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ABSTRACT "Classification Structures for Career Information" was created to provide Career Information Delivery Systems (CIDS) staff with pertinent and useful occupational information arranged according to the Standard Occupational Classification (SOC) structure. Through this publication, the National Occupational Information Coordinating Committee provides technical assistance to states to assist them in converting their existing CIDS to a SOC structure. A secondary purpose of the publication is to provide counselors with a compendium of occupational information compiled from a great variety of sources. The publication is organized in three volumes. This first volume, divided into three parts, contains the 1980 Standard Occupational Classification (SOC) codes and titles in a four-level taxonomy. Subtitled "Occupational Statements," this volume is primarily designed for counselor/client use. It also contains information useful to people using the SOC to classify information obtained from surveys, preparing information for a CIDS, or for other technical purposes. The Occupational Statements contain a brief guidance-oriented definition for each of the 834 categories contained in the 1980 SOC. Each definition is identified with both the SOC title and its code. In those cases where a SOC category has been assigned Dictionary of Occupational Titles (DOT) codes and titles, this additional information is included: sample work activities, hours of work, travel, and sample places of work. [This document contains part 1 of volume 1--SOC numbers 1099 (executive, administrative, and managerial occupations) to 4490 (sales occupations).] (KC)



NOICC

**National Occupational
Information Coordinating
Committee**

**CLASSIFICATION STRUCTURES
FOR CAREER INFORMATION**

OCCUPATIONAL STATEMENTS, VOLUME I

PART 1 SOC Numbers 1099 to 4490

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CLASSIFICATION STRUCTURES
FOR
CAREER INFORMATION

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CLASSIFICATION STRUCTURES FOR CAREER INFORMATION

CSCI

Volume I: Occupational Statements

- Part 1: SOC Numbers 1099 to 4490
- Part 2: SOC Numbers 4499 to 6560
- Part 3: SOC Numbers 6699 to 9900
- Numeric Index

Volume II: Occupational Characteristics

- Part 1: SOC Numbers 1099 to 4490
- Part 2: SOC Numbers 4499 to 6560
- Part 3A: SOC Numbers 6699 to 7679
- Part 3B: SOC Numbers 7700 to 9900
- Numeric Index

Volume III: Technical Information

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FOREWORD

One of the major purposes of the National Occupational Information Coordinating Committee (NOICC) is to encourage the use of occupational information. This purpose, contained in the enabling legislation, states: ". . . labor market information, including career outlook and other appropriate information required by youth in matching career desires with available and anticipated labor demand, shall be encouraged and supported by the National Occupational Information Coordinating Committee (NOICC)."

NOICC's thrust to fulfill this mandate, beginning in 1979, has been through the Career Information Delivery Systems (CIDS) competitive grant program. Since the beginning of the program, NOICC has encouraged these systems to use the Standard Occupational Classification (SOC) as the primary means for organizing the information contained in them. NOICC has established minimum requirements for use of the SOC structure by State Occupational Information Coordinating Committees receiving CIDS grants in NOICC Administration memorandum no. 81-23.

The SOC should prove to be an effective tool linking information on occupational outlook information with personal occupational desires referred to in the legislation. However, before the SOC could be effectively used in the CIDS, two preliminary tasks had to be completed: 1) relationships between the SOC and other existing data systems had to be established, and 2) the definitions published in the 1980 edition of the SOC manual had to be expanded and rewritten for occupational guidance purposes. Fortunately much of the first task has already been completed through another NOICC project, the development of the publication Vocational Preparation and Occupations (VPO). This publication establishes linkages between currently used educational and occupational coding structures.

To accomplish the second task, NOICC initiated a new project to modify the SOC definitions and organize the existing VPO crosswalks between classification systems so they could be used for CIDS purposes. The results of this effort are published in this document, the Classification Structures for Career Information (CSCI).

This edition of Classification Structures for Career Information has been published as an interim edition. This was done because the short time available to complete this effort did not permit a comprehensive technical edit of the occupational statements. Furthermore, there is a plan to convert the current educational classification codes contained in these tables to the new Classification of Instructional Programs in the near future.

The NOICC staff feels that this interim edition incorporates the latest information concerning the interrelationships of occupational and educational classification systems. This publication can serve as the primary source of information for CIDS information developers, counselors and other persons seeking information regarding to the world of work.

This important work was completed through the efforts of a large number of people and organizations. It is our sincere hope that the Classification Structures for Career Information will be a useful document not only for the technicians of CIDS but also for counselors and others who have a need for occupational information.

RUSSELL B. FLANDERS
Executive Director

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This publication is the principal product of a grant awarded by NOICC to the Wisconsin State Occupational Information Coordinating Committee (WSOICC). Dr. Shelley Cary, Executive Director of WSOICC, served as the grant manager. The Vocational Studies Center, University of Wisconsin-Madison, was the prime contractor for the grant; Dr. Roger Lambert served as the Director; Dr. David Caulum was the principal researcher; and Dr. Ron Myren was the computer systems analyst. The National Center for Research in Vocational Education was another contractor on the project. Under the direction of Dr. Harry Drier, Fred Williams and Linda Pfister provided technical support and evaluation services for the development of the guidance-based SOC definitions. Dr. Melinda Salkin, formerly of the North Carolina SOICC, served as the principal definition writer. Nancy Howard wrote and edited all aggregate definitions.

For review purposes, and to provide procedural recommendations and other technical services, a Special Task Force was formed. The members of this Task Force were: John Van Zant-DC, Shelley J. Cary-WI, Carol Voss-WI, Roger Lambert-WI, David Caulum-WI, Ron Myren-WI, Darcy Mellen-Sullivan-WI, Jane Kwiecinski-WI, Harry Drier-OH, Fred L. Williams-OH, Melinda Salkin-NC, Linda Kobylarz-CT, Bruce McKinlay-OR, Dick Hall-OH, David Neideffer-DC, Bill Woolley-FL, Elton Mendenhall-NE, Thelma Lennon-NC, Hartley Jackson-WI, Bob Alexander-DC, Walton E. Webb-DC, Wynonia Dunn-DC, Helena Kennedy-WA, Eleanor Morgenthau-FL, Carol Kososki-SC, Joseph McGarvey-MI, Jan Staggs-IL, Todd Strommenger-WV, Emanuel Weinstein-DC, and Bill Erpenbach-WI.

The Task Force was divided and augmented into other sub-groups that met on a regional basis to review the SOC guidance-based definitions. The members of these sub-groups were:

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The member agencies of NOICC also provided critical contributions to the development of this document through their earlier efforts on a related and companion document, Vocational Preparation and Occupations (VPO). Many of the computer tapes, code crosswalks, and explanations of data systems prepared for the VPO were utilized for this publication.

NOICC's member agencies are the Bureau of Labor Statistics, the Employment and Training Administration, the Office of Vocational and Adult Education, and the National Center for Education Statistics. In addition, the Office of Federal Statistical Policy and Standards of the Office of Management and Budget provided computer tapes and technical assistance relative the 1980 Standard Occupational Classification (SOC).

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Milo Peterson:

Office of Federal Statistical Policy and Standards

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Superintendent of Schools

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Emanuel Weinstein, Classification System Specialist; John Van Zant, Project Monitor and text contributor; Walton E. Webb, Coordinator of State and Interagency Network, who provided general supervision; Russell E. Flanders, Executive Director, who provided general direction.

I. INTRODUCTION

Background

To carry out the legislative mandates contained in P.L. 94-482 (the Education Amendments of 1976), and P.L. 95-524 (the Comprehensive Employment and Training Act Amendments of 1978), NOICC's Technical Steering Group adopted a number of policies. Among them (as published in the Federal Register) is one which adopts the Standard Occupational Classification as NOICC's overall occupational classification system. The SOC was designed to establish a standard coding system and nomenclature for use in identifying, classifying and codifying occupations. The structure of the SOC provides the CIDS with an organizing scheme that groups occupations with similar worker functions. This feature can be used to expand the occupational choice or options of the CIDS user. The feature also facilitates development of the CIDS user's understanding of the functional relationships among different occupations.

The SOC structure also permits an expansion of titles available within a CIDS. There are 834 separate SOC titles. Most of these are directly related to groups of Dictionary of Occupational Titles (DOT) codes. This means that the 834 SOC titles are matched with 12,099 defined base DOT titles. This arrangement enhances the selection of occupational titles appropriate for a particular State need.

As presented in the 1980 SOC Manual, the SOC structure is composed of a four-level system: Division, Major Group, Minor Group and Unit Group. Each SOC grouping or category represents a collection of occupations which are sufficiently similar in their main tasks to be grouped under a common title. Fundamental to each SOC Division are the various categories. These categories are arranged from general to progressively more specific level of occupational detail. Because of this structure, it is possible to aggregate or disaggregate categories under a particular SOC Division according to the level of detail required.

Given the advantages of the SOC and the NOICC Policy, NOICC staff approached the implementation of the SOC Policy in a developmental way. It has proceeded with the SOC implementation with as much interagency and field input as possible. To assess the impact of a SOC/CIDS requirement to "use the SOC as a standard structure for the presentation of occupational information in CIDS's funded under the CIDS Grant Program," NOICC held a meeting with a variety of CIDS experts. These included representatives from NOICC's statutory agencies, NOICC staff, nonprofit and commercial organizations, and the CIDS assistance staff from the National Governors' Association.

The major conclusion of this group was that the SOC definitions were not suitable for use in a CIDS. Their review of the SOC indicated that more details about worker functions were needed to facilitate use of SOC definitions in a CIDS.

The group advised NOICC that all CIDS would have the same problem. Therefore, they recommended that NOICC should sponsor a project to modify or convert the existing definitions for use in CIDS. To avoid potential duplication of effort among the CIDS grantees and to fulfill another NOICC mandate to establish standard definitions, NOICC initiated a Special Purpose Grant with the Wisconsin SOICC. The end products of this project are this publication and a computer tape. In July 1980, a project task force was convened by NOICC for the purpose of establishing criteria and guidelines for the development of the guidance-based definitions. This task force was comprised of representatives from career information delivery systems, occupational information coordinating committees, professional educators, representatives from various federal agencies, and NOICC staff. (The task force membership is included in the Acknowledgment.) The specific charge of this task force was to develop the parameters for the definitions contained in Volume I and to recommend procedures to develop composite attribute and classification coding for the various SOC groups contained in Volume II.

Definition development recommendations of the task force included the following:

1. A general description of no more than 540 characters should be developed for each occupational group and should focus upon the activities included under the specific DOT titles within the group;
2. A section of sample work activities from representative DOT titles within each occupational group should be included;
3. A statement covering the hours of work and travel requirements, if any, for the occupational titles within the group should be developed;
4. Typical places of employment should be listed. Additionally, the definitions were to be written for a 6th to 8th grade reading level. However, the task force was unable to agree upon specific methodology to be used in measuring the readability of the definitions.

The task force recommendations for developing the composite attributes were difficult to fulfill. Consideration had to be given to a variety of factors: what other classification systems should be related and aggregated for each SOC group; which variables describing worker traits, interests, and aptitudes, etc., should be included; and how should the aggregation and compilation be completed. The tables contained in this publication were designed to carry out the intent if not the letter of the task force recommendations.

Purpose

- The primary purpose of this publication is to provide CIDS staff with pertinent and useful occupational information arranged according to the Standard Occupational Classification (SOC) structure. Through this publication NOICC is providing technical assistance to states to assist them in converting their existing CIDS to a SOC structure. A secondary purpose for this publication is to provide counselors with a compendium of occupational information compiled from a great variety of sources. This publication compiles all of the background information used in preparing the Dictionary of Occupational Titles (DOT) as well as numerous other occupational and educational codes into one source document. This feature should save a researcher or information developer an enormous amount of time.

Organization of The Volumes

Because of the vast amount of detailed information contained in the entire Classification Structures for Career Information, it was necessary to publish it in separate volumes.

The first volume, divided into three parts, contains the 1980 Standard Occupational Classification (SOC) codes and titles as well as the new guidance-oriented definitions. Other selected information reflective of the group of individual occupations assigned to a particular SOC code or category has been provided also. The first volume of the Classification Structures for Career Information is subtitled "Occupational Statements."

The second volume is subtitled "Occupational Characteristics." This volume contains technical information about the individual occupations assigned to each SOC category. Each SOC category is identified along with all of its assigned DOT codes and other crosswalk codes. This second volume is divided into four parts.

A third volume also has been compiled. It is subtitled "Technical Information." This volume contains detailed explanations of the DOT occupational characteristics codes, a description of the various occupational and educational classification systems suggested uses for the entire publication, and a brief glossary of terms and a bibliography.

II. ORIENTATION TO THE CSCS

Orientation to the Standard Occupational Classification

Before proceeding with a detailed explanation of the tables contained in both the Occupational Statements volume and the Occupational Characteristics volume, a brief review of the SOC structure is in order. As explained in the "Background" section of this publication, the SOC is a four-level classification system. Beginning with the DIVISION, the least detailed and broadest category, the levels descend through the MAJOR GROUP and MINOR GROUP to the most specific level of detail, the UNIT GROUP. A SOC category that has DOT codes assigned to it is at the most specific level of detail.

Not every SOC level has DOT codes assigned to it. There are no DOT assignments made at the Division level. Within a Division, DOT assignments are made in a category when that category is at the finest level of detail. On a few occasions, there are DOT codes assigned to one of the Major Groups within a particular Division and, in this instance, there are no further levels--Minor Groups or Unit Groups--below this particular Major Group. Again, this is because this Major Group is at the most specific level of detail.

As stated, the 1980 SOC is a four-level taxonomy. There are SOC codes assigned to the various Major Groups, Minor Groups and Unit Groups. The Division is not coded. An example of this is:

Division.....(No Code)	Social Scientists, Social Workers, Religious Workers and Lawyers
Major Group..... 19	Social Scientists and Urban Planners
Minor Group..... 191	Social Scientists
Unit Group..... 1912	Economist
	1913 Historians
	1914 Political Scientists
	1915 Psychologists
	1916 Sociologists
	1919 Social Scientists, Not Elsewhere Classified.

In this example, DOT codes are assigned to the Unit Groups because they are the finest level of detail. Because most occupational groups are broken down to this level of detail, DOT titles are most frequently assigned to the Unit Group level.

By contrast, however, SOC code 192, "Urban and Regional Planners," is an example of a 3-digit category being the finest level of detail. Thus, DOT codes are assigned to the Minor Group in this case.

The SOC code structure also leaves numerical gaps. For example, a numerical gap exists between Unit Group 1916 and the next group, 1919. The purpose of these gaps is to provide room for future expansion or revisions to the coding structure.

With this background, it can be seen that there would be a problem in using the SOC code structure (as it is published) with a computer assisted CIDS. One of the problems stems from the uncoded Divisions. To resolve this problem, a four-digit code was assigned to each Division to permit the Division category to be used for career information searching purposes. Unfortunately this code is out of numeric sequence with the other categories contained within the Division.

For instance, in the example previously given, the Division, "Social Scientists, Social Workers, Religious Workers and Lawyers," is coded 1899 while the rest of the Division categories (Major Groups, Minor Groups and Unit Groups) all begin with 19. This numbering system works for use in a computer search strategy. An explanation of how this coding was accomplished and how it can be used for CIDS purposes in the Technical Information Volume of the Classification Structures for Career Information.

Organization of the Occupational Statements

While primarily designed for counselor/client use, this volume contains information useful to people using the SOC to classify information obtained from surveys, preparing information for a CIDS, or for other technical purposes. The Occupational Statements contain a brief guidance-oriented definition for each of the 834 categories contained in the 1980 SOC. Each definition is identified with both the SOC title and its code.

In those cases where a SOC category has been assigned DOT codes and titles, additional information has been prepared. This information includes: Sample Work Activities, Hours of Work and Travel, and Sample Places of Work. Again it is important to note that unless there have been DOT codes and titles assigned, there will be only a SOC code, title, and the guidance-oriented definition. Additional occupational information was not developed unless DOT titles were directly assigned to a SOC category.

Organization of the Occupational Characteristics

The Occupational Characteristics Tables of the Classification Structures for Career Information contain technical information about the individual occupations assigned to each SOC category. This volume is designed primarily for technicians who prepare information for a CIDS. Other professionals working with occupational information may find this publication useful. The Occupational Characteristics volume contains only the guidance-oriented, descriptive statements listed in the other volume of the CSCI. Therefore its user may want to work with both volumes to obtain the full benefit of the comprehensive occupational information organized by SOC codes.

There is a table for each SOC category that has a DOT code assigned to it. Each table contains, in its heading, the SOC code title, the short guidance-oriented definition, and the number of assigned DOT titles. The rest of the table is divided into two parts, the Composite Classification Tables and a listing of DOT titles and related attribute codes.

The Composite Classification Tables provide the reader with an overview or summary of the characteristics associated with the DOT titles assigned to the SOC code. These tables are actually a series of charts. There are two kinds of information in these charts for each DOT characteristic. One type of information is the numerical frequency rate; the other type is the percent of times that a specific characteristic occurs within the entire group of DOT titles assigned to the SOC code.

The second part of this table contains a listing of each DOT code and title assigned to the particular SOC code. The various occupational characteristic codes, as well as other related occupational and educational classification codes, are displayed in this part of the table. Most of the headings for this part of the table have been abbreviated and double-stacked in the data columns to conserve space. The double-stacked columns of data contain two listings, one listed over the other. For instance, the Guide to Occupational Exploration (GOE) code for a particular DOT title is listed over the U.S. Office of Education vocational program code where appropriate. Complete explanations for each of the codes listed in these tables are provided in Volume III, Technical Information of the Classification Structures for Career Information.

III. USE OF VOLUME I OF THE CSCI FOR GUIDANCE PURPOSES

Overview

Volume I can be used as a guidance version of the Standard Occupational Classification (SOC). It is intended for use by professional and paraprofessional guidance persons and, under supervision, by students and others in the process of making a career plan. Its purpose is to provide readable descriptions about meaningful groups of occupational titles.

Two companion volumes, Occupational Characteristics and Technical Information are intended for professional educators, developmental specialists and others whose primary objectives necessitate greater understanding of the SOC or whose responsibilities include setting up and/or maintaining a career information system or career materials.

Utilization

The world of work is extremely complex. At its most basic level, it consists of specific jobs occupied by individual citizens. In some respect, each job is unique, even jobs with the same title at the same establishment. Since there are almost 100 million people employed in the United States, describing each job separately would be impossible.

Over the years, various methods have been devised to group jobs together so that more than one job could be described at a time. Generally, at some level, several jobs grouped together are called an occupation. For example, "real estate agent" can refer to the specific job of an individual, Frank, who lists and sells lake property for a particular agency; or, it can refer to the occupation involved with buying and selling property. As such, the occupation title, then, becomes a very convenient way to talk about similar work of many people.

However, people do so many things that an extremely large number of titles are needed to describe them - over 12,000 are listed in the Dictionary of Occupational Titles (DOT) alone. This number is still too large to be very useful for people trying to get an overview of the world of work. As a consequence, the Standard Occupational Classification (SOC) was developed to group similar occupational titles in the DOT together.

The SOC puts together occupations according to function - that is, according to the presence of common job duties or actions. As such, it provides a meaningful way for people planning their future to understand the various alternatives open to them. Each SOC title consists of a group of functionally similar titles. The titles are those contained in the DOT, mentioned previously.

Use of this volume is quite simple. The numeric index which follows this introduction can be used to identify possible occupational titles of interest. Reading the information about these titles will provide a wealth of detail on various occupational options. The numbering system can be employed to locate related jobs. A description of the numbering system follows.

Numbering System

Following this introduction is a list of the occupational groups in the SOC. The list is in numeric order. The numbers assigned to each occupational group have meaning. Previously, it was noted that real estate agent is an occupational title for those who buy and sell property for others. Buying and selling is, however, a function which can be identified in many jobs - for example, the person who buys and sells stocks for others in the stock market. Jobs which involve buying and selling are closer in function than, for example, a real estate agent and a social worker whose function is to help other people deal with the social structure. Thus, the function of occupations can be described by their similarities or differences. SOC's numeric structure is determined by and reflects these similarities or differences.

The number for an occupational group is read from left to right. Each group has a two-digit (41), three-digit (412), or four-digit (4123) number. If the first two digits of two titles are the same, then the title is in the same Major Group (i.e., 412 and 413). If the first three digits are the same, the titles are in the same minor group (i.e., 4122 and 4123). Each four-digit title is unique, but is part of a major group and a minor group. For example;

- 41 INSURANCE, SECURITIES, REAL ESTATE AND BUSINESS SERVICES
- 412 INSURANCE, REAL ESTATE, AND SECURITIES SALES OCCUPATIONS
- 4122 Insurance Sales Occupations
- 4123 Real Estate Sales Occupations
- 4124 Securities and Financial Services Sales Occupations

As this example illustrates, the SOC is numbered so that the titles are grouped by similarity of function. This grouping makes the SOC useful in identifying and reading about the variety of occupational groups which might be of interest to an individual.

Content

For each title, this book contains a general description of the work activities of people in jobs in a related occupational group. At the lowest level in the numeric classification, it also contains a sample of specific activities, a statement on hours of work and on the type of travel, and a list of the places where work is performed.

Understanding the General Titles

In many cases, general titles are used to describe activities common to many occupations. Examples include "Operations Manager" and "Supervisor." It is helpful to know what these general titles mean to better understand the SOC.

1. **Manager, General** - A person in this type of occupation has a great deal of responsibility for the success or failure of the business or agency in reaching its objectives. A person at this level would, typically, work directly for the top person and would have most other people working under him or her. This person generally lays out the broad goals of the business or agency which are to be achieved through the activities of others. Typically, those responsible for day-to-day activities of an organization answer to the General Manager.

