recommended.

*Instrument makers (mechanical).* Many instrument makers learn their trade through 4-year apprenticeships. Others advance from machinists or skilled machine tool operators after 1 or 2 years of shop experience. Employers generally prefer high school graduates, especially for apprenticeship programs.

*Machine tool operators.* These workers are classified as either semiskilled or skilled operators. Most are trained on the job. Semiskilled operators may learn their trade in just a few months, but skilled operators often require 1 to 2 years. Some companies have formal training programs for new employees.

*Setup workers (machine tools).* Setup workers usually must be all-round machinists. To make metal parts according to specifications, they must know how to operate more than one type of machine tool and be able to plan the sequence of a machining operation.

*Tool-and-die makers.* The best way to learn this trade is through a 4-year apprenticeship, but many workers learn in vocational school programs or on the job. Several years of experience often are required after completing an apprenticeship for more difficult tool-

and-die work. High school graduates are preferred for apprenticeships.

### **Printing Occupations**

*Compositors.* All-round compositors usually train through a 4-year apprenticeship program. The program may be shortened for apprentices with previous experience or schooling. Applicants for apprenticeships generally must be high school graduates. An increasing number of people learn their skills on the job by working as helpers for several years.

*Lithographers.* Although most lithographers learn their trade on the job by helping experienced lithographers, employers recommend a 4- or 5-year apprenticeship program. These programs, which may emphasize a specific craft such as camera operator or platemaker, attempt to introduce all lithographic operations. Applicants for apprenticeships usually must be high school graduates.

*Photoengravers.* Most photoengravers learn their skills through a 5-year apprenticeship program. Applicants for apprenticeships usually must be high school or vocational school graduates.

*Electrotypers and stereotypers.* Although a 4-year apprenticeship is the usual preparation for these trades, apprenticeships have not been available in the last several years due to the declining demand for electrotypers and stereotypers. Many experienced electrotypers and stereotypers are being retrained for other jobs.

*Printing press operators and assistants.* Apprenticeship is the recommended way to learn the trade. The program in commercial printing shops lasts 2 years for press assistants and 4 years for press operators. Applicants for apprenticeships usually must be high school graduates. Many workers learn their skills by working as helpers or press assistants, or by combining work experience and training in vocational schools.

*Bookbinders and bindery workers.* A 4- or 5-year apprenticeship is recommended for skilled bookbinders. Applicants for apprenticeships usually must be high school graduates. Because bindery workers may be less skilled than bookbinders, most learn their trade by working informally on the job from several months to 2 years. Some, however, complete formal apprenticeships.

### **Other Industrial Production and Related Occupations**

*Assemblers.* Training varies according to the level of skill required. Most inexperienced persons can be trained on the job in a few days or weeks, but, for some

types of complicated assembly work, training lasts much longer.

*Automobile painters.* Most of these workers acquire their skills by working for 3 to 4 years with experienced painters. A small number learn through a 3-year apprenticeship.

*Blacksmiths.* Many blacksmiths are trained by working as helpers in blacksmith shops or industrial firms that employ blacksmiths. Some enter through 3- or 4-year apprenticeship programs. Blacksmiths who shoe horses are called farriers. Most farriers learn their craft by assisting experienced workers. Others take a 3- or 4-week course in horseshoeing before gaining experience on their own or as a farrier's assistant. These courses are taught in several colleges, as well as at private horseshoeing schools. At least 3 to 5 years of special training or experience are needed to learn to shoe racehorses. Farriers who wish to work at racetracks must pass a licensing examination.

*Blue-collar worker supervisors.* Most workers who are promoted to blue-collar supervisor jobs are high school graduates who have risen through the ranks and learned their skills on the job. Supervisors sometimes are former union representatives who are familiar with grievance procedures and union contracts. To supplement work experience, most employers have training programs to help develop supervisory skills. Although few supervisors are college graduates, a growing number of employers are hiring supervisor trainees who have college backgrounds. This practice is most prevalent in industries with highly technical production processes, such as the chemical, oil, and electronics industries.

*Boilermaking occupations.* This group includes layout workers, fitters, and boilermakers. Most layout workers and fitters are hired as helpers and learn the craft by working with experienced employees for at least 2 years. Many boilermakers also learn their trade on the job, although most training authorities recommend a 4-year apprenticeship. For all three occupations, employers prefer high school or vocational school graduates.

*Boiler tenders.* Most learn their skills by working as helpers in boiler rooms. Some large cities and a few States require boiler tenders to be licensed. Applicants for a license must pass a written test.

*Electroplaters.* Most learn their trade on the job as helpers to experienced workers, but some learn through 3- or 4-year apprenticeship programs. Applicants for apprenticeships usually must be high school graduates.

A few take 1- or 2-year courses in electroplating at junior colleges, technical institutes, and vocational schools.

*Forge shop occupations.* Most workers learn these trades on the job. Generally, they start as helpers or heaters on hammer or press crews. Workers advance to more skilled occupations as they gain experience and as openings occur. Some forge shops offer 4-year apprenticeship programs for skilled jobs, such as die sinker and heat treater. High school graduation may be preferred for more skilled occupations.

*Inspectors (manufacturing).* Inspectors generally learn their skills on the job. Depending on the skill required, training may last from a few hours to several months. Some employers hire applicants who do not have a high school diploma but who have related experience.

*Millwrights.* Generally, these workers start as helpers and rotate from job to job for 6 to 8 years to acquire the necessary skills. Millwrights also are trained through 4-year apprenticeship programs.

*Motion picture projectionists.* Most motion picture theaters in urban areas are unionized and projectionists in these theaters must meet union membership requirements. Some union locals accept only persons who have experience running theater projectors. Other locals conduct training programs for inexperienced persons. In these programs, trainees work with a variety of projection equipment under the supervision of experienced projectionists and may take courses in basic electronics and mechanics. In a nonunion theater, a trainee may start as an usher or helper and learn the trade by working with an experienced projectionist. A high school diploma is preferred by employers and may be required by union locals. Experience acquired while serving in the Armed Forces is helpful. Local governments may require projectionists to be licensed.

*Ophthalmic laboratory technicians.* Most learn their skills on the job, but some learn through 3- or 4-year apprenticeship programs. Some technicians receive training while in the Armed Forces. Others attend community colleges or vocational or technical schools where they receive certificates, diplomas, or associate degrees in programs varying from 9 months to 3 years. Employers prefer high school graduates; applicants for apprenticeships usually must be graduates. Some states require technicians to be licensed. Applicants for a license must pass an examination.

*Photographic laboratory occupations.* Most photographic laboratory workers learn their skills through on-the-job training. Employers generally prefer high

## Office Occupations

school graduates. Applicants who specialize in a particular laboratory procedure are in training from a few weeks to several months. All-round technicians learn their trade in about 3 years.

*Power truck operators.* Newly hired operators usually are trained on the job. Most workers can learn how to operate a power truck in just a few days, but it may take several weeks to learn the physical layout and operation of a plant and the most efficient way of handling the materials to be moved. Some power truck manufacturers conduct short training courses for operators employed by their customers.

*Production painters.* New workers usually learn their skills on the job by helping experienced painters. Training may vary from a few days to several months.

*Stationary engineers.* Many start as helpers or oilers and acquire their skills informally during many years on the job. Technical or other training in vocational schools or home study can supplement this experience. A good background also can be obtained in the Navy or Merchant Marine. Most training authorities, however, recommend completion of a 4-year apprenticeship. Employers prefer to hire high school graduates. Many States and larger cities require stationary engineers to be licensed. Generally a stationary engineer may qualify for one of several classes of licenses—each specifying the steam pressure or horsepower of the equipment the engineer may operate. A high school diploma may be required for higher class licenses.