2. **Manager, Operations** - A person in this type of occupation is also responsible for a broad range of activities. However, the Operations Manager and the General Manager are differentiated in that the Operations Manager is primarily responsible for ensuring that the activities of others are completed in an efficient and effective manner. Typically, the Operations Manager will have others at a supervisory level working for him or her.

3. **Manager-Supervisor and Supervisor** - Persons in these types of occupations typically are responsible for ensuring that the activities of the workers in an organization or agency are carried out efficiently and effectively. They are responsible for ensuring that the activities achieve the goals of the operation. The major difference between the Manager-Supervisor and the Supervisor is the type of organization in which they work. Typically, Manager-Supervisors work in organizations which deal directly with the public in a service capacity or provide service to other organizations, businesses, etc. In contrast, Supervisors typically work in organizations involved with the production of goods or materials.

4. **Inspector** - An individual in this type of occupation typically performs activities designed to ensure that the products or services of an organization meet established guidelines for quality, safety, or other standards.

5. **Working Proprietor** - A person in this type of occupation typically works in a small organization. As such, the Working Proprietor typically performs many or all of the activities described under the General Manager, Operations Manager and Manager-Supervisor and Supervisor.

6. **Consultant** - A person in this type of occupation is usually an individual with a high degree of expertise in a particular area. Since individuals with such high expertise are not usually required on a day-to-day basis, organizations often hire such individuals for the short term to help them resolve a particular problem or concern. Consultants perform a variety of activities depending on their particular area of expertise.

1099 EXECUTIVE, ADMINISTRATIVE, AND MANAGERIAL OCCUPATIONS

Workers in executive, administrative, and managerial occupations plan and direct the operations of businesses, industries, institutions, and government. They examine information and conditions, determine the best plan to make needed changes, and implement these plans. They may enact or enforce laws, policies, rules, regulations, and codes. They hire staff and delegate responsibility for the work to be done or the goals they set.

11 OFFICIALS AND ADMINISTRATORS, PUBLIC ADMINISTRATION

These workers plan policies and direct activities in government and government agencies. They may be elected officials, such as legislators, or chief executives who coordinate government activities. Others head agencies that collect taxes, enforce regulations, protect natural resources, or plan community development. Officials and administrators appoint staff, plan and administer policies, supervise activities, prepare budgets, propose laws and regulations.

111 LEGISLATORS

Legislators are lawmakers. They are public employees elected to serve in governing bodies such as city councils, state legislatures, or the United States Congress. They learn what the public wants or needs, write bills proposing changes in the law, and vote to pass bills into law. They investigate matters of public concern that might affect the law or cause a new law to be written.

SAMPLE WORK ACTIVITIES

- determine what laws will benefit the public
- listen to voters, lobbyists, and other lawmakers to determine what laws should be passed
- keep voters informed of activities and legislation
- review court decisions, understand constitutionality of laws

112 CHIEF EXECUTIVES AND GENERAL ADMINISTRATORS

These people are in charge of state or local governments. Some work as elected officials to plan and administer the policies and activities of a state government. Others direct a city or county government, following policies set by local elected officials. They appoint department heads and staffs and prepare yearly budgets and plans. They supervise the activities of departments that collect taxes, enforce laws, and provide health and other services. They also propose laws and regulations.

SAMPLE WORK ACTIVITIES

- Plan and administer the policies and activities of a state government as a GOVERNOR or LIEUTENANT GOVERNOR
- Direct and coordinate the administration of a city or county government as a MAYOR or CITY MANAGER
- Appoint department heads and staffs as provided by State laws or local ordinances
- Supervise the activities of departments that collect taxes, enforce laws, provide health services, build public works, and buy equipment and supplies
- Prepare yearly budgets
- Plan for the future development of city and rural areas

HOURS OF WORK/TRAVEL

- These jobs may require evenings, weekend, and overtime work.
- Some of these jobs may require travel and time spent away from home.

SAMPLE PLACES OF WORK

- State governments
- City, town, or county governments

113 OFFICIALS AND ADMINISTRATORS, GOVERNMENT AGENCIES

Workers in these occupations direct government agencies. They may direct programs of agencies concerned with such things as justice and public safety, human or natural resources development, taxation, or urban and rural development. Important responsibilities for agency administrators include directing staff, interpreting policies, enforcing rules, and preparing budgets or reports.

1131 JUDICIAL, PUBLIC SAFETY, AND CORRECTIONS ADMINISTRATORS

These people direct programs that promote justice, public safety, and order. They direct activities in such places as police and fire departments, public safety agencies, and prisons. An important part of their work consists of directing staff, interpreting policies, enforcing rules, and preparing budgets and reports.

SAMPLE WORK ACTIVITIES

- Teach paid and volunteer workers how to handle disasters such as floods, fires, and bombing attacks
- Decide how public safety shelters should be marked and stocked
- Speak to campers, youth groups, and hunters to promote the safe use of fire in forest areas
- Direct a work program in a prison
- Look into complaints made by inmates in a prison
- Plan and direct highway safety campaigns
- Enforce laws and regulations that affect a city fire department
- Issue instructions to harbor police about water-traffic control, public safety, and theft prevention.
- Prepare and administer budgets
- Decide who should be promoted, fired, or transferred

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 35-40 hour work week. Occasional evenings work and travel may be required in some jobs.

SAMPLE PLACES OF WORK

- Fire departments
- Police departments
- Sheriff departments
- Safety councils
- City jails
- Federal and state prisons
- Other federal, state and local government agencies

1132 HUMAN RESOURCES PROGRAM ADMINISTRATORS

People in these jobs plan, organize, and direct programs that provide public services for people. These programs offer services in such areas as employment and training, health, recreation, welfare, consumer affairs, and aging. An important part of these ADMINISTRATORS' work consists of directing staff, interpreting policies, enforcing rules, and preparing budgets and reports.

SAMPLE WORK ACTIVITIES

- Plan surveys to get information about employment in a state
- Direct workers who prepare and send out health information materials
- Prepare reports about diseases and their causes
- Plan, promote, and organize public recreation services
- Review requests for training programs
- Set up a statewide arts and humanities council
- Prepare the budget for a local welfare program
- Prepare and give out information about the problems of older people
- Prepare and administer budgets
- Decide who should be promoted, fired, or transferred

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 35-40 hour work week. Occasional evenings and overtime work may be required in some jobs.
- Many of these jobs require some travel to attend meetings and conferences, or to make inspections.

SAMPLE PLACES OF WORK

- Federal, state, and local government agencies, including
 - . Human relations agencies
 - . Public health agencies
 - . Consumer protection agencies
 - . Social services agencies
 - . Agencies on aging
 - . Recreation departments
 - . Welfare agencies

1133 NATURAL RESOURCES PROGRAM ADMINISTRATORS

These people are in charge of programs and agencies that preserve, manage, and restore our natural resources. Some of their work includes managing public parks and fish and wildlife preserves. Their duties also include directing staff, interpreting policies, enforcing rules, and preparing budgets and reports.

SAMPLE WORK ACTIVITIES

- Change the length of the fishing season, based on changes in fish populations.
- Talk with mining company officials to promote conservation of resources
- Hire, train, and supervise park rangers
- Speak to visitors and civic groups about park rules and facilities
- Plan programs to correct water pollution and silting of streams
- Prepare budget estimates for federal projects
- Keep records of hunting accidents and drownings
- Decide who should be promoted, fired, or transferred

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 35-40 hour work week. Occasional evenings and overtime work may be required.
- Some of these jobs may require travel to attend meetings and give talks, or to make inspections.

SAMPLE PLACES OF WORK

- State and federal government agencies, including:
 - . State and national parks
 - . Fish and wildlife agencies
 - . Resource management agencies
 - . Environmental protection agencies

1134 RURAL, URBAN, AND COMMUNITY DEVELOPMENT PROGRAM ADMINISTRATORS

These people direct programs or agencies concerned with planning, managing, and developing city and rural areas. They work in such areas as housing, road building, waste disposal, and urban renewal. Their duties often include gathering and studying information, preparing budgets and news releases, and speaking to various groups. They also direct staff work and prepare reports.

SAMPLE WORK ACTIVITIES

- Review highway and bridge plans, contracts, and cost estimates for accuracy
- Attend city council meetings to present budgets and plans for public works projects
- Prepare plans for the construction of medical buildings
- Study housing projects to see how well they serve the needs of the people who live in them
- Help people whose houses are condemned find new places to live
- Prepare notices or press releases to let people know about changes in sanitation rules
- Speak at meetings with realtors and citizens to tell them where new streets will be put.
- Prepare and administer budgets
- Decide who should be promoted, fired, and transferred.

HOURS OF WORK/TRAVEL

- These jobs generally involve a standard 35-40 hour work week. However, some evenings or overtime work may occasionally be required
- Some of these jobs may require travel to attend meetings, give talks, and make inspections.

SAMPLE PLACES OF WORK

- Federal, state and local government agencies that deal with housing, transportation, or medical facilities

1135 PUBLIC FINANCE, TAXATION, AND OTHER MONETARY PROGRAM ADMINISTRATORS

These people are in charge of government agencies that set money and tax policies and collect, hold, and distribute funds. They direct programs such as vehicle licensing, tax and customs collection, and bonding. Depending upon the specific jobs, their work may range from interpreting laws and setting agency policies to planning public information campaigns. They also direct staff work and prepare reports.

SAMPLE WORK ACTIVITIES

- Recommend changes in vehicle and driver license laws
- Send out tax information to the public
- Prepare, review, and submit reports of a customs district
- Recommend the hiring, promotion, and transfer of staff
- Inspect property and decide the amount of tax that should be paid on it
- Direct the work of staff who prepare tax bills, collect taxes, and keep tax records
- Schedule and hold meetings to resolve tax violations
- Interpret tax laws for staff
- Prepare and administer budgets
- Decide who should be promoted, fired, or transferred

HOURS OF WORK/TRAVEL

- These jobs generally involve a standard 35-40 hour work week. However, some evenings or overtime work may occasionally be required.
- Some of these jobs may require occasional travel to attend meetings.

SAMPLE PLACES OF WORK

- Federal, state, and local government agencies that deal with public finances or taxation

1139 OFFICIALS AND ADMINISTRATORS, PUBLIC ADMINISTRATION, N.E.C.

These people direct government agencies or departments that enforce government rules and regulations. Some direct programs for monitoring (overseeing) federal research contracts. Some direct agencies that control the sale of alcoholic drinks. Some direct programs to insure that official election procedures are followed. Duties of these workers vary widely, but may include: conducting investigations, providing information to the public, writing reports and letters, collecting data, and supervising staff.

SAMPLE WORK ACTIVITIES

- Direct workers in setting up contracts with institutions that do research for a Federal agency
- Enforce laws, regulations, and policies in a State or National Park
- Direct the activities of an alcoholic beverage control authority
- Represent the interest of the U.S. government in dealings with foreign nations
- Direct a government program to compile vital statistics, such as births and deaths
- Direct a program to insure that official election procedures are followed throughout a state
- Manage the local, district, or regional office of a government agency or department
- Work as a Secretary of State to assist the executive and legislative branches of a State government
- Conduct conferences between management and labor to resolve labor disputes
- Direct the activities of workers who operate a city's radio communications equipment

HOURS OF WORK/TRAVEL

- Many of these jobs require travel to attend meetings, collect information, give talks, and conduct inspections. Some workers travel a great deal and may spend days or weeks away from home.

SAMPLE PLACES OF WORK

- Federal, State, and Local government agencies

12-13 OFFICIALS AND ADMINISTRATORS, OTHER

These workers plan and direct the activities and operations of businesses and industries, educational institutions, and service organizations. They establish goals, policies, and procedures. They oversee personnel and plan budgets. They study laws and regulations to insure conformance as well as write reports and confer with higher management and subordinates. They handle problems with operations, staff, clients, or customers.

121 GENERAL MANAGERS AND OTHER TOP EXECUTIVES

These people work as the heads of businesses, firms, agencies, and other organizations. They often are appointed. They plan, organize, direct, and control the major functions of the organization, through departmental managers and other executives, whom they direct. They set policies and goals, plan budgets, and select staff. These jobs include: EDUCATIONAL INSTITUTION PRESIDENT, HOSPITAL ADMINISTRATOR, DEPARTMENT STORE MANAGER, FINANCIAL INSTITUTION PRESIDENT, and other top management positions.

SAMPLE WORK ACTIVITIES

- Work with a governing board to begin programs for operating a college campus
- Talk with civic groups to promote educational research
- Set procedures, rules, and standards for the faculty and staff of a university
- Administer a city or county public school system
- Submit plans for educational programs to a school board for approval
- Direct the preparation of a school system budget
- Interpret school system policies to school personnel
- Form policies and programs for a transportation system
- Plan and direct the scheduling, dispatching, and licensing of vehicles
- Study and recommend cost control measures to help a large firm save money
- Select staff and assign them to supervisory positions
- Set pricing policies for the sale of goods by a department store
- Direct the overall work of purchasing, credit, and accounting departments in a large store
- Plan, develop, and direct the financial policies and practices of a bank or trust company
- Conduct staff meetings
- Direct the buying and selling of securities in a brokerage office
- Direct an entire hospital
- Direct and coordinate the activities of an industrial firm
- Review sales reports to decide if changes in programs or operations are required
- Set policies and goals for a business firm

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- State college and university systems
- City and county school systems
- Private educational institutions
- Motor transportation systems, including bus and trucking companies
- Department stores and other large retail trade stores
- Financial institutions, including banks, savings and loan associations, trust companies, mortgage banking companies, and finance companies
- Hospitals and other large health care facilities
- Industrial firms
- Business companies
- Government agencies

122 FINANCIAL MANAGERS

FINANCIAL MANAGERS are in charge of departments that handle money earned and spent by companies or government agencies. They help companies and agencies use their money wisely. Generally, their work duties include interpreting financial policies and laws, directing staff, and preparing financial reports.

SAMPLE WORK ACTIVITIES

- Direct the buying and selling of stocks and bonds
- Decide whether to approve requests for loans or credit cards
- Sign legal contracts to buy and sell real estate
- Look at computer printouts and statistical charts to find credit accounts that are late in being paid
- Plan ways to lower costs and increase the earnings of a company
- Study tax laws to see how a company can best make use of tax deductions
- Prepare financial reports for management

HOURS OF WORK/TRAVEL

- FINANCIAL MANAGERS generally have a standard 35-40 hour work week.
- Some jobs may require travel to attend meetings and some overtime work.

SAMPLE PLACES OF WORK

- Credit card companies
- Insurance companies
- Banks, savings and loan companies, credit unions, and other businesses that handle or give advice about money and stocks
- Any company that has a department to handle money earned and spent by the company
- Federal and state government agencies

123 PERSONNEL AND LABOR RELATIONS MANAGERS

These people manage programs concerned with the employment and treatment of workers. They set company policy on the employment, pay, and training of workers. They see to it that workers are informed of their employment rights and benefits. Some plan and direct employee relations, benefits, training, or staff development programs. Some manage a company safety, insurance, or pension program. Some direct a personnel office. These workers supervise staff, keep records, and compile management and government reports.

SAMPLE WORK ACTIVITIES

- Direct an industrial relations program for an organization
 - . Set policies on employment, pay, and employee relations
 - . Write to department managers to advise them of company policies
 - . Develop new wage and salary plans
 - . Consult with legal staff to make sure that policies meet Federal and State laws
 - . Prepare forecasts of future employment needs
 - . Explain industrial relations policies and practices to government officials
- Manage an employee benefit program for a company
 - . See that workers are informed of benefit programs, such as insurance plans, paid time off, and bonus pay
 - . Direct clerical work, such as the updating of records and the processing of insurance claims
- Plan and direct a worker training and staff development program for an agency or business
 - . Talk with managers to determine a company's training needs
 - . Set training policies and schedules
 - . Develop training manuals
 - . Train instructors in effective training techniques
- Manage the employment activities of a business or agency
 - . Plan and direct the activities of workers who interview, test, and screen job applicants
 - . Keep records and compile reports on employment activities
- Plan and direct the risk and insurance programs of a firm
 - . Measure the financial impact of risk to a company
 - . Select insurance brokers and carriers for a company
 - . Manage a company group life insurance or pension program

HOURS OF WORK/TRAVEL

- Generally, these MANAGERS work a standard 35-40 hour week during regular office hours.

SAMPLE PLACES OF WORK

- Any business or company
- Federal, State, and Local governments
- Military services

124 PURCHASING MANAGERS

PURCHASING MANAGERS plan and coordinate buying activities for a store or company. They supervise the work of buyers, purchasing officers, and other workers who order and buy materials, products, or services needed by the store or company. These items may be needed for operations in a business or as merchandise to be resold in a store. PURCHASING MANAGERS also review purchase orders and requests, decide the amount of goods to be stocked, set prices for goods, and set up contracts with supply houses.

SAMPLE WORK ACTIVITIES

- Review purchase order claims and contracts to see if they meet company policy
- Approve or refuse requests for supplies
- Decide the amount of goods to be stocked

- Figure out what to do with leftover goods
- Set the price of goods to make sure there is a profit
- Meet with other workers to plan sales programs
- Set up contracts with supply houses and wholesalers for equipment and supplies
- Set up rules and procedures to improve the way that an office runs

HOURS OF WORK/TRAVEL

- These jobs generally involve a standard 35-40 hour work week.
- Some jobs may require some buying trips and overtime.

SAMPLE PLACES OF WORK

- Shiplines
- Companies that sell products, services, or materials to stores, businesses, or the public
- Industries that must buy large amounts of raw materials or supplies

125 MANAGERS; MARKETING, ADVERTISING, AND PUBLIC RELATIONS

People in these jobs manage marketing, sales, advertising, or public relations departments in businesses and other organizations. They develop policies and programs for promoting the sale of a firm's products or services. They plan, organize, and direct departmental activities; train, supervise, and evaluate staff; and deal with business and other groups to promote sales. They study sales records and prepare progress reports. They may plan and direct advertising or sales campaigns.

SAMPLE WORK ACTIVITIES

- Manage the sales activities of a business
- Plan sales policies and programs
- Direct workers who prepare sales materials
- Train service representatives
- Establish sales territories, quotas, and goals for staff
- Contact business leaders to explain services and facilities offered by a client
- Direct worker evaluations
- Prepare sales reports
- Direct foreign sales and service outlets
- Plan and direct advertising campaigns for agency clients
- Conduct meetings with department supervisors to outline new advertising policies and procedures
- Coordinate the activities of workers who do market research, write copy, and arrange advertising
- Talk with artists, copywriters, photographers, and others to select advertising media to be used
- Review radio and TV ads before they are released
- Develop plans to bring in new accounts

HOURS OF WORK/TRAVEL

- Generally, these MANAGERS have a standard 35-40 hour work week. On occasion, they may have to work extra hours to meet deadlines or to attend evening or weekend meetings.
- Some of these jobs may require travel to set up sales or advertising campaigns or negotiate contracts with dealers.

SAMPLE PLACES OF WORK

- Manufacturing firms
- Printing and publishing companies

- Light, heat, and power companies
- Wholesale and retail establishments
- Advertising agencies
- Companies that provide business services
- Automobile leasing businesses
- Any business that does its own sales or advertising work

126 MANAGERS; ENGINEERING, MATHEMATICS, AND NATURAL SCIENCE

These MANAGERS direct research and development programs. They may work in industry, business, education, science, or a related area. They plan projects; assign, schedule, and review project work; and interpret policies and goals to staff. They consult with management to set research or production goals, and then develop methods and procedures to achieve those goals. They supervise projects and prepare reports for management. They also may direct the training of project staff.

SAMPLE WORK ACTIVITIES

- Consult with managers and department heads to plan projects
- Decide the purpose and objectives of research projects
- Review research proposals and decide what research should be funded
- Determine the information, equipment, and other resources needed to conduct projects
- Develop methods and procedures for conducting research
- Establish work standards
- Interpret the policies, purposes, and goals of an organization to staff
- Assign, schedule, and review work
- Direct the training of staff
- Revise schedules to introduce new procedures
- Prepare progress reports for management
- Help decide whether workers should be hired, promoted, or transferred

HOURS OF WORK/TRAVEL

- Generally, these jobs involve a standard 35-40 hour work week, with occasional overtime work to meet deadlines.
- Some of these jobs may require occasional travel to attend meetings and inspect project sites.

SAMPLE PLACES OF WORK

- Business and industrial firms
- College and university research centers
- Consulting firms
- Federal, State, and Local government agencies
- Research and development laboratories

127 MANAGERS; SOCIAL SCIENCES AND RELATED FIELDS

These people plan, develop, and direct programs designed to help meet a community's needs for health, welfare, and social support services. Some direct programs to raise funds for an agency or organization. Some direct programs to coordinate the work of health and welfare programs. Some set up and direct service organizations for youth. Some direct a sheltered workshop to give handicapped people on-the-job training. Some direct programs to recruit, train, and place volunteer workers. Some manage centers that provide housing and care for the very needy.

SAMPLE WORK ACTIVITIES

- Set fund-raising goals and policies for an agency
- Direct the public relations program of a community organization
- Develop programs to study a community's needs and problems in specific fields of welfare work
- Advise health and welfare agencies in planning and providing services
- Prepare reports and studies, to promote public understanding of community programs
- Recruit, train, and provide help to volunteer leaders and groups
- Show handicapped people how to perform work tasks
- Organize classes to teach volunteer skills and prepare them for work in an agency
- Work with a board of directors to set up and administer policies and programs
- Manage a rehabilitation center that provides housing and care for the very needy
- Work with welfare workers, psychologists, and doctors to plan activities and services for clients
- Arrange with business leaders to place clients in jobs

HOURS OF WORK/TRAVEL

- Many of these jobs require local travel to attend community meetings, review work programs, and meet with clients or staff.

SAMPLE PLACES OF WORK

- Agencies or councils for: child welfare, community welfare, family casework, youth services, health, recreation, public welfare, and fund raising
- Federal, State, and Local government offices concerned with health, human relations, and public welfare
- Non profit organizations and volunteer groups

128 ADMINISTRATORS: EDUCATION AND RELATED FIELDS

These workers administer programs in elementary, secondary, and post-secondary educational institutions. They establish educational and counseling objectives, formulate policies, select and assign staff, and prepare budgets. They insure that educational and counseling activities meet appropriate state, local, or national standards. They also plan classes and programs, and may enforce school rules, counsel students and teachers, and order supplies.

1281 ADMINISTRATORS: COLLEGES AND UNIVERSITIES

These people plan, organize, and direct activities and programs in a college or university. They work as deans or as directors of admissions, athletics, alumni, or other department. They establish policies, programs, and standards for the departments they represent. They select and supervise staff, prepare budgets and schedules, and evaluate programs and services. They hold departmental meetings and advise on matters related to their assigned areas. They also take part in school functions and promote good public relations.

SAMPLE WORK ACTIVITIES

- Direct and help plan social, recreational, and academic programs
- Determine course schedules
- Take part in faculty committee work
- Advise the president of a college on academic or other matters
- Organize and direct functions, meetings, and the production of publications
- Coordinate the activities of clerical staff
- Advise students on personal problems, educational and work objectives, and financial aid
- Sponsor and advise student organizations
- Hire and fire staff
- Direct publicity campaigns to promote school events

- Prepare budgets for department activities
- Plan and schedule school events
- Plan, organize, and direct one of the followings for a college or university:
 - . Academic programs
 - . The alumni organization
 - . Student programs
 - . Athletic programs
 - . Scholarship and loan programs
 - . The admissions program
 - . Research programs
 - . Social, cultural, and recreational programs
 - . Summer session programs
 - . Registration activities
 - . Business affairs
 - . Off-campus course and programs

HOURS OF WORK/TRAVEL

- COLLEGE AND UNIVERSITY ADMINISTRATORS often attend meetings and school functions during evenings and weekend hours.
- These jobs may require occasional travel to attend conferences and meetings in other cities.

SAMPLE PLACES OF WORK

- Public and private colleges and universities

1282 ADMINISTRATORS; ELEMENTARY AND SECONDARY EDUCATION

These people work as PRINCIPALS, ASSISTANT PRINCIPALS, or DEANS in public and private grade schools and high schools. They direct educational, administrative, and counseling activities and see to it that school programs meet state and school board standards. They plan school programs, enforce school rules, assign teachers and pupils to classes and counsel students on personal and academic matters. They also order school supplies and equipment.

SAMPLE WORK ACTIVITIES

- Coordinate school activities
- Plan and supervise school social and recreational programs
- Counsel students who have personal problems, educational, or career-related concerns
- Enforce school rules
- Evaluate educational programs to make sure they meet state and school board standards
- Review the activities of teaching departments in a school
- Talk with parents, teachers, and pupils to solve behavioral problems in the school
- Work with colleges, community groups, and other schools to coordinate educational services
- Order supplies, equipment, and teaching materials
- Supervise the assignment of teachers and pupils to classes

HOURS OF WORK/TRAVEL

- Generally, these jobs involve a standard 35-40 hour work week with some overtime work.
- These ADMINISTRATORS often attend school and community meetings and events during evenings and weekends.

SAMPLE PLACES OF WORK

- Public and private elementary, junior high, and high schools

1283 ADMINISTRATORS; EDUCATION AND RELATED FIELDS, N.E.C.

These people plan and direct educational programs for places such as health agencies, day care centers, prisons, libraries, and private companies. They organize educational programs, interpret policies and programs to teachers and other staff, and advise on teaching methods and practices. They prepare budgets, approve purchases, and conduct surveys to see that policies and procedures are being followed. They may plan courses, prepare teaching materials, and provide trainings. They also keep records and write reports.

SAMPLE WORK ACTIVITIES

- Direct activities to maintain the educational standards set by a board of nursing
 - . Help determine the policies and plans of the nursing board
 - . Advise nursing school officials on courses which should be offered
 - . Conduct surveys of nursing schools
 - . to see if policies are being carried out
 - . Keep records and reports about nursing schools
- Plan and direct the educational program for a community health agency
 - . Develop plans for the in-service education of health workers
 - . Organize educational programs
 - . Obtain educational materials for use
 - . in teaching nursing activities
 - . Help select nursing students
 - . Conduct surveys to see if educational programs are effective
- Direct the activities of a preschool or day care center
 - . Prepare budgets
 - . Approve the purchase of school materials, such as books, toys, and games
 - . Interview teaching and service staff
 - . Talk with parents about the activities and policies of the school
 - . Advise teaching staff on ways to handle the behavior or learning problems of children
 - . Approve menu plans and food purchases
- Direct the activities of a State Commission for the Blind
 - . Plan and organize job training programs for the blind
 - . Talk with civic leaders to coordinate services and programs for the blind
 - . Recommend changes in laws that affect people with visual problems
 - . Represent the Commission at conventions and public gatherings
 - . Approve the purchase of materials and equipment
- Plan special education programs and policies for public schools and agencies that serve handicapped children
 - . Determine policies for the screenings, placement, education, and trainings of children
 - . Conduct conferences to interpret policies and programs and train teachers and other staff
- Plan and direct a consumer education program for a company to promote goodwill and sales
 - . Study and interpret information about people's buying habits and preferences
 - . Plan programs to educate consumers in the use of equipment, products, or services
 - . Instruct sales workers in the operation and care of equipment
 - . Contact schools and community groups to promote a company's products and services
 - . Write articles and plan instruction manuals and booklets
- Plan and administer the educational program of a Federal, State, or local prison
 - . Prepare courses of study and training materials designed to help inmates adjust to society
 - . Advise instructors on teaching methods techniques
 - . Prepare budget requests for education programs
 - . Prepare reports and records
- Plan and administer a library services program
- Develop educational programs in agriculture and home economics for a government extension service program
- Direct the teaching staff of a school system
- Set up and maintain records on all the staff in a school system

HOURS OF WORK/TRAVEL

- These ADMINISTRATORS generally keep regular office hours. They may travel to attend meetings and conduct surveys.

SAMPLE PLACES OF WORK

- Government agencies, such as
 - State nursing boards
 - State commissions for the blind
 - Federal, State, or local prisons
 - Agriculture and home economics
 - extension service programs
 - Federal, State or local agencies that provide services to handicapped persons
- Community health services
- Public and private school systems
- Preschools and day care centers
- Public and private libraries
- Private businesses
- Light, heat, and power companies
- Telephone and companies
- Water companies
- Nonprofit organizations that provide educational services

131 MANAGERS; MEDICINE AND HEALTH

These people are in charge of medical and health services in hospitals, clinics, businesses, or schools. Some direct the nursing services of a community health agency, hospital, or industrial firm. Some are in charge of the educational program of a nursing school or direct the medical records system of a hospital. Some administer a medical emergency service program. These MANAGERS prepare budgets, hire staff, plan and direct health care services, keep records, prepare reports, and evaluate medical services and staff.

SAMPLE WORK ACTIVITIES

- Direct surveys to get information about the need for nursing services in a community
- Plan a nursing services program that will meet a community's needs
- Prepare budgets for nursing programs
- Recruit, select, and assign nurses
- Recommend that a hospital's policies be changed
- Set up in-service training programs for hospital nurses
- Take part in community health programs
- Set up record and report systems for the health services department of an industrial plant
- Arrange for student nurses to use hospital facilities
- Interview and hire new staff for a nursing school
- Keep records on student nurses
- Explain rules and goals of hospital nursing services to staff and community groups
- Direct workers who rescue and care for accident victims
- Develop training programs for ambulance and rescue workers
- Prepare reports on the progress and problems of an emergency service program
- Plan a medical record system for a health care center
- Develop training materials
- Supervise workers who prepare and process medical records

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Hospitals, clinics, and other health care facilities
- Nursing schools
- Social service agencies
- Local, state, or federal health or medical services programs
- Industrial firms

132 PRODUCTION MANAGERS, INDUSTRIAL

These MANAGERS plan, and direct production activities in plants and factories. They determine work procedures and work through departmental supervisors to control the production, distribution, and marketing of goods. They hire and fire workers and keep production and other work records. They review progress reports and reschedule work so that deadlines can be met. They interpret and enforce company rules and regulations. They also direct the training and assignment of workers, and prepare budgets and reports for management.

SAMPLE WORK ACTIVITIES

- Establish policies for the storage and distribution of goods
- Contact other companies to schedule shipments of products
- Prepare reports on the cost of plant operations
- Develop plans for the efficient use of machines, materials, and workers
- Direct the preparation of accounting records
- Recommend production budgets to management
- Talk with management to establish production and quality control standards
- Conduct hearings to resolve worker complaints
- Develop new processing technologies
- Advise management on methods and procedures for selecting, installing, and maintaining plant equipment
- Estimate the time it will take to produce various products
- Review progress reports and reschedule work so that deadlines can be met

HOURS OF WORK/TRAVEL

(No information)

SAMPLE PLACES OF WORK

- Factories and plants, including:
 - . Food-packing plants and canneries
 - . Petroleum plants
 - . Breweries and wineries
 - . Feed mills
 - . Food processing plants
 - . Railroad car manufacturers
 - . Lumber mills

133 CONSTRUCTION MANAGERS

These people manage construction operations for firms that build and repair structures such as buildings, bridges, roads and dams. They work through on-site supervisors to plan and direct construction activities. They study building plans and estimate the materials, labor, and equipment required to complete work. They establish work procedures, order supplies and materials, review progress reports, and issue decisions on staff and equipment requests. They also handle technical matters and union and service contracts.

SAMPLE WORK ACTIVITIES

- Contract to do construction or landscaping work
 - . Follow architect's plans, blueprints, codes, and other specifications to plan construction work
 - . Estimate the costs of materials and labor needed for projects
 - . Prepare contracts and bids for building projects
 - . Work through site supervisors to direct construction work
 - . Inspect grounds to determine the equipment needed for grading, tilling, or replacing top soil
 - . Inspect work sites to see that the terms and specifications of contracts are met
- Plan the activities of workers who construct, install, inspect, and maintain railroad track and rights-of-way
 - . Order supplies and materials needed for projects
 - . Send workers and equipment to scenes of accidents to repair damage and restore service
- Investigate accidents, defective tracks, and items blocking the right-of-way
 - . Prepare reports about the condition of tracks
- Direct workers who help build buildings, dams, highways, pipelines, or other construction projects
 - . Plan the procedures for construction work
 - . Order tools and materials to be delivered to the construction site
 - . Talk with supervisors, engineers, and inspectors to work out construction problems
 - . Inspect work in progress to make sure that specifications and schedules are met

HOURS OF WORK/TRAVEL

- CONSTRUCTION MANAGERS may travel to inspect work in progress, attend meetings, and arrange contracts. Some of the projects they manage may be located beyond the local area. In these cases, they may spend short periods of time away from home.

SAMPLE PLACES OF WORK

- Construction companies and contractors
- Landscaping firms
- Railroad companies

134 PUBLIC UTILITIES MANAGERS

These workers manage the operations of public utility companies or departments. They plan, organize, and direct the activities of staff and supervisors. They determine work procedures, hire and fire staff, review operations, and enforce regulations. They also prepare budgets and reports, confer with higher management about department operations, and handle problems and complaints.

1341 COMMUNICATIONS OPERATIONS MANAGERS

These people manage operations in telephone, telegraph, radio, TV, or other companies involved with communications. They plan, organize, and direct departmental activities. They establish work procedures, select staff, and coordinate activities between departments. They review operations, enforce regulations, prepare reports and budgets and advise management on problems and trends. They also handle technical matters and union and service contracts. They may use schedule boards, flow charts, and other devices.

SAMPLE WORK ACTIVITIES

- Direct the activities of a radio or TV station
 - . Work through supervisors to direct the work of staff in sales, program, engineering, and other departments
 - . Advise station staff on operating procedures
 - . Observe activities to make sure that Federal regulations are met
- Direct activities in the offices of a telegraph company division
 - . Interpret and implement company policies and procedures
 - . Conduct management studies to plan ways to meet a community's telegraph needs
 - . Prepare telegraph office layouts and drawings
 - . Audit accounts and check balances
 - . Inspect facilities to see that company standards are met
- Direct the construction, operation, and upkeep of a telephone system
 - . Approve or reject requests for improvements to telephone facilities
 - . Work through supervisors to direct workers who install, service, and repair telephone cables
 - . Prepare budgets and write reports
- Direct traffic operations in a central telephone or telegraph office
 - . Direct activities, such as customer service, phone traffic measurement, and phone traffic studies

HOURS OF WORK/TRAVEL

- Generally, these MANAGERS keep regular office hours. However, they may work nights and weekends during emergencies. They also may work long hours at times.
- These jobs may require local travel to attend meetings, arrange contracts and services, and inspect facilities.

SAMPLE PLACES OF WORK

- Telephone and telegraph companies
- Radio and TV broadcasting companies or networks
- Businesses or organizations that own and operate their own communications systems or equipment

1342 TRANSPORTATION FACILITIES AND OPERATIONS MANAGERS

These people manage operations in companies that provide transportation, delivery, storage, and related services. They plan, organize, and direct the departmental activities. They establish work procedures, select staff, and coordinate activities between departments. They review operations, enforce regulations, prepare reports and budgets, and advise management on problems and trends. They also handle technical matters and service and union contracts. They may use schedule boards, flow charts, and similar devices.

SAMPLE WORK ACTIVITIES

- Plan and direct the building, operation, and upkeep of airport facilities
- Manage a harbor department or port authority
- Direct the activities of an airline flight control center
- Direct workers who crate, move, and store household goods
- Direct the operation and maintenance of gas pipeline stations
- Direct activities at a truck terminal
- Direct workers who maintain and repair aircraft
- Direct workers who service and repair buses, trolley cars, or other vehicles
- Manage a freight terminal where ships' cargo is loaded and unloaded
- Manage stations and terminals of a busline, subway, or elevated train system
- Plan and direct the activities of workers who provide armored car services
- Coordinate a safety traffic program for truck drivers
- Coordinate the activities of an import-export business

HOURS OF WORK/TRAVEL

- Generally, these **MANAGERS** keep regular office hours. However, they may work nights and weekends during emergencies. They also may work long hours at times.
- These jobs may require local travel to inspect facilities and attend meetings.

SAMPLE PLACES OF WORK

- Airport and shipping companies
- Bus and railroad companies
- Oil companies
- Warehouse and storage companies

1343 ELECTRICITY, GAS, WATER SUPPLY, AND SANITARY SERVICES MANAGERS

These people manage service departments in companies that supply electricity, gas, water, steam, or sanitary services. They work through supervisors and other staff to direct the operations of planning, service, or maintenance departments. They determine work procedures, select staff, and coordinate activities within their assigned areas. They review operations, enforce regulations, prepare reports, and budgets, and advise management on problems and trends. They also handle technical matters and service and union contracts.

SAMPLE WORK ACTIVITIES

- Direct workers who install, repair, and service water, irrigation or sewage facilities
- Direct waste disposal activities at a landfill site
- Direct the activities of workers who inspect, maintain, and test power lines
- Direct the generation of electrical power throughout an electric power system
- Direct the activities of workers in a gas-distribution plant
- Direct the activities of the planning department of a power company
- Direct the operation and upkeep of transmission lines in a power system

HOURS OF WORK/TRAVEL

- Generally, these **MANAGERS** keep regular office hours. However, they may work nights or weekends during emergencies.
- These jobs may require local travel to conduct inspections and attend meetings.

SAMPLE PLACES OF WORK

- Federal, State, and Local government agencies concerned with the delivery of government-controlled water
- Gas distribution plants
- Light, heat, and power companies
- Water utilities
- Sewage treatment facilities

1344 POSTMASTERS AND MAIL SUPERINTENDENTS

These people are responsible for the day-to-day operation of post offices. They supervise post office staff, set up work schedules, and handle customer complaints. Some are responsible for the operation and management of several post offices. They hire and train post office managers and direct safety, finance, maintenance, and other programs for post offices in their district. They also provide postal information to the public.

SAMPLE WORK ACTIVITIES

- Organize and supervise mail processing and other activities in a post office
- Handle customer complaints about mail service
- Inform the public of postal laws and regulations
- Prepare reports of post office activities
- Select, train, and evaluate staff
- Prepare work schedules
- Direct the operation and management of district post offices
- Approve post office budgets
- Direct safety, finance, and maintenance services for post offices
- Hire and fire top level post office management
- Provide postal information to newspapers, businesses, and government agencies

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- U.S. Postal Service

135 MANAGERS: SERVICE ORGANIZATIONS

These workers manage businesses or organizations that provide services to individuals or organizations. They may run a hotel or restaurant, a property leasing or management services, or a professional organization, for example. These managers may estimate customer or client demand, prepare budgets and work schedules, and establish policies and procedures. They also organize programs to meet client or business goals.

1351 MANAGERS; FOOD SERVING AND LODGING ESTABLISHMENTS

These people manage businesses that serve foods and/or provide lodgings and related services to people. This may include restaurants, hotels, school cafeterias, trailer parks, or similar facilities. They plan, organize, and direct the operation of the business. They determine the types and amounts of goods or services to be sold, and may set price and credit policies. They determine work procedures, plan budgets, and order stock and supplies. They hire and supervise staff, enforce rules, handle customer and worker complaints, and keep business records.

SAMPLE WORK ACTIVITIES

- Coordinate the activities of workers who keep business records, pay accounts, and order supplies
- Set standards for service, room rates, publicity, and food selection
- Direct the preparation of food
- Plan dining room, bar, and banquet operations
- Test cooked foods by tasting and smelling them
- Direct the maintenance of buildings and equipment
- Enforce safety and cleanliness rules
- Investigate and resolve complaints
- Keep time and payroll records
- Keep records required by the Government
- Prepare and write reports
- Take inventories of supplies and equipment
- Provide telephone answering service for tenants or guests
- Mow lawns and clean public areas
- Manage a:

- | | |
|---|------------------------------------|
| . Restaurant or bar | construction, or lodging workers |
| . Hotel or motel | . Boarding house |
| . School cafeteria | . Trailer park |
| . Housekeeping program for an institution | . Summer camp or resort |
| . Residential camp for farm, | . Nursing home or hospital kitchen |

HOURS OF WORK/TRAVEL

- Many of these jobs require evenings, weekend, and holiday work. They also may require long working hours.

SAMPLE PLACES OF WORK

- Hotels, motels, motor inns, trailer parks, and other lodging facilities
- Restaurants, bars, supper clubs, cafeterias, and other eating places
- Lodging camps, summer camps, resorts, construction camps, and other live-in facilities
- Hospitals and nursing homes

1352 MANAGERS; ENTERTAINMENT AND RECREATION FACILITIES

These people manage facilities that offer social, recreational, or cultural programs or activities. For example, they may run a circus, dance hall, sports arena, gambling house, or sports club. They plan, organize, and direct the operation of the business. They set price and credit policies, determine work procedures, plan budgets, and order needed supplies. They hire, fire, and assign duties to staff and enforce safety and other rules. They handle money affairs, and keep business records. They also handle complaints.

SAMPLE WORK ACTIVITIES

- Direct activities to prepare facilities for circus, ice skating, or rodeo shows
 - . Plan the layout of performance facility used on a tour
 - . Arrange personal space for entertainers and animals at each . Make sure that animals are watered and fed
- Manage a dancehall, sports arena, or auditorium to provide entertainment to the public
 - . Contract and schedule entertainment
 - . Supervise clerical, and service workers
- Coordinate the activities of volunteer workers at a community center
 - . Develop and promote music, dance, art and crafts, and other recreation programs
- Manage a sea circus facility
 - . Establish purchasing, accounting, and budgeting procedures
 - . Inspect facilities to see if they meet health and safety regulations
- Manage a casino
 - . Resolve complaints and interpret house sales
- Manage a fish and game club
 - . Assign camps, fishing areas, and hunting grounds to parties
 - . Arrange guide services, provisions, and transportation for guests
 - . Take inventory of equipment and supplies
- Manage a golf club
 - . Direct workers and crews who maintain club buildings and grounds
 - . Keep records of receipts and money paid out
- Manage a sun club
 - . Arrange competitive shooting meets
 - . Buy ammunition, firearms, and supplies
 - . Enforce safety rules and regulations

HOURS OF WORK/TRAVEL

- Many of these jobs require evenings and/or weekend work.
- Some of these workers manage roadshows or sports clubs. These workers may be required to travel and spend considerable time away from home.

SAMPLE PLACES OF WORK

- Camps, dude ranches and other vacation resorts
- Casinos and gambling houses
- Circus, aquatic shows, and rodeos
- Dance studios
- Nonprofit organizations that provide entertainment and services for people, such as those that serve military personnel
- Public recreation centers
- Sports facilities, such as golf courses, skating rinks, sports arenas, sports clubs, swimming pools, and sun clubs
- Theaters, auditoriums, and community arts centers

1353 MANAGERS; PROPERTY AND LEASING

These people manage estates, buy and sell real estate, and lease property for clients and employers. They show property to clients, arrange loans for clients and sign lease payments and sales contracts. Some manage apartment complexes or housing projects. Some arrange permits with land owners to allow surveys or prospecting on their land. Some buy or lease land for construction projects. Some arrange leasing of facilities for public events.