*Wastewater treatment plant operators (sewage plant operators).* Trainees usually start as helpers and learn their skills on the job. Some States require applicants to have at least a high school diploma or its equivalent. Some larger cities and towns which are covered by civil service regulations require applicants to pass examinations on elementary mathematics, mechanical aptitude, and general intelligence. In 42 States, operators who are supervisors or responsible for a plant's operation must pass an examination certifying that they are capable of overseeing treatment operations.

*Welders.* Training varies for the several levels of skill within this occupation. Less skilled jobs can be learned on the job in a few months, but a skilled welder generally needs several years of training and experience. Many large companies train their own welders. Many employers prefer to hire applicants who have high school or vocational training in welding for entry to skilled jobs. A few companies have apprenticeship programs. An employer or government agency may require welders to pass a qualifying examination for work where the strength of the weld is highly critical.

### Clerical Occupations

*Bookkeeping workers.* High school graduates who have taken business arithmetic, bookkeeping, and basic accounting meet the minimum requirements for most bookkeeping jobs. Some employers prefer applicants who have completed business courses at a junior college or business school and have had some work experience. General knowledge of how computers are used for bookkeeping transactions is very helpful, as is the ability to type and use various office machines. In a few States, a license is required to work on tax returns.

*Cashiers.* Many cashiers are trained on the job. In large firms, training often includes classroom instruction in the use of electronic or computerized cash registers and other phases of the job. Cashier training also is available in many public school vocational programs.

*Collection workers.* Newly hired workers are trained on the job. A high school diploma generally is required. Training also is available through the educational branch of the American Collectors' Association.

*File clerks.* Newly hired workers usually receive several weeks or months of on-the-job training. A high school diploma generally is required. Most employers seek applicants who can type and have some knowledge of office practices which can be learned in high schools, vocational schools, private business schools, and community and junior colleges. In addition, many States and localities sponsor programs that provide training in basic clerical skills.

*Hotel front office clerks.* High school graduation is the usual requirement for front office jobs. Newly hired workers generally are trained on the job as mail, information, or key clerks. Some clerks may need additional training in data processing and office machine operation. Most hotels fill front office jobs by promotion from within, so that a key or mail clerk may be promoted to room clerk, then to assistant front office manager, and eventually to front office manager.

*Office machine operators.* These workers generally are trained on the job. Training can range from a few days for duplicating machine operators to several weeks of training at a manufacturer's school for bookkeeping and billing machine operators. Employers prefer to hire high school or business school graduates.

*Postal clerks.* Applicants must be at least 18 except for high school graduates, who must be at least 16. Applicants must pass an examination for clerical accuracy and the ability to read, do simple arithmetic, and



memorize mail sorting systems. Applicants also must pass a physical examination and may have to show that they can handle mail sacks weighing up to 70 pounds. These workers are trained primarily on the job.

*Receptionists.* This occupation is a good choice for many persons without prior work experience. Receptionists are trained on the job. A high school diploma generally is required.

*Secretaries and stenographers.* High school graduation is the minimum requirement for practically all secretarial and stenographic positions. Many employers prefer to hire applicants who have had additional training at a public or private vocational school or in college. These courses range in length from several months' instruction for shorthand and typing to 1 or 2 years for specialized skills, such as legal or medical secretarial work. Employers generally test applicants to see that they meet minimum standards of typing and stenographic speed. Persons seeking a job as a shorthand reporter should transcribe 225 words per minute.

*Shipping and receiving clerks.* High school graduates are preferred for beginning jobs. Newly hired workers are trained on the job.



*Statistical clerks.* A high school diploma or its equivalent is required for most jobs. Newly hired workers are trained on the job. In some instances, individuals are hired as general office clerks before being promoted to statistical clerk.

*Stock clerks.* There are no specific educational requirements for beginning stock clerks, although employers prefer to hire high school graduates. Newly hired workers learn their skills on the job. Basic duties usually are learned in a few weeks. Stock clerks who handle jewelry, liquor, or drugs must be bonded (which requires good character references).

*Typists.* Employers generally prefer to hire high school graduates who can type at least 50-60 words per minute. Most typists learn their skills in high schools or take courses lasting several months at public or private vocational schools or at community or junior colleges.

### **Computer and Related Occupations**

*Computer operating personnel.* High school graduation is the minimum requirement for computer operating jobs such as keypunch operator, auxiliary equipment operator, and console operator. Many employers prefer console operators to have some community or junior college education. Beginners usually are trained on the job. Auxiliary equipment operators can learn their jobs in a few weeks, but console operators require several months of training before they are sufficiently familiar with the equipment to be able to trace the causes of breakdowns.

### **Banking Occupations**

*Bank clerks.* These workers are trained on the job and generally learn their skills in just a few days or weeks. A high school diploma definitely is preferred.

*Bank tellers.* These workers learn their skills on the job. Training may last from a few days to 3 weeks or longer. Generally, banks prefer to hire high school graduates who have some experience in office work.

### **Insurance Occupations**

*Claim representatives.* A growing number of insurance companies prefer to hire college graduates for positions as claim representatives (examiners and adjusters). College training is not always necessary, however. Persons experienced in automobile repair work might be hired as auto adjusters, and those who have had clerical experience might get jobs as inside adjusters. About three-fourths of the States require adjusters to be licensed. State licensing requirements vary, but applicants usually must complete an approved course in insurance or loss adjusting, and pass a written examination. They should be bonded which requires good

character references and should be at least 20 years old.

## Service Occupations

### Cleaning and Related Occupations

*Building custodians.* Most building custodians are trained on the job. Training in custodial skills is available through government training programs and labor unions.

*Hotel housekeepers and assistants.* Employers prefer to hire high school graduates. Experience or training in hotel housekeeping also is helpful in getting a job. Several colleges, junior colleges, and technical institutes have programs in hotel administration that include courses in housekeeping. The Educational Institute of the American Hotel and Motel Association offers courses for either classroom or home study.

*Pest controllers.* Most begin as helpers to experienced pest controllers and can do routine pest control work after 2 or 3 months of on-the-job training. Employers generally prefer to hire high school graduates who are licensed to drive.

### Food Service Occupations

*Bartenders.* Most bartenders learn their trade on the job. Experience as a bartender's helper, dining room attendant, waiter, or waitress is good training. Some schools offer short courses in bartending. Generally, bartenders must be at least 21 years old; some employers prefer persons who are 25 or older. Some States require bartenders to have health certificates showing they are free from contagious diseases. In some instances, bartenders must be bonded.

*Cooks and chefs.* Most cooks acquire their skills on the job as kitchen helpers, although cooks increasingly have high school or post-high school vocational training in food preparation. Cooks and chefs may also be trained as apprentices under trade union contracts, by professional associations, or as part of employee training programs conducted by large hotels and restaurants. Employers usually prefer high school graduates, and applicants for apprenticeships generally must be graduates. The Armed Forces also are a good source of training and experience in food service. Most States require cooks and chefs to have health certificates showing that they are free of contagious diseases.

*Dining room attendants and dishwashers.* These occupations can be learned on the job with very little formal training. Many employers will hire applicants who do not speak English. State laws often require dining room attendants and dishwashers to obtain health cer-



tificates showing that they are free of contagious diseases.

*Food counter workers.* Most counter workers learn their skills on the job. Managers of fast-food restaurants often hire high school students as part-time counter workers. State laws often require counter workers to obtain health certificates showing that they are free of contagious diseases.

*Meatcutters.* Although many learn their skills informally on the job, most meatcutters complete a 2-year apprenticeship program. A few attend private schools that specialize in meatcutting. At the end of the training, apprentices are given a meatcutting test that their employers observe. Employers prefer high school graduates. Some States require meatcutters to have health certificates showing that they are free of contagious diseases.