SAMPLE WORK ACTIVITIES

- Coordinate the activities of a land development company.
 - Supervise staff who prepare reports on available land
 - Prepare reports that describe trends in a community's tax rates
 - Direct staff who sample mineral deposits, survey land, and test water supplies
 - Arrange mortgage loans
- Direct the land and leasing department of a company
 - Study leases bought, prices paid, and other dealings of competing companies
 - Arrange with brokers to sell interests in leases
 - Sign agreements and contracts for the purchases and sale of land leases
 - Supervise staff who prepare lease agreements
- Arrange contracts for leasing arenas, auditoriums, or other public events
 - Keep a schedule of rentals to determine what facilities are available for bookings
 - Oversee the operation and upkeep of facilities
 - Notify fire and police departments of the scheduled use of buildings
 - Receive and account for monies paid for rentals
- Manage an apartment complex
 - Show apartments and explain occupancy terms
 - Rent or lease apartments
 - Investigate tenant complaints
 - Direct workers who do repair, painting, and yard work
 - Manage commercial, industrial, or residential properties for clients
- Buy and sell investment property on a commission basis

HOURS OF WORK/TRAVEL

- PROPERTY AND LEASING MANAGERS may travel to inspect property, meet with clients, and arrange for the purchase or sale of land.
- These jobs may require some work during evenings and weekends.

SAMPLE PLACES OF WORK

- Apartment complexes
- Companies that provide business services
- Mining and quarrying companies
- Oil companies
- Utility companies
- Any business that leases, rents, buys, or sells property
- For yourself as an independent contractor

1354 MANAGERS, MEMBERSHIP ORGANIZATIONS

These people plan, organize, and direct programs for groups that operate on a membership basis. This may include professional, trade, or business groups. They help members set objectives and policies, organize publicity, and set up committees. They may provide members with marketing information or help them promote community support for civic improvements. Some provide services, such as membership development or job placement. Some direct programs to help businesses develop and use foreign markets.

SAMPLE WORK ACTIVITIES

- Administer the program of a professional nurses' association
 - . Help establish the objectives and policies of the association
 - . Help organize committees
 - . Arrange publicity
- Manage the business affairs of a labor union
 - . Direct union functions, such as the promotion of membership, and the placement of union members in jobs
 - . Visit worksites to make sure that union contracts are enforced
- Direct the activities of a department of the chamber of commerce
 - . Study new tax laws to determine the effects on community interests
 - . Study market trends and economic conditions to forecast the market for products in an area
 - . Suggest civic improvements, such as community zoning and airport expansion
 - . Plan and direct campaigns to promote public support of community programs
 - . Promote tourist travel to the community
 - . Conduct surveys in foreign countries to locate markets for products and services
 - . Entertain foreign governmental and business officials to promote trade

HOURS OF WORK/TRAVEL

- Many of these jobs require local travel to attend meetings, arrange publicity, or take part in community activities. In some jobs, night or weekend work may sometimes be required.

SAMPLE PLACES OF WORK

- Community chambers of commerce
- Labor unions
- Non-profit organizations
- Nursing associations
- Any professional, business, or trade group that operates on a membership basis

1359 MANAGERS; SERVICE ORGANIZATIONS, N.E.C.

These workers manage businesses, departments, or organizations that provide customer or internal services. This may include laundering, burial security, repair, travel or other services. They plan budgets, order stock and supplies, determine work procedures and staff function. They hire, train and supervise staff. They keep business records, take inventories and enforce safety and other rules. They also handle complaints and may promote the sale of services.

SAMPLE WORK ACTIVITIES

- Direct a service department of a company that leases machinery
 - . Organize service offices in other locations
 - . Stock offices with spare parts and supplies
- Coordinate the volunteer services program of an organization that provides social and welfare services
 - . Talk with agency staff to determine their needs for various volunteer services
 - . Interview, screen, and refer applicants
 - . Arrange on-the-job training for volunteers
 - . Prepare training manuals and news releases
 - . Speak before community groups to explain volunteer programs
 - . Keep worker records
- Arrange and direct funeral services
 - . Talk with families to arrange the details of funerals
 - . Arrange lights and floral displays
 - . Direct the preparation and shipment of bodies around caskets
- Direct registry services for private duty nurses
 - . Keep a list of the names of nurses available for duty
 - . Keep records of calls received requesting nurses
- Manage a cemetery
- Manage a travel agency
- Manage a laundry for a business or industrial firm
- Direct a security program in an industrial plant

HOURS OF WORK/TRAVEL

- SERVICE ORGANIZATION MANAGERS work in a variety of businesses and settings. Work hours and travel requirements vary from job to job, but may include some evenings and weekend work and light local travel.

SAMPLE PLACES OF WORK

- Laundries, cleaners, and laundromats
- Cemeteries and funeral parlors
- Travel agencies
- Dental laboratories
- Volunteer service organizations
- Social service agencies
- Nursing associations
- Businesses that provide repair or other services to customers
- Companies that provide security services
- Manufacturing plants and factories
- Any business or industry

136 MANAGERS; MINING, QUARRYING, WELL DRILLING AND SIMILAR OCCUPATIONS

These workers manage operations at mines, quarries, or oil fields. They plan and organize operations and work through on-site supervisors to direct the day-to-day field work. They study survey data, maps, blueprints, laws, and cost estimates to plan the construction of mines or wells. They direct transportation, housing, and supply services, and arrange for the upkeep and repair of equipment. They also determine work procedures and schedules, enforce safety rules, and solve technical problems.

SAMPLE WORK ACTIVITIES

- Plan and coordinate the activities of workers who mine coal, ore, or rock at mines or quarries
 - . Study survey data and talk with engineers and mine supervisors to plan mining operations
 - . Calculate the cost of operating a quarry
 - . Study maps and blueprints to determine where roads, shafts, and tracks should be placed
 - . Study land formations to determine how they might be used
 - . Tour mines to resolve safety, worker, and production problems
 - . Work with unions and workers to settle complaints
- Direct transportation, housing, and supply services for an oil company
 - . Buy supplies and have them shipped to prospecting parties
 - . Arrange for housing and other living facilities for oil company workers
 - . Arrange for the repair of drilling equipment
- Direct drilling operations at various oil fields
 - . Plan the building of drilling rigs
 - . Direct technical processes, such as the treatment of oil and gas to reduce moisture
 - . Schedule the breakdown and storage of equipment
- Supervise workers at one or more underground mines
 - . Direct the opening of new underground rooms and passageways
 - . Work with a safety engineer to direct a safety program
 - . Inspect mines and instruct mining supervisors in ways to improve production and working conditions

HOURS OF WORK/TRAVEL

- Many of these workers manage operations at several field sites. They often spend part of their time in the office preparing cost estimates, contacting suppliers, and arranging for staff to be hired. They also spend considerable time at the field sites, where they direct activities, conduct inspections, and solve operating problems. Some oil-drilling jobs require travel to remote locations and considerable time spent away from home.
- Many of these jobs require some overtime work, particularly during emergencies.

SAMPLE PLACES OF WORK

- Mining and quarrying companies
- Petroleum and natural gas companies
- Mining or drilling contractors

137 MANAGERS; ADMINISTRATIVE SERVICES

These workers manage the supportive services of a business, agency, or organization. Some direct activities concerned with the purchase or sale of materials or services. Others direct clerical functions, benefit programs, or repair and maintenance activities. They review reports and records and plan department activities. They assign duties to staff and prepare work schedules and budgets. They review operations, write reports, enforce rules, and help staff solve work problems. They also may deal with outside organizations on matters such as business services or contracts.

SAMPLE WORK ACTIVITIES

- Direct activities concerned with the purchase or sale of equipment, materials, or services

- Review inventories, budgets, planning reports, and requests for goods
 - Review bids and decide which firms should set contracts
 - Prepare purchase orders and contracts
 - Dispose of a company's excess property
 - Inspect property to estimate its market value
 - Study market conditions to determine the time, place, and type of sale
 - Prepare ads
 - Assign duties to sales workers
 - Recommend the destruction of property that cannot be sold
- Provide information and advice on a retirement program
 - Explain the retirement system to personnel officers
 - Audit retirement accounts
 - Attend and address conferences and other meetings
 - Coordinate the activities of clerical workers in a business or organization
 - Organize office procedure, such as typing, filing, and bookkeeping
 - Devise ways to improve office workflow
 - Plan office layouts
 - Review records for neatness, completeness, and accuracy
 - Plan ways to evaluate workers' performance
 - Conduct worker benefits programs
 - Direct a statewide merit system testing program
 - Prepare plans for the maintenance, repair, and inspection of buildings and equipment
 - Direct a State unclaimed property disposal office
 - Direct the activities of workers who repair and maintain motor vehicles used by a police force

HOURS OF WORK/TRAVEL

- Generally, these MANAGERS keep regular office hours. However, they sometimes work overtime.
- Some of these jobs may require local travel to address conferences, attend meetings, deal with suppliers, or arrange contracts or services

SAMPLE PLACES OF WORK

- Retail stores
- Government offices and agencies
- Any business or industry

139 OFFICIALS AND ADMINISTRATORS, OTHER, N.E.C.

These workers plan, direct, and control the activities of a department or program, within a business or agency. For example, some manage sales or service programs or direct a company's projects. They often work through supervisors to implement policies and procedures and select, train, and supervise staff. They prepare budgets and reports, review operations, and enforce company policies and rules. They also assist with difficult administrative or technical problems, and arrange business services and contracts.

SAMPLE WORK ACTIVITIES

- Direct the sales program of a newspaper, book, and magazine company
 - Direct staffing, training, and performance evaluations
 - Determine staff assignments and responsibilities
- Direct the sales and service activities of a firm that sells equipment and supplies to medical and engineering organizations

- . Plan ways to promote new markets for goods and services
- . Talk with potential customers to learn of their needs for equipment, supplies, and services
- . Advise customers on the types of equipment to buy
- . Direct and coordinate sales, record keeping, and shipping operations
- . Resolve customer complaints about equipment, supplies, and services
- Act as a "go-between" for steamship companies or airlines and the Bureau of Customs
 - . Prepare documents required by law for a foreign ship or plane to unload cargo at a U.S. port
 - . File papers with the Bureau of Customs and arrange for the payment of duties
 - . Provide for the storage of imported goods
- Direct the customer service program of a business that sells and services machines or appliances
 - . Review customer requests for service
 - . Determine the workers and equipment needed for service calls
 - . Assign routes to workers, based on the workers' knowledge and experience
 - . Arrange for machines and equipment to be delivered
 - . Keep records of work hours, work performed, and parts used by workers
- Plan, direct, and coordinate a company's projects
 - . Develop staffing plans and work plans and schedules for each phase of a project
 - . Recruit workers
 - . Develop a system to control project budgets
 - . Review project reports and modify schedules, as required
- Direct maintenance, warehousing, payroll, or other operations in a department store
 - . Control monies spent for repairs to the building and its equipment
 - . Arrange for the storage and display of new merchandise

HOURS OF WORK/TRAVEL

- Generally, these jobs involve a standard 35 to 40 hour work week. However, some overtime work may be required at times.

SAMPLE PLACES OF WORK

- Retail stores, such as department stores
- Government offices and agencies
- Business contractors
- Manufacturing and distributing companies
- Publishing companies
- Financial firms
- Movie, radio, and TV studios

14 MANAGEMENT-RELATED OCCUPATIONS

Workers in these occupations provide support services for the management of businesses, industries, and institutions. They may provide financial information or accounting services. Others purchase goods for resale or use in company operations. Some workers hire and train personnel while others analyze company operations and advise management. Managers depend on these workers who implement their plans, advise them on operations, and recommend changes.

141 ACCOUNTANTS, AUDITORS, AND OTHER FINANCIAL SPECIALISTS

Workers in these occupations examine and evaluate financial information in order to advise their employer or clients. They may examine financial records, statistical information, or credit reports. They may prepare tax forms, outline contracts, or determine financial risk. They examine all available information and help establish financial and investment plans.

1412 ACCOUNTANTS AND AUDITORS

ACCOUNTANTS and AUDITORS study financial records in order to give advice on money matters or prepare financial statements. They may prepare income tax forms or advise clients on certain business or financial decisions. They may examine clients' financial records to see if they are properly kept and reported. They may develop estate plans, accounting systems, or budgets. Some teach courses in a business or professional school, do consulting work, or serve on committees of professional organizations.

SAMPLE WORK ACTIVITIES

- Prepare federal, state, and local tax returns for individuals and businesses
- Advise managers on tax matters
- Devise and set up tax record systems
- Examine a company's accounting records and write a report on its financial standing
- Check ledger entries of cash and check payments, purchases, and expenses
- Advise a company on ways to improve its financial standing
- Direct workers who keep records of expenses and tax payments
- Set up a budgeting system so a firm can control money spent for advertising, production, and labor
- Plan and direct a system to keep records of materials and labor cost
- Take an inventory of property owned by a business
- Prepare forms and manuals used by bookkeeping and clerical staff
- Conduct a study to get evidence in fraud cases
- Audit tax returns to see if they were properly prepared
- Direct workers who keep records of school fees and receipts
- Write credit reports on bank customers

HOURS OF WORK/TRAVEL

- Most ACCOUNTANTS and AUDITORS work in offices and have regular work schedules
- Self-employed ACCOUNTANTS and AUDITORS often have offices at home and work as many hours as business requires.
- TAX ACCOUNTANTS work long hours under heavy pressure during the tax season.
- ACCOUNTANTS and AUDITORS employed by large firms may travel a great deal to perform audits or to work for clients or branches of the firm.

SAMPLE PLACES OF WORK

- Independent accounting firms
- Business offices
- Insurance companies
- Public accounting firms
- Brokerage companies, banks, savings and loan companies, and other financial firms
- Business and professional schools
- Federal, state, and local government agencies

1414 UNDERWRITERS

UNDERWRITERS decide what risks the insurance companies they work for will insure. To make these decisions, they study information on insurance applications and loss-control, medical, and actuarial reports. They may outline the terms of contracts or policies, including the amounts of premiums. They often deal with clients, agents, and managers to obtain or give out information about policies. Most specialize in one of three major categories of insurance: Life, Property and Liability, or Health.

SAMPLE WORK ACTIVITIES

- Study documents such as application forms, inspection reports, and medical reports
- Review company records to find out the amount of insurance in force for a certain type of risk
- Refuse or accept insurance applications based on the amount of risk to the company
- Dictate letters asking for information from doctors or other insurance companies
- Quote policy rates and explain a company's underwriting policies
- Use rate books, tables, and code books to compute rates for high-risk policies

HOURS OF WORK/TRAVEL

- The normal workweek for UNDERWRITERS is 35-40 hours. However, they may sometimes work overtime.
- On occasion, UNDERWRITERS may be away from home for several days while attending meetings.

SAMPLE PLACES OF WORK

- Insurance companies

1415 LOAN OFFICERS

LOAN OFFICERS evaluate the credit and collateral of individuals and businesses applying for a loan. (Collateral means stocks, bonds, property, or other securities pledged for the payment of a loan.) They may handle installment, commercial, real estate, or farm loans. To evaluate loan applications, they must understand economics, production, marketing, and commerce law. They also must know business operations and be able to understand financial statements, prepare letters, reports, and loan agreements.

SAMPLE WORK ACTIVITIES

- Review a loan applicant's financial status and credit
- Interview applicants and contact creditors to get information needed to process a loan.
- Approve loans or refer them to a loan committee for approval
- Complete loan agreements on accepted loans
- Buy and sell contracts, loans, or real estate
- Record loan payments received
- Write reports on accounts that cannot be collected
- Study the financial problems of borrowers and adjust their loan agreements to restore their credit
- Testify at legal proceedings

HOURS OF WORK/TRAVEL

- Most LOAN OFFICERS work 40 hours a week. On occasion, they may work overtime.

SAMPLE PLACES OF WORK

- Banks
- Savings and loan companies
- Insurance companies
- Mortgage companies
- Finance companies

1419 FINANCIAL OFFICERS, OTHER

These workers counsel clients or businesses on the wise use of money. They may run credit analysis, budgeting, or trust management programs. Some plan ways for debtors to pay their bills and accounts. Some manage departments that prepare budgets for a business or agency. Some evaluate credit applications or direct credit investigations. Some direct student financial aid programs. These workers supervise staff work, and deal directly with management, clients, and the public. They study financial statements, write reports, and keep detailed financial records.

SAMPLE WORK ACTIVITIES

- Provide financial counseling to people in debt
 - . Talk with clients to find out about their income and living expenses
 - . Calculate the amount of people's debts
 - . Plan ways for people to pay their debts
 - . Contact creditors to explain clients' money problems and arrange for payment adjustments
 - . Open accounts for clients and make payments to creditors for them
 - . Keep account records
- Supervise workers who prepare budgets for government agencies
 - . Direct the compiling of data used to prepare budgets
 - . Train budget department workers and assign them duties
- Study applications for credit received at a bank or savings and loan company
 - . Review forms that describe the financial condition, merchandise, and sales records of companies
 - . Recommend actions on accounts, such as credit approval or the repossession of goods
- Interview students to determine if they meet requirements for loans or scholarships
- Direct workers who investigate people's credit and collect overdue accounts
- Administer trust accounts
- Keep records of a bank's balances of deposit in foreign banks
- Direct workers who audit accounts in branch banks
- Provide investment services for a bank and its customers
- Investigate people who have been arrested to determine if they should be bonded

HOURS OF WORK/TRAVEL

- FINANCIAL OFFICERS generally work 40 hours a week. However, they may occasionally work overtime to attend civic functions and set up business contacts.

SAMPLE PLACES OF WORK

- Banks and other financial firms
- Colleges and universities
- Consulting firms that specialize in financial counseling
- Credit analysis firms
- Government offices
- Insurance companies

142 MANAGEMENT ANALYSTS

These workers analyze business operations to find ways to help management operate more efficiently and effectively. They conduct studies, design new work systems and procedures, look for ways to simplify work, and prepare procedures manuals. For example, they might plan a new system for filing and protecting records and reports. They might sketch the layout for new office machines, or develop ways to improve business reports.

SAMPLE WORK ACTIVITIES

- Study business procedures to find better ways of accomplishing work
 - Plan studies of work problems and procedures, such as cost analysis and inventory control
 - Talk with managers to get their suggestions for improvements, such as using new forms or coding systems
 - Interview clerical workers and conduct on-site studies of work performed and the methods and equipment used
 - Recommend new systems or changes in existing procedures
 - Direct workers who analyze business forms for format and effectiveness
 - Direct workers who compile cost and control records
 - Sketch office layouts to show the location of equipment
 - Examine and evaluate the format and function of business forms
 - Prepare written instructions for the use of forms
- Work through managers to direct records management, clerical support, and printing services

HOURS OF WORK/TRAVEL

- MANAGEMENT ANALYSTS generally have a standard 35 to 40 hour work week.
- Some of these jobs may require occasional travel to inspect and evaluate other operations at other sites.

SAMPLE PLACES OF WORK

- Any large business, or organization, including government offices

143 PERSONNEL, TRAINING, AND LABOR RELATIONS SPECIALISTS

These people make sure that workers and work activities are handled according to set procedures. PERSONNEL SPECIALISTS recruit, select, and place workers. They also prepare job descriptions and conduct benefit, safety, and other programs. TRAINING SPECIALISTS lead training sessions, prepare training manuals, and advise workers. LABOR RELATIONS SPECIALISTS help develop, interpret, and enforce union contracts, and help to settle work related disputes.

SAMPLE WORK ACTIVITIES

- Explain policies, rules, and benefits to new workers
- Develop manuals, reporting forms, training films, and slides to be used in job studies
- Study information about wages, hours, and working conditions in a plant to see if a labor contract is being honored
- Review job applicants' work history, education, and training, job skills, and other information to decide if they should be hired.
- Observe workers and talk with their supervisors to determine job and worker requirements

- Interview new workers to find out what type of work program is best suited for them
- Conduct hearings to settle contract disputes between labor and management

HOURS OF WORK/TRAVEL

- Most of these workers have a standard 40-hour work week. However, LABOR RELATIONS SPECIALISTS sometimes work overtime when labor contracts are being negotiated.
- Some workers in this group may have to travel to attend meetings, for example, or to recruit workers.

SAMPLE PLACES OF WORK

- Manufacturing firms
- Government agencies
- Banks
- Insurance companies
- Airlines
- Department stores
- Private employment agencies

144 PURCHASING AGENTS AND BUYERS

These workers represent companies and institutions as they buy goods and contract for services. They examine similar products, determine the best value, and arrange contracts to purchase goods. They ask companies to bid items they sell. They talk with sales agents and visit wholesale houses. The goods they buy are resold in commercial stores or are used in the operation of a business, industry, or educational institution, so agents buy at special prices.

1442 BUYERS; WHOLESALE AND RETAIL TRADE, EXCEPT FARM PRODUCTS

These people buy goods for resale in wholesale and retail stores. They attend fashion and trade shows, visit showrooms, or talk with sales workers to select merchandise that will satisfy their stores' customers. A BUYER for a small store may purchase its complete stock of goods. Those who work for larger businesses usually handle one or a few related lines of goods. BUYERS must be able to judge the resale value of goods and make a purchase decision quickly. They also arrange for goods to be shipped and approve payments for orders received.

SAMPLE WORK ACTIVITIES

- Inspect merchandise to determine its value
- Select and order goods shown by sales representatives and other sellers
- Contact sellers to arrange for the purchase of goods
- Contact carriers to arrange the delivery of goods
- Approve payments of invoices or the return of merchandise
- Conduct staff meetings with sales workers to show them new merchandise
- Check the amount and quality of stock received from a manufacturer
- Give pricing and other information to workers who mark prices on merchandise

HOURS OF WORK/TRAVEL

- BUYERS frequently work more than a 40-hour week because of special sales, conferences, and travel.
- The amount of traveling a BUYER does varies with the type of merchandise bought and the location of supplies. Most spend 4 or 5 days a month on the road.

SAMPLE PLACES OF WORK

- Wholesale and Retail trade stores.

1443 PURCHASING AGENTS AND BUYERS, FARM PRODUCTS

These workers buy farm products such as grain or tobacco for individuals or wholesale companies. They also may sell the products and arrange for their shipment and storage.

SAMPLE WORK ACTIVITIES

- Advise customers about price changes and other factors that may affect them
- Examine grain samples for dirt hulls, and seeds
- Compute the market value of farm products and the costs of shipping them
- Keep records of the kinds, grades, amounts, and prices of products received
- Direct workers who load, store, and mix grain for shipment and milling
- Tell workers the grades and amounts of tobacco to buy and the prices to be paid
- Send rice samples and price lists to possible customers

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Brokerage firms
- Grain and feed mills
- Financial firms that buy and sell products for a profit
- Tobacco Companies
- Wholesale firms that deal in grain or tobacco

1449 PURCHASING AGENTS AND BUYERS, N.E.C.

These people buy supplies and raw materials for internal use or for further processing by manufacturing firms. They review internal requests for materials and supplies, collect information on the sources and prices of goods, and contact vendors or suppliers to arrange purchase contracts. They also may negotiate for purchase of services, such as the delivery of supplies. They advise suppliers concerning the type, quality, and amounts of materials needed in the future. They also may arrange financing or other assistance so that the desired materials can be made available. These workers keep records of items bought, costs, product performance, and inventories. They also may write reports.

SAMPLE WORK ACTIVITIES

- Arrange contracts to obtain goods from suppliers
- Formulate policies and procedures for obtaining supplies
- Direct workers who write bid proposals
- Evaluate services provided under a contract to determine if changes in the contract are required
- Approve or reject requests to change contract terms or delivery schedules
- Resolve complaints regarding contracts with suppliers
- Study price proposals, financial reports, and other information to determine if prices are reasonable
- Arrange contracts with growers to raise or purchase crops, such as fruits and vegetables
- Contact growers to explain the terms and conditions of contracts

- Work with growers to determine the amount of acreage to be planted or purchased
- Advise growers on preparing land, planting, cultivating, and harvesting
- Arrange financing for the purchase of supplies and equipment needed by contractors
- Arrange for crops to be shipped to processing plants
- Inspect crops for signs of disease and insect damage and recommend corrective measures
- Contact dairy farmers to arrange contracts for the purchase of dairy products
- Discuss milk production problems with farmers
- Test milk for bacteria level
- Suggest methods of feeding, housing, and milking cows to improve production
- Establish specifications and performance test requirements of airplane equipment to be purchased
- Study technical information and designs
- Consult with engineers to set the performance requirements of airplanes
- Investigate equipment makers and recommend those most desirable
- Advise company workers, suppliers, and customers of the nature and function of aircraft equipment
- Arrange meetings between suppliers, engineers, purchasers, and inspectors
- Buy raw materials for processing or machinery, tools, and other supplies or services necessary for the operation of an organization
- Review requests for materials and supplies
- Obtain information from vendors, such as the price of products and dates when they can be delivered
- Keep records of items bought, costs, product performance, and inventories
- Compile and study information from catalogs and other sources to keep informed on price trends
- Prepare reports, charts, and graphs of findings
- Arrange contracts for the purchase or delivery of crude oil and natural gas

HOURS OF WORK/TRAVEL

- PURCHASING AGENTS and BUYERS generally work a standard 35 to 40 hour week. However, they often work overtime when the materials or equipment needed for production run short.
- Although these workers spend most of their time in the office, some travel usually is required to attend sales conventions or visit suppliers.

SAMPLE PLACES OF WORK

- Manufacturing plants

145 BUSINESS AND PROMOTION AGENTS

BUSINESS and PROMOTION AGENTS handle business affairs for clients such as: performers, societies, theater companies, writers, and jockeys. They advise clients on business matters, represent them in contract talks, and arrange their tours and engagements. They may handle publicity, fan mail, and requests for personal appearances. Some market writers' works to editors and publishers.

SAMPLE WORK ACTIVITIES

- Represent an entertainer in dealings with unions, movie or TV studios, and theater houses
- Advise clients concerning contracts, wardrobe, and acting methods
- Arrange reservations, transportation, and hotel rooms for touring performers
- Book performers, acts, or concerts for a theater company
- Plan and arrange the route of a circus for the following season
- Arrange union contracts
- Hire stage hands
- File accounting statements for a client, according to legal requirements
- Arrange the advance sale of tickets for a show
- Buy advertising space or sport announcements in newspapers, radio, and TV
- Organize chapters of a fraternal society, lodge, or similar organization
- Advise societies or lodges having financial or membership problems

HOURS OF WORK/TRAVEL

- Many of these jobs require a great deal of travel.
- Some of these jobs may require evenings, weekend, and overtime work. In some jobs, work hours may be irregular.

SAMPLE PLACES OF WORK

- Theatrical and Touring Companies
- Circuses
- Booking agencies
- Fraternal organizations and private organizations
- For yourself, as an independent agent for entertainers, writers, or theatrical groups

147 INSPECTORS AND COMPLIANCE OFFICERS

These workers inspect businesses and industries to insure that rules, regulations, and codes are obeyed. They visit building sites to see that construction work meets code standards. They may visit industrial sites to insure that safety regulations are in force. Or they may inspect hospitals, restaurants, or food packing plants to enforce public health laws. Other workers may investigate ways to help businesses operate more efficiently or profitably.

1472 CONSTRUCTION INSPECTORS

CONSTRUCTION INSPECTORS make sure that the methods and materials used to build and repair structures meet with regulations. They inspect structures and visit work sites to observe and test parts of structures. They use blueprints and test and measuring instruments, keep work logs, file work reports, and if necessary, issue "stop-work" orders. Most workers specialize in a certain type of construction work, such as buildings, electrical, mechanical, or public works.

SAMPLE WORK ACTIVITIES

- Inspect new buildings and order faulty work to be corrected
- Check to see if repair work done on floor framing in a factory meets building code specifications
- Obtain evidence and prepare reports concerning violations
- Advise building contractors on ways to meet legal requirements for buildings
- Keep inspection records and prepare reports for use in court
- Inspect electrical systems to see if they meet with safety laws
- Issue notices to repair or remove electrical equipment found to be unsafe
- Explain legal requirements for electrical wirings to homeowners
- Inspect elevators to see if they were correctly installed
- Compute the allowable loads for elevators and other devices
- Inspect equipment damaged by fire and recommend repairs
- Inspect heating and cooling systems installed in buildings
- Advise owners and contractors on where to place septic tanks and cesspools
- Review complaints of plumbing code violations
- Inspect and oversee the construction of bridges, dams, and highways
- Use surveyor's instruments to check the elevations of structures
- Prepare samples of materials for lab tests
- Estimate the amount of material dredged from the bed of a waterway

HOURS OF WORK/TRAVEL

CONSTRUCTION INSPECTORS normally work regular hours. However, in case of an accident at the construction site, they must respond immediately and may work irregular hours until a report has been completed.

- Inspection work tends to be steady all year round, unlike the seasonal work in many of the jobs associated with the construction industry.

SAMPLE PLACES OF WORK

- County of municipal buildings departments
- Federal and state agencies concerned with public works construction
- U.S. Army Corps of Engineers
- Insurance companies
- Construction companies

1473 INSPECTORS AND COMPLIANCE OFFICERS, EXCEPT CONSTRUCTION

These workers conduct inspections or investigations to see if laws, regulations, or company policies are being followed. They work in a variety of jobs and settings. Some check to see that proper equipment is being used and that safety rules are being obeyed. Some inspect places such as hospitals and restaurants to enforce public health laws. Some compile information on the activities and conduct of workers. Some inspect articles being carried into the country to enforce customs laws.

SAMPLE WORK ACTIVITIES

- Direct investigations of banking practices to enforce banking laws
- Audit and investigate Federal income tax returns
- Direct investigations of deaths occurring within an area
- Set up Federal programs related to equal employment opportunity
- Investigate reported cases of diseases that can spread, and advise exposed persons to get medical treatment
- Regulate the entry of people into the United States to enforce immigration laws
- Inspect hospitals, nursing homes, and day care centers, to enforce public health laws
- Inspect places of employment to detect unsafe or unhealthy working conditions
- Coordinate a drug testing program
- Evaluate people's traffic records and determine if their licenses should be revoked or reinstated
- Compile information on the activities and conduct of a company's workers
- Inspect aircraft to insure that Federal safety standards are met
- Review settled insurance claims to determine if proper payments have been made
- Inspect articles worn or carried by people entering or leaving the country to enforce customs laws
- Give tests to applicants for driver's licenses
- Inspect places where food, drugs, and cosmetics are made, handled, stored, or sold to enforce health laws
- Inspect bedding materials to enforce public health laws
- Inspect government-owned equipment used by private contractors to prevent waste, damage, and theft
- Inspect waste disposal facilities to ensure conformance with laws and permit requirements
- Visit businesses to see if valid licenses and permits are displayed
- Investigate pupils' absences from schools
- Appraise vehicle damage to determine the cost of repair

HOURS OF WORK/TRAVEL

- Many of these workers travel to conduct inspections or investigations. Some work long and often irregular hours.

SAMPLE PLACES OF WORK

- Federal government agencies, including the:

- . Department of Aviation Administration
- . Department of Agriculture
- . Department of Labor
- . Food and Drug Administration

- . Justice Department
- . Public Health Service
- . Treasury Department

- State and Local government agencies
- Insurance companies
- Motor transportation companies
- Railroad companies
- Mining and quarrying companies
- Hotels and Restaurants
- Drug companies
- Any business or industry

149 MANAGEMENT-RELATED OCCUPATIONS, N.E.C.

People in these jobs do things to help an office or business operate more efficiently. Some prepare cost estimates used by management to prepare bids or to set the prices of products and services. Some coordinate office services such as personnel, budget control, and records control. Some study jobs to help set wage and promotion policies. Some set up security procedures, or keep official corporation records.

SAMPLE WORK ACTIVITIES

- Compile lists of materials and equipment needed to make products
- Compute the cost of materials and labor
- Study management methods in order to improve workflow or save money
- Study operating practices, such as record keeping and forms control, to create or revise procedures
- Issue and interpret operating policies
- Act as a "go-between" for a manufacturer and government agency to help set up inspection procedures
- Promote good will among plant divisions
- Set up a bookkeeping system for an insurance plan
- File applications with government agencies for a company
- Direct activities involving claims against a company for damaged freight
- Advise and aid veterans in presenting disability, insurance, or pension claims
- Plan and set up security procedures for a company

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Government offices
- Insurance companies
- Radio and TV broadcasting companies
- Real estate companies
- Transportation firms
- Utility companies
- Any business or industry

1599 ENGINEERS, SURVEYORS, AND ARCHITECTS

These workers use technical skills to identify and utilize information about land and resources to design and develop structures, tools, machines, and products from resources and manufactured materials. They consult with clients and other specialists, do research, test methods and designs, and recommend methods of operation and production. They prepare detailed drawings and specifications as well as cost estimates.

16 ENGINEERS, SURVEYORS, AND ARCHITECTS

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161 ARCHITECTS

ARCHITECTS plan, design, and supervise the construction of homes, office buildings, and other structures. They also plan and design projects such as parks, airports, and highways. They are involved in all phases of the development of a building or project. They discuss with clients the purposes, requirements, and cost of a project. They prepare detailed drawings that show the scale and structure of buildings, the dimensions of every part of the structure, and the location of plumbing, heating, and other units.

SAMPLE WORK ACTIVITIES

- Talk to clients to find out what kind of design, materials, and equipment they may want to use.
- Study site conditions such as location, soil, plant life, rock features and drainage
- Prepare scale and full-size drawings and contract papers for builders
- Provide advice to officials who want to build or remodel a school
- Prepare building plans, manuals, and reports
- Help clients find and set up contracts with builders
- Inspect construction sites to make sure work is being done properly

HOURS OF WORK/TRAVEL

- ARCHITECTS sometimes work irregular hours.
- Some ARCHITECTS may occasionally travel to inspect building sites in other cities.

SAMPLE PLACES OF WORK

- Private practice
- Architectural firms
- Builders
- Real estate firms
- Government agencies concerned with housing--such as Housing and Urban Development (HUD), the General Services Administration (GSA), and the Department of Defense
- Government agencies concerned with forest management, water storage, city planning, highways, parks, and recreation--such as the Departments of Defense, Agriculture, and Interior
- State and Local Government agencies

162-3 ENGINEERS

Engineers design, develop, and test methods of using materials for the production of tools, machines, structures, and resources. They may design engines, highways, or nuclear reactors. They may find methods of extracting metals from ores, producing fuels, or increasing agricultural production. Some engineers work in the field while others do research, teach, or do consulting work.

1622 AEROSPACE ENGINEERS

AEROSPACE ENGINEERS design, develop, test, and help produce aircraft, missiles, and spacecraft. They work to advance the state of technology in aviation, defense systems, and space travel. Most specialize in a particular area of work, such as structural design, guidance and control, or production methods. They also may specialize in one type of aerospace product, such as commercial aircraft, helicopters, or rockets.

SAMPLE WORK ACTIVITIES

- Test models of aircraft for strength
- Examine aircraft parts to determine their purpose, cost, and value
- Carry out lab, flight, and wind tunnel test programs
- Prepare flight performance reports for other engineers and scientists
- Work with computers to solve aerospace problems
- Design and plan aircraft and aerospace equipment
- Suggest ways to make aircraft parts
- Advise customers how to solve equipment problems

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Companies that make aircraft and related parts
- Federal government agencies, especially the in National Aeronautics and Space Administration and the Department of Defense
- Commercial airline companies
- Consulting firms
- Colleges and universities
- Military services

1623 METALLURGICAL AND MATERIALS ENGINEERS

METALLURGICAL AND MATERIALS ENGINEERS try to find new or improved ways to extract metal from ores and to make products from minerals, rocks, or metals. They also design tools and equipment to make products from materials such as clay, glass, stone, and metal.

SAMPLE WORK ACTIVITIES

- Test the physical, chemical and heat-resisting properties of clay and sand
- Design equipment and tools that can be used to form and handle products such as glass and brick
- Study ore samples under a microscope to find out about their crystal structure
- Perform studies of metal using lab equipment
- Do research to find better ways to mold, melt and pour metals

- Develop welding techniques and procedures
- Test ore samples in pressure devices and hot acid baths to see how strong and hard they are

HOURS OF WORK/TRAVEL

- Generally, these jobs involve a standard 35-40 hour work week.

SAMPLE PLACES OF WORK

- Industries that cast metal or make metal products
- Industries that make bricks, pottery, glass or stone products
- Welding companies
- Industries that take metal from ores and process it into a final shape
- Colleges and universities

1624 MINING ENGINEERS

MINING ENGINEERS look for coal, ore, and other mineral deposits. They also conduct research, inspect mining areas, plan ways to mine deposits, direct work at mines and quarries, train miners, and write reports. Some spend much of their time at mine sites supervising mining operations. Others do research in offices or labs.

SAMPLE WORK ACTIVITIES

- Carry out studies to find out where deposits are, how large they are, and how easy it will be to mine them
- Plan the easiest and cheapest ways to mine a deposit
- Plan the location of shafts, tunnels, and chambers
- Plan and direct the building of roads and drainage systems at mine sites
- Do research to improve mining equipment and operations
- Conduct safety inspections of underground or open-pit areas
- Test air for poisonous gases and explosive dust
- Investigate explosions, fires and accidents and report their causes

HOURS OF WORK/TRAVEL

- Some jobs may require travel to mining fields.
- At times **MINING ENGINEERS** may have to work overtime.

SAMPLE PLACES OF WORK

- Mines and quarries
- Oil fields
- Colleges and universities
- Companies that make equipment for the mining industry
- Consulting firms that advise mining or oil companies

1625 PETROLEUM ENGINEERS

PETROLEUM ENGINEERS plan, organize, and supervise the way oil and natural gas are obtained, stored, and shipped. They also conduct research, give technical advice, and direct workers who drill and operate oil wells. Some spend much of their time at oil fields. Others work mostly in offices or labs.

SAMPLE WORK ACTIVITIES

- Study a map that shows underground oil and gas locations and decide where to drill a well
- Design oil and gas containers and ways to separate oil and gas products
- Develop new and improved ways to drill wells to produce oil or gas
- Plan schedules for drilling wells
- Plan and direct activities for workers who test for oil or gas
- Direct the care and repair of drilling equipment
- Figure out how much it will cost to build an oil pipeline

HOURS OF WORK/TRAVEL

- Some jobs may require travel to oil fields.
- At times, **PETROLEUM ENGINEERS** may have to work overtime.
- Many American **PETROLEUM ENGINEERS** work overseas in oil-producing countries.

SAMPLE PLACES OF WORK

- Oil companies
- Companies that make oil drilling equipment and supplies
- Consulting firms that advise oil companies
- Federal and state government agencies
- Banks and financial firms that need information about the economic value of oil and gas products

1626 CHEMICAL ENGINEERS

CHEMICAL ENGINEERS develop new ways to make chemicals and related products. They also help design, build, and operate plants that use or process chemicals. Because their duties cut across many fields, they must have a knowledge of chemistry, physics, and mechanical and electrical engineering. Some specialize in certain areas such as pollution control, or heat transfer, or in the production of certain types of products such as plastics or drugs. Some teach or do research.

SAMPLE WORK ACTIVITIES

- Figure out ways to remove parts of gas mixtures or liquids
- Design equipment to control the movement, storage and packaging of solids, liquids, and gases
- Direct workers who run such equipment as condensers, kilns, pumps, stills and tanks
- Perform tests to measure temperature and pressure
- Plan and direct the work in a chemical plant
- Develop processes for making food or drug products
- Prepare reports on the cost of operating a chemical plant
- Plan the layout of equipment used to carry out chemical processes

HOURS OF WORK/TRAVEL

- **CHEMICAL ENGINEERS** normally work 40 hours per week.

SAMPLE PLACES OF WORK

- Companies that make chemical, petroleum and related products
- Government agencies
- Colleges and universities
- Private research institutes
- Engineering consulting firms
- Military services

1627 NUCLEAR ENGINEERS

NUCLEAR ENGINEERS study the development and uses of atomic power. They also design, develop, and test equipment that is used to release, control and utilize nuclear energy. Some are researchers, while others direct the operations of nuclear power plants. They must be knowledgeable of nuclear reactors, reactions, and radiation.

SAMPLE WORK ACTIVITIES

- Plan, design, and develop nuclear equipment such as reactor cores, radiation shields and control units
- Study nuclear fuel to find out the best way to get rid of wastes
- Plan and carry out studies to discover facts or test theories about nuclear energy
- Test equipment used in nuclear plant to make sure it is strong, safe and effective
- Supervise nuclear tests and operations in a plant to make sure safety regulations and laws are met
- Prepare technical reports

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Nuclear power plants
- Nuclear research facilities
- Power companies
- Government agencies such as the Department of Energy and the Nuclear Regulatory Commission
- Private research institutes
- Engineering consulting firms
- Military services

1628 CIVIL ENGINEERS

CIVIL ENGINEERS plan, design, and supervise the construction of structures such as buildings, roads, water and sewage systems, bridges, and dams. They also may do such things as conduct research, advise on engineering problems, prepare technical reports and materials, and teach.

SAMPLE WORK ACTIVITIES

- Plan how airports and landing fields should be built
- Direct workers who dredge and build levees to open waterways
- Plan and oversee the construction of irrigation projects designed to carry water to farm lands
- Study problems of soil drainage and conservation
- Advise firms on how to get rid of gases and oils

- Plan and direct the activities of a water treatment plant
- Test structures to make sure they are strong enough
- Survey timber land and draw maps to show features of the area
- Design railroad systems
- Plan ways to change the layout of streets, highways, and freeways to improve traffic flow
- Design a garbage disposal plant

HOURS OF WORK/TRAVEL

- In some of these jobs, CIVIL ENGINEERS may have to travel to construction sites and spend periods of time away from home.

SAMPLE PLACES OF WORK

- Construction companies
- Forestry commissions or logging companies
- Engineering consulting firms
- Railroad companies
- Manufacturing companies
- State and local agencies which deal with waterworks and sewage services
- Federal agencies concerned with transportation, housing and conservation
- Colleges and universities

1632 AGRICULTURAL ENGINEERS

AGRICULTURAL ENGINEERS work to solve farming problems and find ways to make farms run better and produce more. They design farm machines, structures, and equipment that will improve the production, processing, and delivery of farm products. Some plan and supervise the production of such items. Others help to conserve and manage energy, soil, and water resources.

SAMPLE WORK ACTIVITIES

- Design devices to measure and record the effects of heat, dampness, and light on plants and animals
- Plan and direct the production of equipment to help control plant and animal diseases
- Advise farmers on ways to conserve water and soil
- Direct the building of rural power systems
- Do research to develop new farm machines
- Supervise the building of structures used to store crops or house animals
- Design equipment to harvest and move farm products

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Companies that make and sell farm equipment
- Rural power companies
- Engineering consulting firms that serve farmers
- Federal, state and local government agencies including the Department of Agriculture
- Colleges and universities
- Companies that distribute farm equipment and supplies
- Agricultural processing plants

1633 ELECTRICAL AND ELECTRONIC ENGINEERS

ELECTRICAL ENGINEERS design, develop, test, and supervise the manufacture of electrical and electronic parts. Those who work with electronic equipment are called **ELECTRONIC ENGINEERS**. Electrical equipment includes power generators and transmitters used in power plants and electric motors, lighting and wiring in buildings, cars, and planes. Electronic equipment includes radar, computers, TV's and stereo sets. **ELECTRICAL ENGINEERS** design and operate power plants. Some teach and do research.