*Waiters and waitresses.* Although most waiters and waitresses start as dining room attendants, carhops, or food counter workers, or learn their skills on the job, some attend training courses offered by public and private vocational schools, restaurant associations, or large restaurant chains. Expensive restaurants that take pride in the quality of their service often hire only ex-

perienced waiters and waitresses. Knowledge of a foreign language is helpful in restaurants specializing in food of a foreign country. State laws often require waiters and waitresses to obtain health certificates showing that they are free of contagious diseases.

### **Personal Service Occupations**

*Barbers.* All States require barbers to be licensed. To obtain a license, applicants must graduate from a State-approved barber school and be at least 16 years old (in some States 18). Educational requirements in States vary—some require graduation from high school, while others have no requirement at all. Many States require an examination for an apprentice license and a second examination, after 1 or 2 years of work, for a license as a registered barber. Many public and private schools and a few vocational schools offer a 9- to 12-month training course. Because some States do not recognize out-of-State training, apprenticeship work, or licenses, persons who wish to become barbers should review the laws of the State in which they wish to work before entering barber school.

*Bellhops and bell captains.* Bellhops are trained on the job. Although not required, a high school diploma improves chances for promotion to bell captain or to front office clerk. Opportunities for advancement to bell captain are limited, however.

*Cosmetologists.* All States require cosmetologists to be licensed. Most States require applicants for a license to be at least 16 years old and pass a physical examination. Educational requirements for licensure vary among States—some have no requirement, while others require graduation from high school. Successful completion of a State-approved cosmetology course is appropriate preparation to take an examination. In some States, completion of a 1- or 2-year apprenticeship program can substitute for graduation from cosmetology school, but few cosmetologists learn their skills this way. Both public and private vocational schools offer training in cosmetology. A daytime course usually takes 6 months to 1 year; an evening course takes longer.

### **Protective and Related Service Occupations**

*Correction officers.* Most State and local governments prefer individuals who are high school graduates and are at least 21 years old. Many require applicants to pass a physical examination and meet standards of height, weight, vision, and hearing. Some State and local governments require applicants to qualify through a written examination that tests general intelligence. Although some correction officers attend training academies, most are trained on the job.

*Firefighters.* In most communities, qualifying examinations are open to high school graduates who are at least 18. Those who score the highest on these examinations have the best chances for appointment. Experience as a volunteer firefighter or in the Armed Forces may help chances for appointment, too. Beginners in large fire departments generally are trained for several weeks at the city's fire school before assignment to local fire companies. Small communities either train firefighters on the job or hire experienced workers. A small number of fire departments have 3- to 4-year apprenticeship programs.

*Guards.* Employers prefer high school graduates; applicants who have not completed high school may be tested for their ability to read, write, and follow written and oral instructions. Police experience gained in the Armed Forces or in State or local police departments is helpful. Most newly hired guards receive on-the-job training combined with formal instruction.

*Police officers.* Most large cities and many smaller communities fill police jobs by competitive examination. Candidates usually must be at least 21 years old, high school graduates, in good health, and meet height, weight, hearing, and vision requirements. Police departments in some large cities generally require 1 or more years of college, and a growing number of police departments hire students in college-level law enforcement programs as police interns. Police departments in some small cities consider applicants who have not finished high school but who have experience in law enforcement. Small communities often train police officers on the job; large cities have formal training ranging from a few weeks to several months at a police academy.

*State police officers.* State civil service regulations govern the appointment of State police officers; a competitive examination generally is required. In most States, the examination is open to high school graduates, or to persons who have an equivalent combination of education and experience. State police officers must be at least 21, in good health, and must meet height, weight, hearing, and vision standards. Tests of strength and agility often are required. The character and background of candidates usually are investigated. In some States, high school graduates who are under 21 may enter State police work as cadets. They attend classes, are assigned nonenforcement duties, and, if they qualify, may be appointed officers at age 21. States require that recruits enter a formal training program of several months for classroom instruction.

*Construction inspectors (government).* These workers receive most of their training on the job. Generally, ap-



plicants must have several years of experience as a construction contractor, supervisor, or craft worker. Previous experience as an electrician, plumber, pipefitter, or carpenter is particularly helpful. A high school diploma is required by Federal, State and most local governments. Many employers prefer inspectors who have graduated from an apprenticeship program or have had college courses in architecture, engineering, mathematics, or construction technology.

### Other Service Occupations

*Mail carriers.* Applicants must be at least 18 except for high school graduates, who must be at least 16. They also must pass an examination that tests clerical accuracy and the ability to read, do simple arithmetic, and memorize mail sorting systems. If the job involves driving, an applicant must have a driver's license and pass a road test. Applicants also must pass a physical examination and may be asked to show that they can handle mail sacks weighing up to 70 pounds. These workers are trained primarily on the job.

*Telephone operators.* After 1 to 3 weeks of on-the-job training, operators are assigned to regular jobs and receive further instruction from supervisors. PBX operators may have a somewhat shorter training period than telephone company operators. High school graduation is generally required.



## Education and Related Occupations

### Teaching Occupations

*Teacher aides.* Requirements vary widely. Some schools hire high school graduates; some do not require a diploma. Others want aides to have some college training or a bachelor's degree. Teacher aides may be trained on the job or through a formal training program. Schools may prefer individuals who have experience working with children. Some schools have regulations regarding the hiring of aides. For example, applicants may be required to have a family income below a certain level or to be parents of children in the school district. In addition, health regulations may require teacher aides to pass a physical examination.

### Library Occupations

*Library technicians and assistants.* These workers may receive training either on the job or in a formal postsecondary training program. Some libraries require only graduation from high school for library clerks, who, after a few years of training on the job, may advance to technician positions. Other libraries hire only technicians who have formal training.

## Sales Occupations

*Automobile parts counter workers.* These workers learn on the job. Generally 2 years of work experience are needed before a person becomes thoroughly familiar with most types of parts and accessories. Employers usually prefer to hire high school graduates.

*Automobile sales workers.* Most beginners are trained on the job, although large dealers sometimes provide formal classroom training. Many employers require beginning sales workers to be at least 21 years old and high school graduates.

*Automobile service advisors.* These workers are trained on the job. Trainees usually are selected from among personnel already employed in the organization—for example, an experienced mechanic or parts counter worker. Generally, 1 or 2 years of training are needed before a new service advisor can handle all aspects of the job. Some advisors attend training programs conducted by automobile manufacturers. A high school diploma is preferred.

*Gasoline service station attendants.* These workers are trained on the job. A high school diploma usually is not required and students often are hired for these jobs. Applicants for attendant jobs should have a driver's license.

*Models.* The most important asset for a model is a distinctive and attractive physical appearance. Size requirements for certain assignments are rigid. There are no educational requirements for models; some have limited formal education, others have completed high school and modeling school, and others have had college training. Many sales jobs in department stores provide useful experience in selecting and coordinating fashions, experimenting with makeup and occasionally, modeling. Developing a portfolio is very important. The overwhelming majority of models work through modeling agencies.

*Real estate agents and brokers.* All States require real estate agents and brokers to be licensed. To obtain a license as an agent, an individual must be a high school graduate, be at least 18 years old, and pass a written test. Many large firms prefer to hire college graduates. However, most employers consider personality traits as important as academic training and seek applicants who have maturity, tact, and sales ability. Most States require candidates for the general sales license to have completed 30 hours of classroom instruction in the fundamentals and legal aspects of real estate transactions. High schools, vocational schools, and colleges and universities offer courses to prepare candidates for the real estate sales examination. Many real estate firms also offer these preparatory courses. Basic training requirements for brokers are similar to those for agents. However, in addition to the requirements listed, most States require that candidates for the real estate broker's license complete 90 hours of classroom instruction in real estate and have 1-3 years of experience selling real estate.