SAMPLE WORK ACTIVITIES

- Develop methods for testing electrical equipment
- Design lighting systems for homes, plants, streets, tunnels and outdoor displays
- Conduct studies to get information needed to plan a switching system for a phone company
- Devise plans for laying cable lines beneath the ocean
- Study maps that show feeder lines, relays, and other parts of a power system and decide what changes need to be made when the system is overloaded
- Determine the costs of materials, equipment, and labor needed to build a power system
- Direct the installation of radio and TV broadcasting equipment
- Design computers used in businesses and homes

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Companies that make electrical and electronic parts, business machines, aircraft, and scientific equipment
- Telephone and telegraph companies
- Electric light and power companies
- Government agencies
- Colleges and universities
- Construction firms
- Engineering consulting firms

1634 INDUSTRIAL ENGINEERS

INDUSTRIAL ENGINEERS study and design ways to make the best use of people, machines, and materials in business and industry. They advise on and set up methods to promote efficient, safe, and cost-effective use of people and machines. They plan equipment layout, workflow, and means to prevent accidents. They also plan and oversee training programs and develop ways to control product quality and keep production records.

SAMPLE WORK ACTIVITIES

- Study how people and machines work together and suggest ways to simplify the work
- Study charts and project data to find out what jobs and duties workers have
- Set limits for noise, dust, fumes, and radiation exposure in a plant
- Prepare a shipping schedule based on expected sales
- Prepare drawings that show parts of equipment and how they are used
- Train workers to carry out a fire prevention program in a plant
- Make lists of the raw materials, parts, and equipment needed to build planes and guided missiles
- Study blueprints and models to find out what tools are needed to assemble products such as cutting tools, car parts, or ball bearings

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Manufacturing companies
- Companies that make aircraft or aerospace equipment
- Companies that make boots and shoes
- Insurance companies and banks
- Construction and mining companies
- Federal, state and local government agencies
- Public utility companies
- Hospitals
- Engineering consulting firms

1635 MECHANICAL ENGINEERS

MECHANICAL ENGINEERS design and develop tools, engines, machines, and other equipment. They also direct the installation, use, upkeep, and repair of equipment used in heat, gas, water, and steam systems. Many specialize in a certain product area, such as motor vehicles, marine equipment, heating and cooling units, or plastics. Some conduct research, do sales work, or teach.

SAMPLE WORK ACTIVITIES

- Develop new designs for car frames and motors
- Design controls for machines
- Set standards and methods for testing equipment
- Direct the building and installation of heating systems
- Examine tool drawings and decide which tools should be produced
- Prepare bids and contracts for the construction of factory machinery
- Direct workers who make test control equipment
- Conduct tests on equipment to make sure it is safe and effective
- Do research to develop new types of machinery or tools

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Companies that make metal products, machinery, or transportation equipment
- Electrical equipment manufacturers
- Government agencies
- Engineering consulting firms
- Auto manufacturers
- Public utility companies
- Colleges and universities

1636 COMPUTER ENGINEERS

COMPUTER ENGINEERS plan, design, and help build computers and related equipment. They also help companies decide what computer equipment they need.

SAMPLE WORK ACTIVITIES

- Collect and study information to determine the computer equipment needs of a plant or agency
- Plan the layout and design of new or improved computer systems
- Develop math models to solve engineering problems
- Advise others in the selection and use of computers
- Prepare diagrams and charts that show design problems and possible solutions
- Prepare reports that describe in detail how computer problems can be solved

HOURS OF WORK/TRAVEL

- Most COMPUTER ENGINEERS have a standard 40-hour work week. However, they may sometimes work overtime to complete emergency projects.

SAMPLE PLACES OF WORK

- Private research institutes
- Large industries
- Federal, state, and local government agencies
- Colleges and universities

1637 MARINE ENGINEERS AND NAVAL ARCHITECTS

These workers plan, design, test, and oversee the construction and repair of marine craft, structures, and port facilities. They also design the machinery and equipment used aboard vessels. They study drawings and design specifications to plan the layout and design of ship systems. Some specialize in the inspection and repair of marine craft or equipment. Some check vessels to see if they meet insurance requirements.

SAMPLE WORK ACTIVITIES

- Study drawings and design specifications
- Design ships, barges, tugs, and submarines
- Design the layout of cargo space, passenger quarters, and elevators for a ship
- Perform complex calculations to plan ship systems
- Oversee the construction and testing of marine craft
- Evaluate the performance of vessels during sea trials
- Design machinery and equipment used on ships
- Conduct tests on marine equipment such as boilers, steam engines, and power systems
- Watch while gear is tested to see if testing standards are met
- Inspect ships, boats, tankers, and dredges to see if they meet insurance requirements
- Prepare reports which describe inspection procedures and findings
- Prepare recommendations for repair work to ships
- Review requests for repairs to ships and determine if they are sound
- Keep records of engineering costs for vessels, such as repairs, supplies, and personnel

HOURS OF WORK/TRAVEL

- Some jobs may require some sea travel to conduct tests.

SAMPLE PLACES OF WORK

- Coast Guard, Navy, Army, and Marine Corps
- Engineering consulting firms
- Marine equipment manufacturers
- Port authorities
- Ship building companies
- Shipping companies

1639 ENGINEERS, N.E.C.

These ENGINEERS do research to develop and test new theories and facts, and design new types of products. They may specialize in medicine, optics, explosives, photography, or another field. Some design artificial (fake) body organs or develop new optical systems. Some develop and test explosives. Some prepare instructions for the installation of equipment. They use math and complex instruments and equipment to design, build, and test products. They also prepare charts, graphs, diagrams, and technical reports. Some teach and/or do consulting.

SAMPLE WORK ACTIVITIES

- Conduct research to design life-support equipment
- Plan and conduct studies of the engineering aspects of human systems
- Use computers to solve problems
- Design and develop devices such as heart pacemakers
- Determine the specifications for systems
- Design instruments used to test optical systems
- Design, test, and help develop explosive material
- Prepare design drawings
- Test shells, and warheads, under simulated military conditions
- Write reports
- Study the engineering design of products such as aircraft and naval vessels
- Review engineering plans and propose ways to improve products so that they will be easier to maintain
- Design and build photographic equipment for use in science or industry
- Conduct studies of pollution problems and controls

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Federal and State government agencies
- Colleges and universities
- Hospitals
- Military services
- Light, heat, and power companies
- Ammunition and explosives manufacturers
- Companies that make cameras, lenses, or other optical products
- Aerospace industries
- Private research institutes
- Electronics industries
- For yourself, as a consulting engineer

164 SURVEYORS AND MAPPING SCIENTISTS

These workers measure land, note landmarks and elevations, and determine boundaries. They record their findings on maps and legal descriptions. Their findings are used by architects and engineers who design structures for a site. Surveyors and mapping scientists also compile information for underground and underwater structures. They survey and map waterways, harbors, and oceans, as well locate and map land formations.

1643 LAND SURVEYORS

LAND SURVEYORS establish official land boundaries and help determine the value of plots of land. They research deeds, write legal descriptions of land, measure plots of land, and collect information for maps and charts. Some head survey parties. They are responsible for a party's activities and the accuracy of its work. They plan the fieldwork, select survey reference points, determine the exact location of land features, prepare survey reports, select survey staff, prepare budgets, and buy survey equipment and supplies.

SAMPLE WORK ACTIVITIES

- Plan, organize, and direct the work of survey parties
- Keep notes, records, and sketches to describe and certify the work performed by a survey party
- Assume legal responsibility for the work performed by a survey party
- Prepare budgets for survey projects
- Review survey work to make sure it meets legal requirements
- Appear as a legal witness in court cases that concern land or boundary disputes
- Purchase new equipment and supplies
- Select survey staff

HOURS OF WORK/TRAVEL

- Most SURVEYORS work standard work hours, but they may work longer hours during summer months.
- SURVEYORS sometimes must commute long distances or find temporary housing near survey sites.

SAMPLE PLACES OF WORK

- Federal agencies including: the US Geological Survey, the Bureau of Land Management, the Army Corps of Engineers, the Forest Service, and the Defense Mapping Agency
- State and local government agencies, including highway departments and urban planning and development agencies
- Construction companies
- Engineering and architectural firms
- Private surveying companies
- Oil and natural gas companies
- Public utilities

1644 CARTOGRAPHERS

CARTOGRAPHERS plan surveys and gather and interpret information used to design and make maps. They study photographs and other information from surveys to compute the measurements of land areas. They may direct one or more phases of survey operations. These phases include: proposal writing, scheduling activities, conducting surveys, and training and assigning workers. Some CARTOGRAPHERS do research to develop new map-making techniques.

SAMPLE WORK ACTIVITIES

- Talk with clients to find out what areas they wish to have mapped
- Estimate the cost of conducting surveys
- Decide the type of airplane and photographic equipment to use on an aerial survey
- Prepare charts and tables for pilots that show the flight paths, altitudes, and airspeeds to use in an aerial survey
- Train and assign workers who perform aerial surveys
- Study photographs and other information to figure out the shape, position, and elevation of land features
- Compute measurements of land areas
- Travel over an area that has been photographed to collect information not shown in pictures
- Do research to develop new mapping techniques
- Write proposals to get money for aerial surveys

HOURS OF WORK/TRAVEL

- Some CARTOGRAPHERS may travel to remote areas to conduct surveys.

SAMPLE PLACES OF WORK

- Government agencies, including the Departments of Defense, Interior, Commerce, Agriculture, and Transportation
- Companies that provide map-making services for a fee

1649 SURVEYORS AND MAPPING SCIENTISTS, N.E.C.

These workers survey land and underwater areas to compile information used for mapping oil or mineral deposits or for building structures. They use surveying instruments to locate and compute the dimensions of land formations. They determine and record information, such as the exact elevation of land areas. Some specialize in locating and marking land formations on maps. They also may spend much of their time in an office, planning surveys, preparing reports and computations, and drawing maps.

SAMPLE WORK ACTIVITIES

- Use precision instruments to compute the dimensions and locations of land formations
- Locate and mark places where oil deposits are likely to be found
- Compile information for use in building piers and other marine structures
- Determine shore lines and the elevations of land areas below the water
- Survey mine sites to collect information for use in planning mining activities
- Take instrument readings of the sun or stars to determine mine locations
- Direct workers in the use of surveying equipment
- Compute information used for building underground passages
- Draw maps of mine workings
- Study the size, shape, and gravity of the earth
- Use survey instruments, such as transits, to locate and mark land formations on maps

HOURS OF WORK/TRAVEL

- SURVEYORS usually work an 8-hour day, 5-day week. Sometimes they work longer hours during the summer months when weather conditions are most suitable for surveying.
- Sometimes, SURVEYORS must commute long distances or find temporary housing near field sites.

SAMPLE PLACES OF WORK

- Federal government agencies, such as the:

- . Army Corps of Engineers
- . Bureau of Land Management
- . Defense Mapping Agency

- . Forest Service
- . National Ocean Survey
- . U.S. Geological Survey

- State and Local government agencies
- Petroleum and natural gas companies
- Public utilities
- Construction companies
- Surveying firms
- Engineering or architectural consulting firms

1699 NATURAL SCIENTISTS AND MATHEMATICIANS

These workers study biological and physical sciences as well as mathematics. They may be involved in pure science, developing and researching theories. Or they may apply their knowledge to research and develop products and processes to improve health, industry, or business. They may work as consultants in crop production or natural resources management. Others may develop computer uses for business, find cures for diseases, do statistical studies, or teach.

17 COMPUTER, MATHEMATIC, AND OPERATIONS RESEARCH OCCUPATIONS

These workers use mathematical principles and analytical methods to solve scientific, industrial, business, and other technological problems. They analyze theoretical or practical problems, then plan solutions. They may use mathematical theory, statistics, computer applications, or time-motion methods of analysis. They develop computer programs, charts and graphs, or mathematical equations. They may write reports or plan ways to implement changes they recommend.

171 COMPUTER SCIENTISTS

These workers use computers to solve business, scientific, engineering, and other technical problems. They analyze the problem and develop a computer method or information system to solve it. They decide the data, equipment, and procedures needed to solve the problem. They then make charts, diagrams, and instructions for computers and computer operators to follow. They may prepare reports to help clients understand the problem and its computer solution.

1712 COMPUTER SYSTEMS ANALYSTS

COMPUTER SYSTEMS ANALYSTS plan ways to use computers to solve scientific, engineering, and business problems. They determine what data must be collected, the equipment needed for computations, and the steps to be followed in processing the information. Once a computer system has been developed, they prepare charts and diagrams that describe its operation. They also may prepare reports to help clients understand the proposed systems.

SAMPLE WORK ACTIVITIES

- Study business procedures and problems and write computer programs that describe them
- Talk with the staff of an organization to find out what information they need
- Study ways information is handled in an office
- Develop new systems to improve production or workflow
- Prepare descriptions of the math operations to be performed by computers
- Prepare descriptions of the work performed by computer operators
- Write technical reports and manuals that describe computer systems

HOURS OF WORK/TRAVEL

SYSTEMS ANALYSTS usually work about 40 hours a week. Occasional evenings or weekend work may be required to complete emergency projects.

SAMPLE PLACES OF WORK

- Manufacturing firms
- Banks

- Insurance companies
- Data processing service organizations
- Wholesale and retail businesses
- Government agencies

1719 COMPUTER SCIENTISTS, N.E.C.

These SCIENTISTS use computers to analyze and solve business, scientific, engineering, and other technical problems. They design information systems and plan ways to collect, organize, store, and retrieve (set back) information using computers. They also prepare charts, diagrams, and instructions for computers and computer operators to follow.

SAMPLE WORK ACTIVITIES

- Discuss data processing problems with client to determine their information needs
- Develop ways to collect, organize, interpret, and classify data to be put into a computer
- Develop ways to solve problems in the input, storage, and retrieval of data
- Prepare charts and diagrams that describe computer operations
- Write computer programs (detailed instructions for a computer to follow)
- Make changes in sets of instructions (software) for computers to use in solving problems
- Code information into languages computers can understand

HOURS OF WORK/TRAVEL

- COMPUTER SCIENTISTS generally work about 40 hours a week. However, they sometimes may work extra hours, including evenings.

SAMPLE PLACES OF WORK

- Banks
- Colleges and universities
- Consulting firms
- Data processing service organizations
- Government agencies
- Insurance companies
- Manufacturing firms
- Research organizations

172 OPERATIONS AND RESEARCH ANALYSTS

These workers study businesses, industries, and other organizations to understand how they are managed and how they operate. They develop models, flow charts, and computer programs that can be used to solve operations and management problems. They may examine various aspects of an organization and suggest ways to improve the efficiency of personnel and procedures. They develop and implement plans for changes they recommend.

1721 OPERATIONS RESEARCHERS AND ANALYSTS

These people study problems that affect the ways businesses or other organizations are managed and operated. They try to find ways to solve problems using computers, models, and other methods. For example, they may develop math models, flow charts, and computer programs that can be used in planning and controlling large projects. They do research to find out which models and programs work best in a given situation. They prepare reports for managers that define operational problems and offer possible solutions.

SAMPLE WORK ACTIVITIES

- Study management problems to see how they might be solved
- Study plans prepared by others and choose the one which will best serve to solve a particular problem
- Prepare models that show problems and solutions in the form of math equations
- Gather information and check it to be sure it is valid (correct)
- Test math models to see if they work properly
- Write reports that describe possible solutions to management problems
- Prepare contract proposals that describe how operational problems can be solved
- Tell scientists or engineers how to apply math models to solve project problems

HOURS OF WORK/TRAVEL

- In some jobs, OPERATIONS RESEARCHERS AND ANALYSTS travel frequently to inspect operations, gather information and attend professional and other meetings.
- Workers in these jobs may sometimes work long hours to meet project deadlines.

SAMPLE PLACES OF WORK

- Federal and state government agencies
- Any large business or industry
- Private research organizations
- Colleges and universities
- Health, transportation, energy, and environmental agencies

1722 SYSTEMS RESEARCHERS AND ANALYSTS, EXCEPT COMPUTER

These workers investigate the operations and organization of work in businesses and factories. They observe work being done, analyze tasks and results, and recommend changes to make work flow more efficiently. They may observe workers performing a particular task or examine the organization of an entire department to determine the most efficient use of personnel, time, and materials.

SAMPLE WORK ACTIVITIES

- observe workers to determine components of tasks performed
- examine bookkeeping systems
- investigate communications systems in company
- analyze recordkeeping, purchasing, payroll, and inventory systems
- analyze management organization and recommend changes
- analyze workforce and recommend changes
- design plan to implement changes

173 MATHEMATICAL SCIENTISTS

These workers use mathematics to research and solve problems in science, industry, and business. They may look for new theoretical or practical applications of mathematics. They conduct experiments or plan scientific or technical products. Some work with statistics, conducting experiments, surveys, and opinion polls. Others use statistics and business principles to determine insurance and pension program rates.

1732 ACTUARIES

ACTUARIES use their knowledge of math, statistics, and business to help insurance companies and pension programs set their rates. They try to determine how likely incidences of death, sickness, unemployment, and property loss will be among various groups of people. They then determine the amounts of premiums (payments for policies) which will be needed from people to ensure that companies can pay all claims and expenses.

SAMPLE WORK ACTIVITIES

- Determine the amount of illness, injury, and death in the country for a given year
- Construct tables that show how likely fires, natural disasters, and unemployment will be in future years
- Design pension plans
- Determine how much money will be needed to pay future claims
- Determine how company earnings should be used

HOURS OF WORK/TRAVEL

- Most ACTUARIES work between 35 and 40 hours a week, although they may be required to work overtime during busy periods.
- In some jobs, ACTUARIES may have to travel at times to visit branch offices or clients.

SAMPLE PLACES OF WORK

- Private insurance companies
- Casualty companies
- Consulting firms and rating bureaus
- Private companies that administer pension and welfare plans
- Federal and state government agencies
- Colleges and universities

1733 STATISTICIANS

STATISTICIANS use math to design, carry out, and evaluate the results of experiments, surveys and opinion polls. They also use math to determine what might happen in the future. They often apply their knowledge in a certain subject area, such as economics, human behavior, natural science, or engineering. Some STATISTICIANS use math theories to design and improve statistical methods. Others teach or do consulting work.

SAMPLE WORK ACTIVITIES

- Plan methods to conduct a survey
- Interpret the results of experiments, studies, and surveys
- Present numerical information in the form of computer printouts, graphs, diagrams, and tables
- Determine how valid the results of a study are
- Conduct research to find the mathematical bases for new or improved methods of obtaining

- numerical data
- Use statistics to interpret information that affects the investment program of a bank
- Determine the present and long-term effects in investment risks
- Tell physical and social scientists what math formulas can be used in their research

HOURS OF WORK/TRAVEL

- Most STATISTICIANS work a regular 35-40 hour work week.
- Some STATISTICIANS may travel occasionally to supervise or set up a survey, or to gather statistical data.

SAMPLE PLACES OF WORK

- Private industry, especially finance and insurance companies
- Federal government agencies, especially the Departments of Commerce; Health, Education and Welfare; Agriculture; and Defense
- State and local government agencies
- Colleges and universities

1739 MATHEMATICAL SCIENTISTS, N.E.C.

These SCIENTISTS conduct research in basic math and use math to solve problems in science, industry, and other fields. They study and test theories used to explain facts or events, and look for new uses of algebra, geometry, and other branches of math. They use calculators and computers, and prepare graphs, charts, and reports. Some look for ways to use math in fields such as military planning or electronic data processing. Some teach and do research at a college or university. Many also do consulting work.

SAMPLE WORK ACTIVITIES

- Use math to solve problems in research, development, production, and other areas
- Use calculators, computers, and plotters to do math computations
- Advise researchers on ways to solve problems using math
- Calculate the weight of structures, and loads to help plan the loading, and operation of ships, planes, or missiles
- Prepare reports that describe how weight should be distributed on aircraft
- Talk with engineers and scientists to make sure that they use the proper data in their designs of products
- Prepare reports and graphs for product designers

HOURS OF WORK/TRAVEL

- MATHEMATICAL SCIENTISTS generally work in classrooms and offices. Most work regular hours and travel infrequently.

SAMPLE PLACES OF WORK

- Colleges and universities
- Private industry, especially in the: aerospace, communications, machinery, and electrical equipment industries
- Federal government especially in the: Department of Defense and National Aeronautics and Space Administration
- Private research centers

18 NATURAL SCIENTISTS

These workers study the principles and applications of physical and life sciences. They may be involved in pure research or in developing new products and improved production methods. They may work in physics, chemistry, or geology as physical scientists. Others may be life scientists who study agriculture and food production, forestry, or biological sciences. Their areas of study vary from the exploration of energy to understanding life processes.

184 PHYSICAL SCIENTISTS

These workers study the earth, its atmosphere, and outer space. They may study the physical laws or chemical make-up of the earth or universe. Geologists may study the earth's crust or fossil fuel sources. Physicists may explore principles of light or energy. Chemical research and the development of new products and drugs is another area of physical science. Some workers study the atmosphere while others explore outer space, learning about stars and planets.

1842 ASTRONOMERS

ASTRONOMERS study outer space to find scientific answers to questions about the nature of the universe. They observe the skies through large telescopes and use spectroscopes to study light from stars. They also study radio waves, x-rays, and cosmic rays. Some use math and physics to form theories and math models to explain the growth and development of space bodies. Most do research or teach. Some design astronomical instruments or do consulting work.

SAMPLE WORK ACTIVITIES

- Use electronic devices to study stars and to find out from what chemicals light from the stars is made
- Determine orbits of planets, moons, and comets
- Work out navigation charts and tables
- Determine the size and shape of stars and planets
- Determine the exact time, by observing the position of the stars
- Study the history of stars and solar systems
- Figure out the orbit for man-made satellites
- Help design new instruments for studying the stars and planets
- Carry out solar research and present research findings in a scientific report

HOURS OF WORK/TRAVEL

- Most ASTRONOMERS work 30-40 hours per week.
- Some of these jobs require night work.
- Some of these jobs require occasional travel to visit observatories.