*Retail trade sales workers.* Most sales workers learn their skills on the job. In large stores, training programs usually begin with several days of classroom instruction, which are followed by on-the-job training. In small stores, an experienced worker or, in some cases, the proprietor trains new sales workers. Employers prefer to hire high school graduates. Thousands of high schools offer distributive education programs that allow students to work part time at local stores while taking courses in merchandising, accounting, and other aspects of retailing. Some of these programs are intended for adults as well.

*Route drivers.* Although some large companies have classes in sales techniques, most route drivers are trained on the job. Employers generally prefer high school graduates. Most States require route drivers to have a chauffeur's license.

*Travel agents.* Although no specific educational background is required to become a travel agent, some

employers prefer to hire college graduates for these jobs. Useful experience may be gained by working as a reservation clerk or receptionist in a travel agency or as an airline reservation or passenger agent.

*Wholesale trade sales workers.* Employers generally require applicants to be high school graduates, although college training is increasingly important. The background a sales worker needs depends mainly upon the product line and the market. Selling certain products, such as pharmaceuticals, may require a background in chemistry, biology, or pharmacy, for example. High school graduates may begin in a nonselling job and work their way up or may be hired as a sales trainee. Usually it takes 2 years or longer to prepare trainees for sales positions. College graduates enter the sales force directly out of school.

## Construction Occupations

*Bricklayers, stonemasons, and marblesetters.* Most bricklayers learn their trade on the job, usually in 3 to 5 years. But some bricklayers and most stonemasons and marblesetters learn their skills through a 3-year apprenticeship program. Employers usually prefer applicants who have a high school diploma or its equivalent for apprenticeship programs.

*Carpenters.* The recommended way to learn this trade is to complete a 4-year apprenticeship. Most workers learn on the job, however, often by beginning as a helper to experienced carpenters and gradually acquiring skills. It takes much longer to become a skilled carpenter in this way than it does through an apprenticeship. Some knowledge of the trade also may be obtained through vocational school courses. Employers generally prefer to hire high school graduates.

*Cement masons and terrazzo workers.* Most learn their trade informally on the job in 2 to 3 years. Others complete a 2- or 3-year apprenticeship. Employers prefer to hire high school graduates.

*Construction laborers.* Most laborers are trained on the job as this work does not require specific skills. Generally, applicants must be at least 18 years old and in good physical condition.

*Drywall installers and finishers.* These workers usually start as helpers and learn their skills on the job in 2 to 3 years. Some employers, in cooperation with unions, supplement on-the-job training with classroom instruction in subjects such as tool use and care. High school graduates are preferred.



*Electricians (construction).* Completion of a 4-year apprenticeship is the recommended way to learn the trade. Many electricians learn their skills on the job, however. Employers prefer high school or vocational school graduates who have 1 year of algebra. Applicants for apprenticeships must be high school graduates. Many cities require electricians to be licensed; applicants must pass a written test and may have to demonstrate their skill.

*Elevator constructors.* Almost all elevator constructors learn their trade on the job by working with experienced workers and through classroom instruction. A newly hired worker usually can become a fully qualified constructor within 4 years. A high school diploma is required. Some localities require elevator constructors to be licensed. To obtain a license, applicants may have to pass a written test and sometimes may have to demonstrate their skills.

*Floor covering installers.* Most of these workers learn their skills on the job, usually beginning as helpers to experienced workers. Others qualify through 2- to 4-year apprenticeship programs. Individuals also may learn the basic skills as part of an apprenticeship in carpentry, tilesetting, bricklaying, or stone and marblesetting. Employers prefer to hire high school or vocational

school graduates. Applicants for apprenticeships generally must have a high school diploma.

*Glaziers (construction).* Most glaziers learn their trade through 3-year apprenticeships. Others learn on the job and a few pick up the skills while working in another industry where glass is installed. Employers generally prefer to hire high school graduates.

*Insulation workers.* Most insulation workers learn their trade on the job. Others learn through a 4-year "improvership" program that is similar to an apprenticeship. A few insulation workers pick up their skills while working in another trade or in a manufacturing plant where applying insulation is part of their job. Employers prefer high school graduates who are licensed to drive.

*Ironworkers (structural, ornamental, and reinforcing ironworkers; riggers; and machine movers).* Most learn their skills on the job; however, completion of a 3-year apprenticeship program is recommended. Employers generally prefer high school graduates.

*Lathers.* Although many lathers acquire their skills informally on the job, completion of an apprenticeship is recommended. Depending on the local union operating the program, apprenticeships last 2, 3, or 4 years. Employers generally prefer high school graduates, and a diploma is required for an apprenticeship.

*Operating engineers (construction machinery operators).* Completion of a 3-year apprenticeship program including related classroom instruction is recommended. Some engineers who learn their skills on the job start as helpers or oilers and then progress from operating light equipment to highly complex construction machinery. A few individuals learn their skills while serving in the Armed Forces or through special heavy-equipment training schools. Most employers prefer high school graduates; a diploma may be required for entry into apprenticeship programs.

*Painters and paperhangers.* Although completion of a 3-year apprenticeship is recommended, apprenticeship opportunities are very limited. Informal on-the-job training is available through local contractors, however. Employers prefer to hire applicants who have a high school education.

*Plasterers.* A 3- to 4-year apprenticeship is the recommended way to learn the trade. Many plasterers learn the trade on the job, however, by working as plasterers' helpers or laborers. Employers generally prefer to hire high school graduates.

*Plumbers and pipefitters.* Although many learn their trade informally on the job, completion of a 4- to 5-year apprenticeship is recommended. Employers prefer high school graduates. Some localities require workers to be licensed; applicants must pass a written examination.

*Roofers.* The majority of roofers begin as helpers and learn their skills on the job. Completion of a 3-year apprenticeship is recommended, however. Employers prefer high school graduates.

*Sheet-metal workers.* Although many learn the trade informally on the job, completion of a 4-year apprenticeship program is recommended. A high school diploma is preferred by employers and is required for entry to apprenticeship programs.

*Tiles setters.* The best way to learn this trade is through a 3-year apprenticeship program. However, many workers acquire their skills on the job as helpers. When hiring apprentices or helpers, employers usually prefer high school or vocational school graduates.

## **Occupations in Transportation Activities**

### **Air Transportation Occupations**

*Air traffic controllers.* Trainees are selected through the competitive Federal Civil Service System. Applicants must be not more than 30 years old, pass a written test, and have either a college degree or 3 years of work experience that demonstrates their potential. Newly hired controllers receive 16 weeks of formal training as well as on-the-job training.

*Airplane mechanics.* Most mechanics learn their job through 2-year programs offered by trade schools certified by the Federal Aviation Administration (FAA). A few learn on the job. The majority of mechanics who work on civilian aircraft are licensed by the FAA as "airframe mechanics," "powerplant mechanics," or "aircraft inspectors." Airframe mechanics work on the structural parts of the plane; powerplant mechanics work on the engine. Some mechanics and all aircraft inspectors must have both licenses. At least 18 months of work experience are required for an airframe or powerplant license; at least 30 months of experience working with both engines and airframes are required for a combined license. To obtain an inspector's license, a mechanic must have held an airframe-and-powerplant license for at least 3 years. Applicants for all licenses must pass written and oral tests and demonstrate their ability to do the work. Employers prefer high school graduates.

*Airplane pilots.* Pilots who are paid to transport passengers or cargo must have at least a commercial

pilot's license from the Federal Aviation Administration (FAA). To obtain a license, applicants must be at least 18, have at least 250 hours of flight experience, and pass a strict physical examination. Applicants also must pass a written test and demonstrate their flying ability to FAA examiners. For bad weather, pilots also must be licensed to fly by instruments which requires 40 hours of experience using instruments, passing a written test, and demonstrating their ability to FAA examiners. New pilots, usually hired as flight engineers, already have fulfilled the added requirements. Airline captains must have a transport pilot's license requiring even more flight experience. Flying can be learned in military or civilian flying schools, but the airlines and many businesses prefer pilots trained in the Armed Forces. Airline pilots must be high school graduates, however, most airlines require 2 years of college and prefer college graduates.

*Flight attendants.* Most large airlines train their own flight attendants; those that do not operate schools usually send their trainees to another airline's school. Training programs generally last about 5 weeks. Applicants must be high school graduates. Individuals who have 2 years or more of college or experience dealing with the public are preferred.

*Reservation and passenger agents.* Most agents receive several weeks of classroom instruction and on-the-job training. A high school diploma generally is required, and some college training is preferred. Experience dealing with the public is desirable.

### **Merchant Marine Occupations**

*Merchant marine officers.* Candidates must either acquire at least 3 years of appropriate sea experience or graduate from the U.S. Merchant Marine Academy, from one of six State merchant marine academies, or from a trade union training program. Candidates also must pass a Coast Guard examination to obtain a license. Usually, applicants who have sea experience but are not graduates of academies must obtain training to pass the examination.

*Merchant marine sailors.* Most sailors learn on the job, although previous sea experience in the Coast Guard or Navy is helpful. Applicants must obtain a doctor's certificate stating that they are in excellent health, and, if they do not have previous sea experience, a letter from an employer stating that they will be hired if a job becomes available. In addition, they must acquire special identification papers, "merchant mariner's documents," from the Coast Guard. Several training programs help experienced sailors upgrade their skills, but only the school operated by the Seafarer's International Union of North America trains inexperienced sailors.



## **Railroad Occupations**

*Brake operators.* On some railroads, operators receive a few days of training, but most learn their skills on the job. It usually takes a year to learn the job thoroughly. Employers prefer applicants who have a high school diploma. Applicants must have good eyesight and hearing.

*Conductors.* Conductors are promoted from the ranks of qualified brake operators by seniority. To qualify, a brake operator must pass a comprehensive examination.

*Locomotive engineers.* Openings in engineer jobs usually are filled by training and promoting engineer helpers according to their seniority. Applicants for helper jobs must be at least 21 years old and have good eyesight, hearing, and color vision. High school graduates are preferred. Helpers are placed in engineer training programs within a year after they are hired. They qualify for promotion to engineer by proving their ability to operate locomotives and by passing a comprehensive examination.

*Shop trades.* Completing a 3- to 4-year apprenticeship program is the most common way to enter shop trades, although some helpers and laborers are upgraded to these jobs. A high school diploma is preferred.

*Signal department workers.* These workers begin as helpers and are trained on the job. After 60 to 90 days of training, they may advance to assistants; after 2 years' additional training and experience, they may be promoted to signal installers or maintainers. Railroads prefer high school or vocational school graduates.

*Station agents.* These workers rise from the ranks of other railroad occupations. Experienced telegraphers, telephoners, tower operators, and clerks may become agents in small stations and may be promoted to larger stations as they gain seniority.

*Telegraphers, telephoners, and tower operators.* Clerical workers usually fill these jobs according to seniority. Upon promotion, workers receive on-the-job training. Before the promotion is final, workers must pass examinations and show that they can use all the equipment. A high school diploma generally is preferred and may be required by some railroads.

## **Driving Occupations**

*Intercity busdrivers.* Most companies conduct 2- to 8-week training programs for new employees. Minimum qualifications established by the U.S. Department of Transportation require intercity busdrivers to be at

least 21, pass a physical examination, and pass a written test on motor vehicle regulations. Most States require a chauffeur's license. Bus companies generally have even higher requirements. Most prefer applicants who are at least 25 years old; some prefer those who have truck or bus driving experience. A high school diploma is preferred.

*Local transit busdrivers.* New drivers receive several weeks of classroom and driving instruction. Applicants must be at least 21, have a chauffeur's license, and have good eyesight—with or without glasses. Most employers require applicants to pass a physical examination and a written test. A high school diploma is preferred by many employers.

*Local truckdrivers.* New drivers usually are trained on the job. Many drivers begin by working as freight handlers on a loading dock. In most States, applicants must have a chauffeur's license. The amount of driving experience required often depends on the size of truck to be driven and value of the cargo.

*Long-distance truckdrivers.* Minimum qualifications set by the U.S. Department of Transportation require drivers to be at least 21, pass a physical examination, and pass a written test on motor carrier safety regulations. Most States require drivers to have a chauffeur's license. Employers may have even higher standards. Many specify height and weight requirements for drivers and some hire only applicants who have several years' experience driving trucks. Most truckdrivers start as freight handlers on a loading dock, advance to local truckdriver, and then to long-distance driver.

*Parking attendants.* These workers are trained on the job from a few hours to a week. Applicants must have a driver's license and be able to drive all types of cars. Completion of a driver's education course is an asset. Generally, employers prefer high school graduates.

*Taxicab drivers.* In most cities, taxi drivers must have a chauffeur's license and pass a written test on taxicab and traffic regulations to obtain a special license from the local police or safety department, or Public Utilities Commission. Some companies teach drivers taxicab regulations and the location of streets. A large number of companies hire only applicants who are at least 21 and some require drivers to be 25 or older.

## **Scientific and Technical Occupations**

### **Conservation Occupations**

*Forestry technicians.* Most persons qualify for beginning jobs by completing a specialized 1- or 2-year

postsecondary program, or by working on firefighting crews, in tree nurseries, or in other forest work.

### **Other Scientific and Technical Occupations**

*Broadcast technicians.* Persons who have earned the first-class radiotelephone operator license from the Federal Communications Commission have the best chances of getting a job in this very competitive field. To obtain the first-class license, applicants must pass a series of written tests covering subjects such as the construction and operation of transmission and receiving equipment. Courses in mathematics, science, and electronics, and special courses that are designed to prepare students for the FCC's license test are good preparation. Most persons begin their careers in small stations; larger stations often seek experienced personnel.

*Drafters.* Specialized training in technical institutes, junior and community colleges, extension divisions of universities, and vocational and technical high schools generally provides the best preparation for beginning drafters. The necessary skills also may be acquired by combining on-the-job training programs with part-time schooling, through 3- or 4-year apprenticeship programs, or in the Armed Forces. A high school diploma usually is required.

*Engineering and science technicians.* Many combinations of education and work experience qualify individuals for these occupations, but most employers prefer applicants who have had some specialized technical training. This specialized training consists of 1 to 4 years of full-time study at a technical institute, junior or community college, extension division of a college or university, or vocational-technical high school. Training also can be acquired on the job, through part-time courses in postsecondary schools, or through correspondence school courses. Experience in technical jobs in the Armed Forces also can be good preparation. A high school diploma usually is required.

## **Mechanics and Repairers**

### **Telephone Craft Occupations**

*Central office craft occupations.* Though employees such as telephone operators or line installers generally fill trainee jobs, occasionally workers are hired from outside. New craft workers receive both classroom instruction and on-the-job training. Some vocational schools, particularly those in rural areas served by small independent telephone companies, also offer training. A few people learn these crafts through apprenticeship programs designed by State employment agencies in conjunction with local telephone com-



panies. Because electrical wires usually are color coded, applicants must not be color blind.