SAMPLE PLACES OF WORK

- Colleges and universities
- Observatories operated by schools, and other organizations, and federal observatories
- Federal government agencies such as the National Aeronautics and Space Administration, the U.S. Naval Observatory, and the U.S. Naval Research Laboratory
- Aerospace firms
- Museums and planetariums

1843 PHYSICISTS

PHYSICISTS use the principles, laws, and theories of matter and energy to help solve problems in science, industry, medicine, and other fields. Some do basic research to increase scientific knowledge. For example, they look into the structures of the atom and the nature of gravity. Others do research to help develop new products and processes. Many teach and do research in colleges and universities. A few work in inspection, quality control, and other jobs in industry. Some do consulting work.

SAMPLE WORK ACTIVITIES

- Use devices such as lasers and mass spectrometers to look at the structure of matter
- Describe the relationship between matter and energy in math or computer language
- Use math to solve problems
- Design electronic circuits, lasers, and other equipment
- Direct tests to measure radiation in a plant
- Advise doctors on how to use radiation to treat patients
- Teach medical physics to doctors and students

HOURS OF WORK/TRAVEL

- Most PHYSICISTS have a standard work week. However, some put in extra hours to meet deadlines.

SAMPLE PLACES OF WORK

- Companies that make chemicals
- Companies that make electrical equipment
- Companies that make aircraft and missiles
- Hospitals and laboratories
- Research organizations
- Colleges and universities
- Government agencies, especially in the Departments of Defense and Commerce
- Military services

1845 CHEMISTS, EXCEPT BIOCHEMISTS

CHEMISTS study substances and materials. They test substances to find out what they are made of and to see how they respond to other substances. They use their knowledge to develop chemical compounds and to improve products and processes. Most CHEMISTS work in research and development. However, some work in other areas such as production and inspection, sales, consulting, and teaching.

SAMPLE WORK ACTIVITIES

- Experiment with natural and man-made materials to come up with new kinds of food, paint, rubber, glass, plastic or other products
- Test food samples such as starch, sugar, cereals, and meat to see if they meet food laws
- Collect test information to see if processes and equipment work properly
- Plan a research program to make and test liquids and gases
- Plan and direct the work of a chemical lab in a research organization
- Write technical reports that describe research findings
- Talk with scientists and engineers to find out how to solve problems or to help them solve problems
- Use a spectroscopy and other equipment to find out which elements are in a certain kind of gas

HOURS OF WORK/TRAVEL

- Most CHEMISTS work a standard work week.

SAMPLE PLACES OF WORK

- Manufacturing firms, especially those that make chemicals and chemical products
- Colleges and universities
- Research organizations
- State and local government agencies, especially those dealing with health and agriculture
- Federal agencies, especially the Departments of Defense, Health and Human Services, Agriculture, and the Interior

1846 ATMOSPHERIC AND SPACE SCIENTISTS

These SCIENTISTS study the atmosphere (the air that surrounds the earth) and the climate in certain areas or regions. Some study current weather information, such as air pressure, temperature, humidity, and wind velocity to predict the weather. They forecast the weather for the next few days and for the distant future. Others do research or teach.

SAMPLE WORK ACTIVITIES

- Interpret data collected by weather stations and satellites to help forecast the weather
- Give weather information to newspapers and radio and TV stations
- Prepare weather reports and special forecasts for airplane pilots and ships officers
- Give out hurricane or severe storm warnings
- Carry out research on a region's climate
- Set up and staff a weather observation station
- Study maps, photos, and charts to predict future weather conditions

HOURS OF WORK/TRAVEL

- Many of these jobs require night work.
- Some of these jobs require rotating shift work.

SAMPLE PLACES OF WORK

- The National Oceanic and Atmospheric Administration
- Airports
- The National Aeronautics and Space Administration
- Department of Defense
- The Military services
- Radio and TV stations
- Colleges and universities
- Private weather consulting firms
- Companies that design and produce weather measuring instruments
- Aerospace firms
- Insurance companies
- Public utilities
- Engineering companies

1847 GEOLOGISTS

Geologists study the structure, makeup, and history of the earth's crust. Some study the air and water, gas, and oil supplies within the earth. Others examine surface rocks and drill for rock cores to find how rocks are arranged below the earth's surface. They also identify rocks and minerals, conduct field surveys, draw maps, take measurements, and record data. They help predict earthquakes and find oil and ore deposits. Some GEOLOGISTS teach or do research.

SAMPLE WORK ACTIVITIES

- Study the size, shape, and gravity of the earth
- Use tools and instruments to study the materials in the earth's crust
- Study what is on the bottom and underneath the bottom of the ocean
- Carry out research to find out where underground rocks are located
- Identify rocks, minerals, and gems
- Inspect sites and set up test equipment and drilling machines
- Study maps, charts and photos of rock formation to find underground gas, oil and water
- Study plant and animal fossils to learn what the earth was like many years ago
- Plan and direct research in a geophysics lab

HOURS OF WORK/TRAVEL

- Many of these jobs require travel to inspect remote sites.

SAMPLE PLACES OF WORK

- Private industry
 - Oil companies
- Mining and quarrying companies
- Construction firms
- Private consulting firms
- Federal agencies such as the U.S. Geological Survey, the Bureau of Mines, and the Bureau of Reclamation
- State government agencies
- Colleges and universities
- Research institutions
- Museums

1849 PHYSICAL SCIENTISTS, N.E.C.

These workers study the nature and uses of different areas of the earth. They collect information to determine social and natural boundaries, prepare maps, and plan ways to use regions efficiently. They also may do research to find materials that might benefit science and industry, or ways to control and prevent pollution. Many teach and conduct research at a college or university. Many work as consultants. These workers prepare and interpret maps, and diagrams, write reports, and may use complex instruments and equipment.

SAMPLE WORK ACTIVITIES

- Study the nature and uses of areas of the earth's surface
 - Conduct research on climates, soils, landforms, and plants
 - Study economic, social, and political activities in areas
 - Advise governments and groups from different countries on ways to develop efficient uses of regions
 - Help determine social and natural boundaries between nations
 - Prepare and interpret maps, graphs, and diagrams
- Study the origin, nature, and location of earth features

- . Make surveys of regions, to determine elevations, drainage, and climate
- . Prepare reports that describe conditions which may harm an area's environment
- Do research to develop ways to control substances which pollute the environment
 - . Plan research using knowledge of math and physical science
 - . Identify sources of pollution and determine their effects
 - . Set pollution standards
- Do research to find materials which might be of benefit to science and industry
 - . Conduct programs for studying the structure of metals and other materials
 - . Help develop materials to be used in products or devices
 - . Assign duties to staff scientists and engineers
 - . Write project reports

HOURS OF WORK/TRAVEL

- Many PHYSICAL SCIENTISTS experience the pressures of deadlines and tight schedules and sometimes must work overtime.
- Some of these jobs require travel to remote areas to conduct field work.

SAMPLE PLACES OF WORK

- College and universities
- Federal agencies, such as the:
 - . Central Intelligence Agency (CIA)
 - . Department of Agriculture
 - . Department of Commerce
 - . Department of Defense
 - . Department of Energy
 - . Department of State
 - . Department of the Interior
 - . Environmental Protection Agency (EPA)
 - . National Aeronautics and Space Administration
 - . Transportation Department
- State and local agencies, primarily in the fields of urban and regional planning, economic development, and community development
- Textbook and map publishers
- Travel agencies
- Manufacturing firms
- Real estate development companies
- Insurance companies
- Communications and transportation firms
- Research organizations
- Consulting firms

185 LIFE SCIENTISTS

These workers study the life cycles of living things, including their cell structure, reproduction processes, and diseases. They use their knowledge to improve the health of living things, increase crop production, or manage natural resources such as forests, for example. They research diseases, testing drugs and other cures. They may also work as consultants to individuals and industries concerned with the health and productivity of living things.

1852 FORESTRY AND CONSERVATION SCIENTISTS

These SCIENTISTS are concerned with the development, preservation, and use of forest resources. They study forest conditions and plan ways to ensure that forest resources meet present and future public needs. They develop ways to protect resources against fire, insects, diseases, floods, and erosion. They do research to discover scientific principles and facts needed for good forest management. They also seek to develop new and better methods and tools for conserving resources. Many of these workers spend a good deal of time working directly with farmers, ranchers, and other land managers in developing conservation programs. Some teach at colleges or universities.

SAMPLE WORK ACTIVITIES

- Carry out studies on trees
 - . Study the life histories and diseases of different kinds of trees
 - . Try to find out how different types of trees adjust to changes in soil and climate
- Manage and develop forest lands
 - . Map forest areas
 - . Estimate the amount of timber in a forest
 - . Manage the sale of timber
 - . Do research into ways to cut and remove timber without waste
 - . Conduct fire prevention programs
 - . Plan campsites and recreation centers
 - . Help plan and carry out projects for flood control and insect pest control
- Do research to find ways to solve range problems that affect livestock and wildlife
 - . Study range lands to determine the best grazing seasons for livestock
 - . Plan and direct range improvements, such as fencing, corrals, and water supplies
 - . Develop ways to control poisonous plants
- Establish and care for forest stands
 - . Manage tree nurseries
 - . Thin forests to encourage the growth of seedlings
 - . Do research in seed production
 - . Develop ways to measure and identify trees
- Plan ways to control soil erosion
 - . Conduct surveys of farm and mining land
 - . Plan ways to conserve soil
- Do research on ways to treat and process wood and wood products
 - . Develop ways to preserve and treat wood so it will resist insects and fire
 - . Look for ways to turn waste wood materials into useful products
- Plan and conduct programs to inform the public of the historical and scientific features of public parks
 - . Take photographs for use as displays
 - . Conduct field trips to point out park features to groups of people

HOURS OF WORK/TRAVEL

- These SCIENTISTS generally work regular hours in offices, labs, or classrooms. They also may spend a good deal of time doing field research. They travel to conduct surveys, meet with landowners, inspect forest areas, and do field research.

SAMPLE PLACES OF WORK

- Federal Government agencies, including those in the
 - . U.S. Department of Agriculture's
 - Soil Conservation Service
 - . Department of the Interior's Bureau of Indian Affairs
 - . National Institute of Health
- State and local government agencies concerned with forestry and conservation
- Colleges and universities
- Private industry
- Nonprofit research organizations
- Rural banks, insurance firms, and mortgage companies
- Public utilities
- Lumber and paper companies

1853 AGRICULTURAL AND FOOD SCIENTISTS

These SCIENTISTS study ways to produce foods, fibers, and other farm products. They also look for new and better ways to manage and protect these natural resources. Many do research in labs to increase our knowledge of living things and to apply this knowledge to increase crop yields. Some do research on the breeding, feeding, and diseases of farm animals. Others concern themselves with insect control and soil management.

SAMPLE WORK ACTIVITIES

- Develop new ways to get crops to produce more per acre
- Carry out research to find out how to limit diseases in plants and animals
- Do research to determine what kinds of foods different animals need
- Study how different types of feed effect the amount of milk cows will give
- Perform chemical tests on soils to see what kinds of fertilizer are needed
- Do research to find better ways to crossbreed animals or plants to produce better stock
- Develop ways to improve the flavor, color, texture and food value of animal and plant foods
- Study the causes of diseases in plants and animals and how to control them

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 40-hour work week.

SAMPLE PLACES OF WORK

- Federal government agencies, especially in the U.S. Department of Agriculture
- State agricultural experimental stations
- State agricultural colleges
- Fertilizer companies
- Food processing industries
- Private conservation businesses
- Farm management agencies
- Large crop and dairy farms

1854 BIOLOGICAL SCIENTISTS

BIOLOGICAL SCIENTISTS study living things. Many are involved in research and development. They conduct research to gain information about living things that can be used to solve problems in medicine, industry, and agriculture. They often use complex research techniques and lab equipment to do their work. Others do consulting work, teach, write for technical journals, or test and inspect foods, drugs and other products.

SAMPLE WORK ACTIVITIES

- Study plants and animals that live in the water, such as seaweed, worms, clams, mussels, and snails
- Conduct research to find out what effects foods, drugs, and hormones have on living tissue
- Study the origin and development of plants and animals
- Conduct research to find out how the brain transfers information
- Study the effects of rainfall, temperature, climate, and soil on plant growth
- Use a microscope to study how the cells of plants and animals divide into new cells
- Identify and classify plants or animals
- Study how traits such as eye color and resistance to disease are passed along to offspring
- Observe the action of bacteria upon living tissues of plants and animals

HOURS OF WORK/TRAVEL

- **BIOLOGICAL SCIENTISTS** generally have regular 40-hour work weeks. However, many work extra hours.
- Some **BIOLOGICAL SCIENTISTS**, such as **BOTANISTS**, **BIOLOGISTS**, and **ZOOLOGISTS**, sometimes take field trips which may involve physical labor and primitive living conditions.

SAMPLE PLACES OF WORK

- Colleges and universities
- Medical schools
- Agricultural experiment stations
- Federal agencies, especially in the Department of Agriculture, the Department of the Interior, and the National Institute of Health
- State and local government agencies
- Private industries, especially drug, chemical, and food companies
- Nonprofit research organizations and foundations

1855 MEDICAL SCIENTISTS

MEDICAL SCIENTISTS are concerned with human and animal health. They conduct research to increase understanding of and develop cures for health problems. They study the structures of cells, tissue, and organs, and the effects which agents such as drugs, poisons, parasites, and bacteria have upon living tissue.

SAMPLE WORK ACTIVITIES

- Supervise workers who prepare tissue sections to be looked at under the microscope
- Examine body organs, such as the heart and lungs by looking at them and cutting them into sections
- Look at tissue under a microscope to see if it is diseased and write a report about what is found
- Study the habits and life cycles of animal parasites, such as tapeworms and flukes
- Develop methods and agents to combat parasites
- Conduct experiments with mice and rats to see how drugs affect their organs and tissues
- Conduct tests to see if harmful bacteria are present in a community water supply
- Identify tiny organisms taken from diseased persons to see if bacteria that can cause epidemics are present

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Medical schools and hospitals
- Colleges and universities
- Government and private research firms and laboratories
- Drug companies
- Federal, state and local government agencies
- Water treatment plants

1899 SOCIAL SCIENTISTS, SOCIAL WORKERS, RELIGIOUS WORKERS, AND LAWYERS

These workers are concerned with understanding human behavior and providing services to insure the well-being of groups and individuals. They may provide historical or theoretical information about behavior or they may be involved in social service programs. They may organize social and religious activities, oversee social welfare programs, or counsel clients. Some are economic or urban planners. Others represent individuals' legal rights in courts.

19 SOCIAL SCIENTISTS AND URBAN PLANNERS

These workers examine human behavior and needs. They may study past or present economic, political, or social behaviors. Their findings and theories are used to influence social policy and planning. They may influence economic policy, political plans, or urban and rural planning. Historical, economic, and social factors are considered in understanding and planning for future needs and development.

191 SOCIAL SCIENTISTS

These workers study human behavior, interactions, institutions, and history. They may study the economic or political structure of a society to determine new policies or actions. They may study history to relate past and present events. Some study human behavior as people interact to deal with problems. Others provide individual and group counseling. Social scientists consult with businesses, institutions, and individuals to solve problems.

1912 ECONOMISTS

ECONOMISTS study the way a society uses resources such as land, labor, raw materials, and machinery to provide goods and services. They plan and conduct research to determine the costs and benefits of making, distributing, and using resources in a particular way. Some develop theories and models to explain problems such as inflation. Most, however, apply their skills to solve problems in a certain area, such as finance, labor, agriculture, or health. They give economic advice to business firms, insurance companies, banks, and others.

SAMPLE WORK ACTIVITIES

- Plan and conduct research to help solve economic problems of a business or industry
- Collect and study data in areas such as finance, labor, or trade
- Design methods and procedures for collecting and processing information
- Compile information about the employment, productivity, wages and hours of workers
- Write reports on the results of market research studies
- Collect information about customers' buying habits
- Prepare charts and graphs that help describe economic trends

HOURS OF WORK/TRAVEL

- Many ECONOMISTS work under pressure of deadlines, tight schedules, and heavy work loads, and sometimes must work overtime.
- Some ECONOMISTS travel to collect information or attend conferences

SAMPLE PLACES OF WORK

- Private industry, including manufacturing firms, banks, insurance companies, investment companies, economic research firms, and management consulting firms

- Colleges and universities
- Federal, state, and local government agencies
- Private consulting firms

1913 HISTORIANS

HISTORIANS study and describe past events, institutions, ideas, and people. They locate and evaluate historical evidence. They study each piece of evidence carefully to make sure it is genuine. They also try to figure out what this evidence means. Sometimes they develop theories to explain the importance of facts, and try to relate current events to past events. While most HISTORIANS teach, many do research and write books. Some serve as consultants to editors and producers.

SAMPLE WORK ACTIVITIES

- Carry out research on subjects such as past wars or cultures
- Trace the historical development of a field such as philosophy or economics
- Study news accounts, diaries, and personal papers to write a book about a person's life
- Direct the activities of a state historical society
- Search through church and court records for evidence of births, marriages, and deaths to trace family lines
- Talk with experts or witnesses to gather information about historical events
- Advise filmmakers about the use of costumes and sets for films that portray the past

HOURS OF WORK/TRAVEL

- Some HISTORIANS travel to collect information and attend meetings.

SAMPLE PLACES OF WORK

- Colleges and universities
- Archives, libraries and museums
- Research and educational organizations
- Historical societies
- Publishing firms
- Large corporations
- Federal agencies including the:

- . National Archives
- . Smithsonian Institutions
- . General Services Administration
- . Departments of Defense and the Interior
- . National Aeronautics and Space

- . Administration
- . Central Intelligence Agency
- . National Security Agency
- . Departments of Agriculture, Commerce, Energy, and Transportation
- . State and local government agencies

1914 POLITICAL SCIENTISTS

POLITICAL SCIENTISTS study governments and how groups form, develop, operate, and interact. Some specialize in political theory or philosophy. Most concern themselves with the structure and operation of government units, such as the Presidency, Congress, and the Judicial system. They also study public opinion, elections, and special interest groups. They try to help government leaders develop policies and plan programs to meet society's needs. Most POLITICAL SCIENTISTS teach or do research and consulting work.

SAMPLE WORK ACTIVITIES

- Study government groups and develop theories to explain their behavior
- Talk with government leaders to find out about current events
- Study public laws to get information to write a report
- Design and carry out public opinion surveys
- Write reports about the findings from political surveys

HOURS OF WORK/TRAVEL

- Some POLITICAL SCIENTISTS work overtime when they must meet deadlines.
- Many POLITICAL SCIENTISTS travel to interview people, conduct surveys, attend meetings and conferences and present reports.

SAMPLE PLACES OF WORK

- Colleges and universities
- Government agencies
- Consulting firms
- Political organizations
- Research institutions
- Public interest groups
- Business firms

1915 PSYCHOLOGISTS

PSYCHOLOGISTS study the ways people behave and think. They seek to understand and explain people's actions. Some do research. They use lab experiments, tests, interviews, and surveys to get information about the ways people think and behave. Others conduct training sessions, do market research, help disturbed patients, and design human-machine systems. Most work in schools, where they teach, counsel, and do research work. These are just a few examples of the things PSYCHOLOGISTS may do.

SAMPLE WORK ACTIVITIES

- Study people's and animals' behavior to help understand the ways they solve problems
- Design ways to help people run difficult machines
- Design and carry out research to find out how people and animals remember things
- Give tests to measure how well people learn new things
- Help people work out their personal problems
- Treat mental problems by using psychotherapy
- Collect data about the ways that people behave at work
- Study the effects of treatment programs in a mental hospital
- Conduct scientific experiments
- Develop theories to explain what things cause people to be motivated
- Plan school programs to teach gifted and disturbed children
- Write technical reports and journal articles

HOURS OF WORK/TRAVEL

- CLINICAL AND COUNSELING PSYCHOLOGISTS often must work in the evenings.
- PSYCHOLOGISTS in government and private industry sometimes work overtime to meet deadlines.
- Many PSYCHOLOGISTS travel to attend conferences or conduct research.

SAMPLE PLACES OF WORK

- Educational institutions -especially colleges and universities, but also elementary and high schools
- Hospitals, clinics, rehabilitation centers, nursing homes, and other health facilities
- Federal, state, and local government agencies
- Research organizations
- Management consulting firms
- Market research firms
- Businesses

1916 SOCIOLOGISTS

SOCIOLOGISTS study human society and social behavior; they examine the groups that people form. These groups include families, tribes, communities, and governments, as well as a great variety of social, religious, business, and other organizations. They study how these groups behave and interact. They also trace their beginnings and growth and try to understand the influence these groups have on people. Most SOCIOLOGISTS conduct research, do consulting work, and teach.

SAMPLE WORK ACTIVITIES

- Design and test ways to collect information about small groups
- Collect and study data about different social classes
- Carry out surveys to find out how much crime occurs in a certain area
- Advise lawmakers about problems such as drug abuse and theft
- Plan research to find the causes of poverty and crime
- Write reports about the behavior of prisoner groups
- Study how city and rural communities differ
- Do research on the growth and development of cities
- Study social factors that affect health care

HOURS OF WORK/TRAVEL

- SOCIOLOGISTS in government agencies and private firms sometimes work overtime to meet deadlines.
- Some SOCIOLOGISTS travel to collect data for research projects or attend professional meetings.

SAMPLE PLACES OF WORK

- Colleges and universities
- Government agencies, at all levels, especially those which deal with such subjects as poverty, public assistance, population policy, social rehabilitation, community development, and environmental impact studies
- Corporations
- Research firms
- Consulting firms
- Welfare or other nonprofit organizations

1919 SOCIAL SCIENTISTS, N.E.C.

These people use their knowledge of the social sciences to collect information about present and past cultures and to find ways to solve social, political, or military problems. For example, some study the various human races to learn how and where they began and how their customs developed. They try to find ways to explain differences in people's languages, behaviors, and physical characteristics and why some cultures died away.