*Central office equipment installers.* These workers learn their skills on the job. New employees attend classes the first few weeks to learn basic installation and then begin on-the-job training. It usually takes several years to become a skilled installer. A high school diploma generally is preferred. Because electrical wires are color coded, applicants must not be color blind.

*Line installers and cable splicers.* These workers usually are trained on the job. Classrooms are equipped with actual telephone apparatus, including poles and other fixtures to simulate working conditions. After several weeks, trainees generally are assigned to a crew for on-the-job training under a line supervisor. Some small independent telephone companies, particularly in rural areas, rely on local vocational and technical schools for classroom training. State employment agencies provide classroom training for a few 4-year apprenticeships. Training in installing telephone systems in the Armed Forces is helpful. Because wires are color coded, applicants must not be color blind.

*Telephone and PBX installers and repairers.* These workers are trained on the job. Telephone companies

provide several weeks of classroom instruction supplemented by on-the-job training. Many small independent telephone companies, particularly in rural areas, rely on local vocational and technical schools to train workers. State employment agencies provide classroom training for a few 4-year apprenticeships. Because telephone wires are color coded, applicants must not be color blind. A high school diploma is preferred.

### **Other Mechanics and Repairers**

*Air-conditioning, refrigeration, and heating mechanics.* Most workers start as helpers and learn their skills on the job in about 4 years. A few learn the trade through a 4-year apprenticeship program. In addition, many high schools, vocational schools, and junior colleges offer courses in air-conditioning, refrigeration, and other subjects that prepare students for entry jobs. Many employers prefer graduates of these programs because they require less on-the-job training. When hiring helpers, employers generally prefer high school graduates. A diploma is required for entry into apprenticeship programs.

*Appliance repairers.* Formal training in appliance repair is available in some vocational and technical schools and community colleges. Graduates of these programs still need about 3 years of on-the-job experience to learn the trade. A high school diploma usually is required.

*Automobile body repairers.* Although most repairers learn this skill informally through 3 to 4 years of on-the-job training, completion of a 3- or 4-year apprenticeship is recommended. High school graduation is considered an asset.

*Automobile mechanics.* Most automobile mechanics learn their trade through 3 to 4 years of on-the-job experience, but additional time may be needed to learn a difficult specialty such as automatic transmission repair. Training authorities usually recommend completion of a 3- or 4-year apprenticeship program. Automobile mechanic training received in the Armed Forces is good preparation. A high school diploma is preferred.

*Boat-engine mechanics.* Most mechanics learn on the job. Generally 2 to 3 years of experience are required to become skilled in repairing both outboard and inboard motors. A high school diploma is preferred by employers.

*Bowling-pin-machine mechanics.* These workers usually start as assistant mechanics or pinchasers and learn their skills on the job. Bowling alleys sometimes send their mechanics to training seminars conducted by



companies that manufacture pinsetters. It usually takes 1 to 2 years of experience to learn the job thoroughly. Employers prefer to hire high school graduates.

*Business machine repairers.* These workers usually are hired as trainees and taught their skills on the job. Trainees who work in a manufacturer's branch office or for a franchised dealer usually receive several weeks to several months of training at a school sponsored by the manufacturer. Training offered by independent repair shops generally is less formal, with trainees completing a self-study course and receiving on-the-job training from an experienced repairer. Applicants must be high school graduates, and some employers require at least 1 year of technical training in basic electricity or electronics. Employers agree that electronics training received in the Armed Forces is excellent preparation. Good eyesight, including color vision, and good hearing are important.

*Electric sign repairers.* Most are trained informally on the job. Some learn their skills through 4-year apprenticeship programs as a sign repairer or electrician. Employers prefer high school graduates. Many cities require repairers to be licensed; applicants must pass an examination on electrical theory and local electric codes.



*Farm equipment mechanics.* Most begin as helpers and learn their skills on the job. Employers generally prefer high school graduates who have a farm background. Usually, at least 3 years of on-the-job experience are necessary to become fully skilled. Some mechanics complete a 3- or 4-year apprenticeship program, while others learn through a vocational program.

*Furniture upholsterers.* The most common way to learn this trade is to work as a helper in an upholstery shop for about 3 years. Vocational or high school courses in upholstery provide a good background, but experience still is necessary to refine one's skills.

*Industrial machinery repairers.* Most begin as helpers and rotate from job to job for several years. Others learn their trade through 4-year apprenticeship programs. A high school diploma is preferred.

*Jewelers.* These workers generally learn the jewelry trade on the job or in technical schools. In precious jewelry factories, 3- to 4-year apprenticeships are available for many skilled occupations. Some manufacturers sponsor training courses for their employees at local vocational schools. Vocational school courses in jewelry making and jewelry repair are a good source of training for someone outside the industry. Employers prefer high school graduates.

*Locksmiths.* On-the-job training lasting up to 4 years is the recommended way to learn this trade. Additional training is necessary to service electronic security systems. Completion of a 1- or 2-year vocational or correspondence school course is an advantage. When hiring trainees, employers prefer high school graduates. Some cities require locksmiths to be licensed.

*Maintenance electricians.* Most acquire their skills on the job or through 4-year apprenticeship programs. It may take more than 4 years to learn the trade informally. A high school diploma usually is required. Many cities and counties require electricians to be licensed; an applicant must pass a written examination and may have to demonstrate skills.

*Motorcycle mechanics.* Most motorcycle mechanics learn their trade on the job. Generally, 2 to 3 years of on-the-job training are necessary to become skilled in all aspects of motorcycle repair. Although a high school diploma is often preferred, many employers will hire trainees who have mechanical aptitude or who exhibit a genuine interest in motorcycles and in learning the work.

*Piano and organ tuners and repairers.* Most learn their trade on the job. Generally, 4 to 5 years of on-the-job

training are needed to qualify as a piano or pipeorgan technician. Applicants for jobs as electronic organ technicians usually need formal training in electronics which is available in technical schools, junior colleges, and the Armed Forces. A small number of technical schools and colleges offer courses in piano technology. Home study (correspondence school) courses in piano technology also are available. Employers prefer high school graduates.

*Shoe repairers.* These workers generally start as helpers and are trained on the job in shoe repair shops. It takes up to 2 years to learn all aspects of the job. Some repairers learn the trade in vocational school but additional training under an experienced shoe repairer generally is helpful.

*Television and radio service technicians.* Employers usually hire persons who have had formal training in electronics while in high school, vocational school, or junior college. Armed Forces electronics training is useful, although employers may require additional training in television electronics. Up to 4 years of on-the-job training are necessary to become skilled in most types of repair work. A high school diploma generally is required. Some States have licensing requirements.

*Truck mechanics and bus mechanics.* Most learn their skills on the job in 3 to 4 years, but completion of a 4-year apprenticeship program is recommended. A high school diploma is preferred by employers and strongly recommended for applicants for apprenticeships. For some jobs that require drivers, mechanics must have a chauffeur's license.

*Vending machine mechanics.* Most mechanics learn their trade while working as general shop helpers or vending machine route drivers. Up to 3 years of on-the-job training are required to become a skilled mechanic. Some mechanics train through 3-year apprenticeships. A high school diploma is preferred by employers. A commercial driver's license and a good driving record are necessary.

*Watch repairers.* Most learn their trade through 1- to 3-year courses offered by watch repair schools. Others learn on the job in about 3 years. A high school diploma is preferred. A few States require watch repairers to be licensed; applicants must pass a written test and a bench examination.

## Health Occupations

### Dental Occupations

*Dental assistants.* Most learn their skills on the job, but an increasing number are trained through 1- or 2-year





programs offered in junior and community colleges and in vocational and technical schools. A high school diploma is required. Training also is available in the Armed Forces. Individuals who have had formal training generally have an advantage when seeking a job.

*Dental laboratory technicians.* Many technicians learn their skills on the job, usually in 3 to 4 years. High school graduates are preferred. Persons who receive dental laboratory training in the Armed Forces usually qualify for civilian jobs as technicians. After completing a 2-year training program in a junior college, college, or vocational or technical school, the trainee may need about 3 years of experience to become fully qualified. Some technicians complete apprenticeship programs.

### **Medical Technologist, Technician, and Assistant Occupations**

*Electrocardiograph (EKG) technicians.* Generally, EKG technicians are trained on the job for 1 month to 1 year by an EKG supervisor or a cardiologist. Vocational schools and junior and community colleges offer formal 1- to 2-year training programs. Training also is available in the Armed Forces. Generally, a high school diploma is required.

*Electroencephalographic (EEG) technologists and technicians.* Although experienced EEG personnel

train most EEG technologists and technicians on the job, training authorities recommend completion of a formal 1- to 2-year training program at a college, junior college, medical school, hospital, or vocational or technical school. High school graduation is required for this work.

*Emergency medical technicians (EMT's).* Applicants must complete the 81-hour program designed by the U.S. Department of Transportation or its equivalent offered in all States by police, fire, and health departments; in hospitals; and in medical schools, colleges, and universities. A high school diploma and a valid driver's license are required to enter such a program. "Medic" training in the Armed Forces also is good preparation.

*Medical laboratory workers.* Medical laboratory assistants usually are trained on the job. In recent years, however, an increasing number have completed 1-year training programs at a hospital, junior college, or vocational school. Many of these schools also offer 2-year training programs for technicians. Some workers are trained in the Armed Forces. Most technologists have completed 4 years of college, including 12 months in medical technology.

*Medical record technicians and clerks.* High school graduates who have basic secretarial skills can enter the medical record field as clerks. About 1 month of on-the-job training is needed to learn routine tasks. The American Medical Record Association (AMRA) offers a correspondence course in medical transcription; the certificate awarded upon successful completion of the course is helpful in applying for a job as a clerk. Most employers prefer to fill technician positions with graduates of 2-year associate degree programs in medical record technology.

*Operating room technicians.* Most operating room technicians are trained in vocational and technical schools, hospitals, and community and junior colleges. Generally these programs last from 9 months to 1 year, but some junior college programs last 2 years and lead to an associate degree. Some technicians are trained on the job. Depending on the individual's qualifications and the extent and difficulty of the work assigned, training ranges from 6 weeks to 1 year. Applicants who have worked as nursing aides or practical nurses may be preferred. Some operating room technicians are trained in the Armed Forces. A high school diploma generally is required.

*Optometric assistants.* Most optometric assistants are trained on the job, but training also can be acquired through 1- or 2-year courses in junior colleges. A high school diploma or its equivalent is preferred.

*Respiratory therapy workers.* There are three levels of workers—therapists, technicians, and assistants. Formal training beyond high school which is required for therapists and technicians may be obtained in colleges and universities, junior colleges, and hospitals. Generally, training programs for technicians last 12 months while programs for therapists last 18 to 24 months or longer. Assistants are trained on the job. Some employers prefer applicants who have a high school diploma.

### **Nursing Occupations**

*Licensed practical nurses.* All States require applicants for licenses as practical nurses to complete a State-approved course in practical nursing and to pass an examination. Educational requirements for enrollment in these courses vary by State and range from completion of eighth or ninth grade to high school graduation. Generally, junior colleges, local hospitals, health agencies, and vocational schools offer the 1-year course.

*Nursing aides, orderlies, and attendants.* Although some employers prefer high school graduates, a diploma is not required. Training usually is acquired on the job, often in combination with classroom instruction.

### **Therapy and Rehabilitation Occupations**

*Occupational therapy assistants and aides.* Most occupational therapy assistants graduate from 1- or 2-year junior college programs or complete a program in the Armed Forces. Some learn their skills in vocational and technical programs. Applicants for training programs must have a high school diploma or its equivalent. Hospitals and other health care facilities train occupational therapy aides on the job.

*Physical therapist assistants and aides.* Physical therapist assistants must graduate from an approved 2-year associate degree program and pass a written examination. Physical therapist aides train on the job and generally must be high school graduates or the equivalent.

### **Other Health Occupations**

*Dispensing opticians.* Most learn their skills on the job. Employers prefer high school graduates, and graduation is required for formal training programs. Some dispensing opticians learn their skills through 2- to 4-year apprenticeship programs. In 1978, dispensing opticians in 20 States had to pass an examination to obtain the required license.

## **Social Service Occupations**

*Homemaker-home health aides.* Homemaker-home health aides must be able to read and write but high school graduation generally is not required. Some employers hire only experienced nursing aides; others require at least a year's experience as a nursing aide in a hospital or nursing home.

*Social service aides.* Social service aides are trained on the job. An aide's education usually determines the level of responsibility. For example, persons who have a grade school education may become clerks while those who have a college degree may assume some duties normally performed by social workers. Employers also consider an applicant's desire to help people and his or her ability to communicate with community agencies and clients. An individual's potential for advancement and need for work also may be considered.

## **Performing Arts, Design, and Communications Occupations**

### **Performing Artists**

*Actors and actresses.* Formal training in acting is increasingly necessary to enter the field. Training can be obtained at dramatic arts schools, located chiefly in New York, and in hundreds of colleges and universities throughout the country. Experience is important; participating in school or community productions is excellent preparation.

*Dancers.* Serious training at a dance school or through private lessons should begin at age 12, especially for ballet dancers. Training and practice continue throughout a dancer's career. Many colleges and universities offer dance instruction.

*Musicians.* Studying an instrument, either through school or private lessons, should begin at an early age. More advanced training can be acquired through further study under an accomplished musician, in a college or university which has a strong music program, or in a music conservatory.

*Singers.* As a rule, intensive voice training should not begin until after the individual has matured physically. Voice training can be obtained through private lessons or in a music conservatory or department of music in a college or university. A background in music theory and history is helpful for persons interested in singing professionally, although formal voice training is not essential for a successful career in popular music.

## Design Occupations

*Display workers.* Most display workers learn their trade on the job in 1 or 2 years. A high school diploma usually is required, and some employers prefer applicants who have studied interior decorating, fashion design, or art. Many high schools, vocational schools, and junior colleges offer these courses.

*Floral designers.* Although there are no minimum educational requirements, most employers prefer high school graduates. Training usually takes place on the job. However, an increasing number of these workers attend adult education programs, junior colleges, or commercial floral design schools.

## Ordering Occupational Outlook Handbook Reprints

There are 42 reprints from the *Occupational Outlook Handbook*, 1980-81 Edition, available for order. Each reprint contains a group of related occupational and industrial statements. For example, reprint 2075-35, Communications Occupations, includes statements on broadcast technicians, newspaper reporters, photographers, public relations workers, radio and television announcers, the radio and television broadcasting industry, and technical writers. A list of all

reprints follows. A flyer that cross-references all *Occupational Outlook Handbook* occupations and industries to the reprints in which they appear may be obtained by using the reprint order form on the back page of this leaflet.

## Occupational Outlook Reprints, 1980-81 Edition

Bulletin No.	Title
2075-1	Tomorrow's Jobs
2075-2	Metalworking Occupations
2075-3	Printing and Publishing Occupations
2075-4	Factory Production Occupations
2075-5	Clerical Occupations
2075-6	Office Machine and Computer Occupations
2075-7	Banking and Insurance Occupations
2075-8	Business Occupations
2075-9	Service Occupations
2075-10	Food Merchandising Occupations
2075-11	Protective and Related Service Occupations
2075-12	Education and Related Occupations
2075-13	Sales Occupations
2075-14	Construction Occupations — Structural
2075-15	Construction Occupations — Finishing
2075-16	Air and Water Transportation Occupations
2075-17	Railroad Occupations
2075-18	Driving Occupations
2075-19	Environmental Scientists and Conservation Occupations
2075-20	Engineering and Related Occupations
2075-21	Physical and Life Scientists
2075-22	Mathematics and Related Occupations
2075-23	Public Utilities Occupations
2075-24	Motor Vehicle and Machinery Repairers
2075-25	Machine Repairers and Operators
2075-26	Small Business Occupations
2075-27	Health Practitioners
2075-28	Health Occupations Dental auxiliaries, nursing, therapy and rehabilitation, health services administration
2075-29	Health Occupations Medical technologists, technicians, and assistants, dispensing opticians, ophthalmic laboratory technicians, medical record personnel





2075-30	Lawyers, City Managers, and Social Science Occupations
2075-31	Counseling and Related Occupations
2075-32	Social Service Occupations
2075-33	Performing Arts and Entertainment-Related Occupations
2075-34	Design Occupations
2075-35	Communications Occupations
2075-36	Agriculture and Logging and Lumber Mill Products Industries
2075-37	Energy-Producing Industries
2075-38	Petroleum Refining, Industrial Chemical, Drug, and Paper and Allied Products Industries
2075-39	Aluminum, Iron and Steel, and Foundry Industries
2075-40	Aircraft, Missile, and Spacecraft, Office Machine and Computer, Electronics, and Motor Vehicle and Equipment Manufacturing Industries
2075-41	Apparel, Baking, Laundry and Dry Cleaning, and Textile Mill Products Industries
2075-42	Government Occupations

The following is an alphabetical listing of the occupations included in this leaflet. Occupations are cross-referenced to the *Handbook* reprint in which they appear.

Actors and actresses.....	33
Air traffic controllers.....	16
Air-conditioning, refrigeration, and heating mechanics.....	15
Airplane mechanics.....	16
Airplane pilots.....	16
Appliance repairers.....	25
Assemblers.....	4
Automobile body repairers.....	24
Automobile mechanics.....	24
Automobile painters.....	24
Automobile parts counter workers.....	24
Automobile sales workers.....	13
Automobile service advisors.....	24
Bank clerks.....	7
Bank tellers.....	7
Barbers.....	26
Bartenders.....	10
Bellhops and bell captains.....	9
Blacksmiths.....	2
Blue-collar worker supervisors.....	4
Boat-engine mechanics.....	24
Boilermaking occupations.....	4
Boiler tenders.....	4

Bookbinders and bindery workers.....	3
Bookkeeping workers.....	5
Bowling-pin-machine mechanics.....	25
Brake operators.....	17
Bricklayers, stonemasons, and marblesetters.....	14
Broadcast technicians.....	20 or 35
Building custodians.....	9
Business machine repairers.....	6 or 25
Carpenters.....	14
Cashiers.....	10
Cement masons and terrazzo workers.....	14
Central office craft occupations.....	23
Central office equipment installers.....	23
Claim representatives.....	7
Collection workers.....	8
Compositors.....	3
Computer operating personnel.....	6
Conductors.....	17
Construction inspectors.....	11
Construction laborers.....	14
Cooks and chefs.....	10
Coremakers.....	2 or 39
Correction officers.....	11
Cosmetologists.....	26
Dancers.....	33
Dental assistants.....	28
Dental laboratory technicians.....	28
Dining room attendants and dishwashers.....	10
Dispensing opticians.....	29
Display workers.....	34
Drafters.....	20
Drywall installers and finishers.....	15
EEG technologists and technicians.....	29
EKG technicians.....	29
Electric sign repairers.....	25
Electricians (construction).....	15
Electroplaters.....	4
Electrotypers and stereotypers.....	3
Elevator constructors.....	14
Emergency medical technicians.....	29
Engineering and science technicians.....	20
Farm equipment mechanics.....	24
File clerks.....	5
Firefighters.....	11
Flight attendants.....	16
Floor covering installers.....	15
Floral designers.....	34
Food counter workers.....	10
Forestry technicians.....	19 or 36
Forge shop occupations.....	2
Furniture upholsterers.....	26
Gasoline service station attendants.....	24



Glaziers .....	15	Physical therapist assistants	
Guards .....	11	and aides .....	28
Homemaker-home health aides .....	32	Piano and organ tuners	
Hotel front office clerks .....	9	and repairers .....	26
Hotel housekeepers and assistants .....	9	Plasterers .....	15
Industrial machinery repairers .....	4	Plumbers and pipefitters .....	14
Inspectors (manufacturing) .....	4	Police officers .....	11
Instrument makers (mechanical) .....	2	Postal clerks .....	5
Insulation workers .....	15	Power truck operators .....	4
Intercity busdrivers .....	18	Printing press operators	
Ironworkers .....	14	and assistants .....	3
Jewelers .....	26	Production painters .....	4
Lathers .....	15	Real estate agents and brokers .....	13
Library technicians and assistants .....	12	Receptionists .....	5
Licensed practical nurses .....	28	Reservation and passenger agents .....	16
Line installers and cable		Respiratory therapy workers .....	29
splicers .....	23	Retail trade sales workers .....	13
Lithographers .....	3	Roofers .....	14
Local transit busdrivers .....	18	Route drivers .....	13 or 18
Local truckdrivers .....	18	Secretaries and stenographers .....	5
Locksmiths .....	26	Setup workers (machine tools) .....	2
Locomotive engineers .....	17	Sheet-metal workers .....	15
Long-distance truckdrivers .....	18	Shipping and receiving clerks .....	5
Machine tool operators .....	2	Shoe repairers .....	26
Machinists, all-around .....	2	Shop trades .....	17
Mail carriers .....	5	Signal department workers .....	17
Maintenance electricians .....	4	Singers .....	33
Meatcutters .....	10	Social service aides .....	32
Medical laboratory workers .....	29	State police officers .....	11
Medical record technicians		Station agents .....	17
and clerks .....	29	Stationary engineers .....	4
Merchant marine officers .....	16	Statistical clerks .....	5
Merchant marine sailors .....	16	Stock clerks .....	5
Millwrights .....	4	Taxicab drivers .....	18
Models .....	33	Teacher aides .....	12
Molders .....	2 or 39	Telegraphers, telephoners, and	
Motion picture projectionists .....	25	tower operators .....	17
Motorcycle mechanics .....	24	Telephone and PBX installers	
Musicians .....	33	and repairers .....	23
Nursing aides, orderlies, and		Telephone operators .....	23
attendants .....	28	Television and radio service	
Occupational therapy assistants		technicians .....	26
and aides .....	28	Tilesetters .....	15
Office machine operators .....	5 or 6	Tool-and-die makers .....	2
Operating engineers .....	14	Travel agents .....	13
Operating room technicians .....	29	Truck mechanics and bus mechanics .....	24
Ophthalmic laboratory technicians .....	29	Typists .....	5
Optometric assistants .....	29	Vending machine mechanics .....	25
Painters and paperhangers .....	15	Waiters and waitresses .....	10
Parking attendants .....	18	Wastewater treatment plant	
Patternmakers .....	2 or 39	operators .....	4
Pest controllers .....	9	Watch repairers .....	26
Photoengravers .....	3	Welders .....	2
Photographic laboratory occupations .....	3	Wholesale trade sales workers .....	13

U.S. Department of Labor  
Bureau of Labor Statistics  
Washington, D. C. 20212

---

Official Business

Penalty for private use, \$300

Postage and Fees Paid  
U.S. Department of Labor

---

Third Class Mail

---

Lab-441