192 URBAN AND REGIONAL PLANNERS

These people develop programs to provide for the future growth and development of city, suburban, and rural communities. They study the long-range needs of a community for housing, transportation, and business sites. They then propose ways to meet those needs. They also prepare materials that show how these programs can be carried out and what they will cost.

SAMPLE WORK ACTIVITIES

- Compile information about the economic, social and physical factors that affect land use in a city
- Prepare graphs and reports that describe factors that affect land use
- Talk with community leaders to develop plans for building new facilities
- Plan a city renewal project
- Study ways to best use old city buildings

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 35-40 hour work week.
- URBAN AND REGIONAL PLANNERS sometimes must attend evenings or weekend meetings or public hearings with citizens' groups.

SAMPLE PLACES OF WORK

- City, county, or regional agencies
- State and federal agencies that deal with housing, transportation, or environmental protection
- Consulting firms that provide services to private developers or government agencies
- Land development companies
- Research firms
- Colleges and universities

20 SOCIAL, RECREATION, AND RELIGIOUS WORKERS

Social, recreation, and religious workers plan and develop programs to meet the needs of the group or community they serve. They may investigate needs and counsel people with personal or employment problems. Others plan, promote, and conduct recreational and educational activities. Some administer the spiritual needs of individuals and groups, both in religious services and social activities.

203 SOCIAL AND RECREATION WORKERS

Workers in these occupations counsel people in need or help people plan and enjoy recreational activities. Some work with people who have financial, family, or behavior problems. They help clients understand their problems and find ways to deal with them. Others work in such places as summer camps, parks, correctional institutions, or hospitals. They may organize sports or craft activities or help people develop recreational skills.

2032 SOCIAL WORKERS

SOCIAL WORKERS counsel and give aid to people who need help. For example, they help people who are poor or ill or who have housing, family, or behavior problems. They talk with people to understand their problems and to plan ways to help them. They plan activities and services for children, teenagers, adults, and older persons. They provide information and referral services in many areas. They advise on child care and place children in foster homes. They also help patients and families cope with illnesses.

SAMPLE WORK ACTIVITIES

- Supervise volunteer workers who provide services to people
- Talk with clients who are unemployed to see what help they need
- Help families plan ways to solve their problems
- Gather information about clients from their employment, medical, and school records
- Determine if clients can meet requirements for public aid
- Counsel parents who have problems rearing their children
- Investigate homes to see if children are well cared for
- Place children in foster or adoptive homes
- Arrange for unmarried parents to get medical and counseling services
- Counsel couples who have problems with their marriages
- Arrange for people to get job trainings
- Develop programs in a community center or youth half-way house
- Counsel groups of youths who are in danger of becoming delinquents
- Arrange services for disabled patients to help them become self sufficient
- Help families deal with a disturbed family member
- Counsel children who have problems coping with school life
- Write reports that describe clients' problems and progress
- Help needy families find low income housing
- Keep track of and assist law breakers who are on parole or probation
- Organize programs to prevent or treat drug and alcohol abuse
- Advise homemakers on how to prepare foods and manage money

HOURS OF WORK/TRAVEL

Most SOCIAL WORKERS have a 5-day, 35-40 hour week. However, they may have some overtime work.

- Some SOCIAL WORKERS work parttime. This is particularly so for those in private agencies.
- Many SOCIAL WORKERS work evenings and weekends to meet with clients, attend community meetings, and handle emergency situations.

SAMPLE PLACES OF WORK

- Public and private agencies, including state departments of public assistance and community welfare and religious and volunteer organizations
- State and local government agencies involved in social policy development and planning, community organization, and administration of welfare programs
- Schools
- Hospitals, clinics, and other health facilities
- Businesses and industries
- Federal government agencies
- The United Nations

2033 RECREATION WORKERS

These people plan, organize, and direct activities designed to help people enjoy their free time. They work in such places as summer camps, parks, playgrounds, or recreation centers. They may work with children or adults or with special groups, such as prisoners, hospital patients, soldiers, or the aged. Some plan and direct activities, such as hikes, cookouts, and camp fires, or teach people how to swim, ride horseback, sail, or play games. Others organize activities such as arts and crafts, sports, music, dramatics, and dancing.

SAMPLE WORK ACTIVITIES

- Plan hikes and cookouts for children at a summer camp
- Show children how to use camping equipment
- Instruct campers in backpacking, nature study, and outdoor cooking
- Plan team sports events
- Instruct campers in skills such as canoeing, sailing, archery, and animal care
- Organize, lead, and referee games
- Study a community's recreation needs
- See that recreation equipment is kept in good repair
- Coordinate recreation programs in an institution with activity programs in other agencies
- Organize and promote interest in activities, such as arts and crafts, sports, games, and music
- Work with others to plan and conduct neighborhood sports events

HOURS OF WORK/TRAVEL

- RECREATION WORKERS may sometimes work during evenings and weekends.
- Some recreation workers work part time. RECREATION WORKERS at summer camps may have to find other jobs during cooler seasons.

SAMPLE PLACES OF WORK

- State, county, city, and private parks and recreation centers
- The YMCA, Boy Scouts, Girl Scouts, and other organizations that sponsor camps
- Church groups that sponsor camps
- Government agencies that sponsor recreational programs
- Prisons, mental hospitals, and other institutions
- Military services

204 RELIGIOUS WORKERS

Religious workers include clergy and other workers who provide help and services to members of a religious community or group. Clergy interpret doctrine, conduct services, and administer sacraments. Other religious workers perform social services, help organize and conduct activities, and administer educational programs provided by the religious group.

2042 CLERGY

CLERGY serve the spiritual and religious needs of people. CLERGY include MINISTERS, RABBIS, and PRIESTS in the Protestant, Jewish, Catholic, other faiths. Their specific duties depend upon their faiths. However, most CLERGY conduct religious services and deliver sermons, conduct weddings and funerals, visit the sick, help the poor, comfort the bereaved, counsel those who need guidance, and involve themselves in community affairs.

SAMPLE WORK ACTIVITIES

- Lead a congregation in worship services
- Prepare and deliver sermons and other talks
- Oversee religious education programs, such as Sunday School and youth groups
- Interpret doctrine
- Instruct people who wish to convert to a faith
- Perform wedding ceremonies
- Conduct funeral services
- Visit the sick and the aged
- Teach in a seminary school
- Counsel people who need spiritual guidance
- Write religious articles for publication
- Do missionary work at home or abroad
- Counsel a chaplain in a hospital or school or on a military base

HOURS OF WORK/TRAVEL

- CLERGY often have long and irregular hours. Many are "on call" at all hours
- CLERGY often work during evening hours, weekends, and holidays.
- CLERGY in the military services and those in missionary work may travel long distances. Others may travel to attend meetings and conferences.
- Some CLERGY members work part-time

SAMPLE PLACES OF WORK

- Churches
- Hospitals and other institutions
- Military services
- Colleges and universities
- Jewish community service agencies
- Seminaries
- Foreign missions
- Monasteries

2049 RELIGIOUS WORKERS, N.E.C.

These people provide services to members of religious groups. Their job duties vary. Some call on families to give support and nonmedical care to church members who are ill. Some plan and direct activities to meet the religious needs of college students. Some direct church school programs for youths. Some perform special religious rites. Some counsel clients who have had disturbing experiences.

SAMPLE WORK ACTIVITIES

- Give nonmedical care to patients as a CHRISTIAN SCIENCE NURSE
 - . Call on families who have members who are ill
 - . Provide care to patients in a Christian Science sanatorium
 - . Practice spiritual (or faith) healing through prayer
- Direct activities at a college or university to meet the religious needs of students
 - . Assist groups in promoting understand between the various faiths
 - . Interpret school policies to religious workers
 - . Counsel and advise students on marital, health, and religious problems
 - . Conduct conferences and courses designed to help people understand different faiths
- Plan, organize, and direct a church school program

- Develop study courses and supervise teaching staff
 - Plan church activities and projects
 - Visit church members to stimulate their interest in church and educational programs
 - Order and give out school supplies
- Circumcise Jewish male infants, according to Jewish law
 - Review family medical histories to determine if infants might have a bleeding problem
 - Examine infants for infection and other conditions
 - Sterilize surgical instruments
 - Use a scalpel to perform circumcisions
 - Recite prescribed benedictions and announce the Hebrew names of children who have been circumcised
 - Conduct counseling sessions to relieve clients from the effects of past experiences
 - Question clients while they are in contact with a special meter
 - Listen to clients' responses to questions and watch the indicator needle on the meter
 - Interpret the movement of the needle to determine if the procedure is working
 - Compile notes on clients' responses during sessions

HOURS OF WORK/TRAVEL

- These jobs may require evening and weekend work.
- Many of these jobs require local travel to call on church members and attend church and community meetings.

SAMPLE PLACES OF WORK

- Churches and synagogues
- Christian Science Sanatoriums
- Colleges and universities

21 LAWYERS AND JUDGES

Lawyers and Judges study, interpret, and decide legal questions. Lawyers study the law, examine evidence and witnesses, present cases in court, and draft legal documents. Judges study the law, interpret the law, and make legal decisions in court after hearing lawyers' arguments.

211 LAWYERS

LAWYERS advise individuals and businesses on legal matters. They consult with clients to determine the details of problems, advise them of the law, and suggest action that might be taken. They also study and interpret laws, draft legal papers, and represent clients in courts of law. Many LAWYERS specialize in a certain branch of law. Some help write laws and establish ways to enforce them. A few teach or hold management positions.

SAMPLE WORK ACTIVITIES

- Gather evidence in a divorce case to begin a legal action
- Talk with clients and witnesses to set the facts of a criminal case
- Present evidence in court against a person accused of a crime
- Recommend changes in the wordings of insurance policies to make sure they conform with the law
- Draw up bills of sale
- Study the Constitution and other laws to build a defense for a corporate client
- Prepare applications for patents

- Draft wills and deeds of trust to help clients plan their estates
- Draw up leases for rental property
- Advise clients on estate, gift, and excise taxes
- Prepare cases for trial
- Prepare questions for the law board exam

HOURS OF WORK/TRAVEL

- LAWYERS often travel to attend meetings, gather evidence, or appear before courts, law bodies, and other authorities.
- Independent LAWYERS may work irregular hours while conducting research, conferring with clients, or preparing briefs.
- Many LAWYERS work more than 40 hours per week.
- Some LAWYERS work part-time.
- The work of TAX LAWYERS may be seasonal.

SAMPLE PLACES OF WORK

- Law firms and private practices
- Federal, state and local governments
- Public utilities
- Transportation firms
- Banks
- Insurance companies
- Real estate agencies
- Manufacturing firms
- Welfare and religious organizations
- Business firms
- Law schools

212 JUDGES

Judges preside over courts of law and hold official hearings to settle legal disputes. They listen to cases being presented, examine evidence, advise the lawyers and juries, and set fines or sentences. In some cases, they decide verdicts. They may also perform marriage ceremonies and carry out legal research. Also included in this group are officials, such as HEARING EXAMINERS AND ARBITRATORS, who do not preside over courts, but who do render decisions which have standing in courts of law.

SAMPLE WORK ACTIVITIES

- Set rules of procedure for use in court hearings
- Read or listen to charges made against people in court
- Settle disputes between opposing attorneys
- Sentence people in criminal cases
- Conduct hearings to determine if there is reasonable and probable cause to hold defendants for trial
- Instruct the jury to pay attention only to the facts from evidence presented
- Research laws, regulations, and policies to prepare for an appeals hearing
- Question witnesses
- Prepare written decisions on cases or opinions on points of law
- Recommend that compromise settlement offers be refused or accepted
- Decide if injured or disabled persons should get unemployment or welfare benefits

HOURS OF WORK/TRAVEL

- Some JUDGES, such as JUSTICES OF THE PEACE and NIGHT-COURT MAGISTRATES, perform duties at night. Others keep regular office hours.

SAMPLE PLACES OF WORK

- Federal, state, and local court systems
- Federal, state, and local government agencies

2199 TEACHERS, LIBRARIANS, AND COUNSELORS

These workers are concerned with educational information. They may provide instruction at all levels to people with many different educational needs. They may teach academic or vocational subjects. They may collect and catalog information in the form of books, magazines, and artifacts for study or reference use. Other workers may help people determine educational or vocational goals and help them develop plans to meet those goals.

22 TEACHERS COLLEGE, UNIVERSITY, AND OTHER POST SECONDARY INSTITUTIONS

These people conduct classes for students at a college and university. They teach one or more subjects within a certain area. They prepare and give lectures and may conduct seminars or lab sessions. They lead class discussions and prepare, give, and grade exams. They may direct research programs, advise students, and work with committees to plan and revise courses and set degree requirements. They may do research and publish their findings in books or journals. Some act as heads of departments.

SAMPLE WORK ACTIVITIES

- Teach courses in a subject area such as economics, chemistry, medicine, or philosophy
- Prepare and deliver lectures
- Compile lists of reading materials for students to use
- Lead class discussions
- Prepare, give, and grade exams
- Direct the research work of graduate students
- Do research and publish the findings in professional journals
- Do consulting work for government or industry
- Arrange class schedules
- Assign teaching staff to conduct classes
- Prepare departmental budgets
- Interview applicants for teaching positions

HOURS OF WORK/TRAVEL

- College faculty members generally have flexible schedules and divide their time among teaching, research, and administrative duties.
- Some faculty members work part time. At many colleges and universities, faculty work 9 or 10 months of the year and have summer months free. They may work, travel, study, or pursue hobbies in the summer. They also have other breaks during other school holidays.
- Some faculty members teach courses or take part in other school and student events during evening hours.
- Some faculty members may travel to do research and attend professional meetings.

SAMPLE PLACES OF WORK

- Colleges and universities
- Junior colleges
- Technical institutes

2232 HEALTH SPECIALITES TEACHERS, N.E.C.

These people teach courses in health specialties. They may specialize in teaching anatomy, dentistry, hygiene, lab technology, nursing, pharmacy, therapy, or veterinary medicine. They prepare and give lectures, conduct and supervise lab work, and direct seminars. They prepare and give exams, evaluate student progress, and keep student records. They also help plan courses of study, teaching schedules, and course outlines.

SAMPLE WORK ACTIVITIES

- Teach patient care to nursing students
 - Lecture to students on subjects such as biology and chemistry
 - Conduct and supervise lab work
 - Assign tasks to nursing students
 - Direct seminars and panels
 - Prepare and give exams
- Evaluate student programs
- Keep records of students' classroom and clerical experiences
- Help plan courses of study, teaching schedules, and course outlines

HOURS OF WORK/TRAVEL

- HEALTH SPECIALITIES TEACHERS may teach some classes during evenings or weekend hours.

SAMPLE PLACES OF WORK

- Nursing schools
- Schools of Veterinary medicine
- Medical schools
- Dental schools
- Schools of Dental hygiene
- Therapy schools
- Schools of Pharmacology

2246 TRADE AND INDUSTRIAL TEACHERS

These people teach and instruct students to prepare them for employment. Some teach courses in a technical, vocational, or industrial school. Others teach, instruct, and train workers in business, industry, or government. They instruct students in work methods and procedures. They also teach courses in areas related to the particular type of work the students wish to enter. They prepare courses, give tests, and evaluate student performance.

SAMPLE WORK ACTIVITIES

- Instruct new and experienced police officers in the different phases of police work
 - Teach courses in police science, police ethics, investigation methods, government, law, self defense, and other areas related to police work
 - Evaluate students' test results and classroom performance
 - Prepare evaluation reports
 - Drill police officers to prepare them for parades or similar events

HOURS OF WORK/TRAVEL

- Some of these jobs may require work during evening or weekend hours.

SAMPLE PLACES OF WORK

- Technical, vocational, and industrial schools
- Businesses and industries that provide worker training
- Government agencies
- Police academies
- Military services

2249 TEACHERS; POST-SECONDARY, N.E.C.

These workers teach military and police science. They may teach in Reserve Officer Training Corps programs, covering such subjects as weapons deployment, naval science, defense concepts, and aerospace science. Others teach probationary and experienced policemen, covering such areas as investigative methods, self-defense, community relations, and care of firearms. They evaluate test results and student performance.

SAMPLE WORK ACTIVITIES

- Teach military subjects, such as employment and deployment of weapons, military aspects of geopolitics, and defense concepts
- Teach in Reserve Officer Training Corps programs
- Specialize in teaching subjects concerned with a particular branch of military tactics, such as aerospace, naval science, or military science
- Instruct probationary and experienced police officers in various phases of police work, including police science, police ethics, investigative methods, government, law, community relations, self-defense, and care of firearms
- Evaluate test results and classroom performance
- Prepare performance evaluation reports
- May drill personnel at regular intervals and prior to special events

HOURS OF WORK/TRAVEL

These workers may have flexible schedules and divide their time between teaching, administrative duties, and police or military activities, such as summer camp and specialty trainings. They may travel to fulfill military or police responsibilities.

SAMPLE PLACES OF WORK

- . Colleges and universities
- . Police academies
- . State and local police departments
- . Military installations

23 TEACHERS, EXCEPT POST-SECONDARY INSTITUTION

These workers teach academic and job skills to children and adults. They may teach basic subjects at the elementary level or teach a specific subject such as English, welding, or business at the secondary level. Others teach children or adults with special needs, such as physical or mental handicaps. Others teach job-related skills to workers or out-of-school youths. Some coordinate educational programs.

231 PREKINDERGARTEN AND KINDERGARTEN TEACHERS

People in these jobs teach preschool and kindergarten aged children. They provide learning activities to help these children develop the physical, mental and social skills they will need when they enter school. They conduct lessons in social skills through games and group projects. They also teach simple principles of science, math, health and language. Besides teaching, they watch children for signs of problems, illness and progress. They meet with parents to discuss their children's problems and progress.

SAMPLE WORK ACTIVITIES

- Plan individual and group activities for young children, according to their ages
- Teach simple lessons in natural science, personal health, music, to 4-6 year-old children
- Plan and conduct field trips and group discussions
- Encourage children in singing and dancing activities and in the use of art materials
- Instruct children in personal cleanliness and self-care
- Plan and conduct rest periods to prevent children from becoming overtired

HOURS OF WORK/TRAVEL

- PREKINDERGARTEN AND KINDERGARTEN TEACHERS may work 9 or 10 months of the year and be off in the summer.

SAMPLE PLACES OF WORK

- Elementary schools
- Day care centers
- Early childhood education centers
- Child development centers
- Nursery schools
- Kindersgartens

232 ELEMENTARY SCHOOL TEACHERS

These TEACHERS work in grade schools. They teach the basic concepts of math, language, science, social studies, and other subjects. They try to provide a sound background for studies in the higher grades. They also try to teach good study habits and respect for learning. They also arrange trips, speakers, and class projects. Some teach special subjects such as music, art, or gym skills. They also attend school meetings, plan courses, grade papers, and supervise after-school activities.

SAMPLE WORK ACTIVITIES

- Prepare outlines for courses of study
- Present lectures to teach subject matter such as math, science, and health
- Show students how to add, subtract, multiply, and divide numbers
- Use slides, films and recordings to help present lessons
- Prepare, give, and correct tests and keep grade records
- Assign lessons, correct papers, and listen to oral presentations
- Keep order in the classroom and on the playground
- Counsel students who have problems with subject matter or behavior
- Meet with parents to discuss students' problems and to suggest ways to help them
- Keep attendance records

HOURS OF WORK/TRAVEL

- Most TEACHERS work well over 40 hours a week.
- Most ELEMENTARY SCHOOL TEACHERS work 10 months a year. They occasionally attend night meetings at school and may travel to attend professional meetings in other cities. During the summer, they may teach summer sessions, take courses, or work at other jobs.

SAMPLE PLACES OF WORK

97

public and private elementary or grade schools and middle schools

233 SECONDARY SCHOOL TEACHERS

These TEACHERS work in middle, junior high, and high schools. They instruct students in specific subjects such as English, math, social studies, or science. Some teach courses to prepare students for specific jobs. They often teach a number of courses within a subject area. They develop teaching plans, prepare and give exams, and arrange class projects. They often use films, slides, computer terminals, and other equipment in conducting classes. They also supervise study halls and homerooms and attend school meetings.

SAMPLE WORK ACTIVITIES

- Use slides, films, and tape recordings to teach lessons
- Prepare outlines for different courses of study
- Prepare and give lectures
- Plan and conduct lab experiments
- Compute the average grades of students in a class
- Show students how to safely use woodworking machines and other shop equipment
- Assign lessons and correct homework papers
- Give and grade tests and issue grade reports
- Talk to parents about their children's behavior in class
- Help students plan a school prom
- Advise students about their courses of study
- Keep order in the lunchroom
- Attend teacher training workshops

HOURS OF WORK/TRAVEL

- Most of these TEACHERS work well over 40 hours a week. They occasionally attend night meetings at school and may travel to attend professional meetings in other cities.
- Many TEACHERS in this group work 10 months a year and have 2 months off in the summer. During the summer, they may teach summer sessions, take courses, or work at other jobs.

SAMPLE PLACES OF WORK

235 TEACHERS: SPECIAL EDUCATION

These people teach academic, social, and other skills to children and adults who have special problems. The students may have physical or mental handicaps. They may teach in a classroom, or special building, or some travel to students' homes to teach. They may use special methods or tools, such as sign language or Braille writers to teach. They plan courses, prepare lessons, grade papers, and keep records. An important part of their work involves encouraging and advising students and their families.

SAMPLE WORK ACTIVITIES

- Teach blind students how to read and write in Braille
- Arrange and adjust tools, work aids, and equipment for people with physical disabilities
- Observe students for signs of disruptive behavior
- Teach basic academic and living skills to mentally retarded students
- Teach English, math, and other subjects in a classroom for students with emotional problems
- Arrange field trips to promote learning experiences
- Give ability and achievement tests to students
- Prepare reports on the programs of students
- Work with parents to plan educational programs for their children.

HOURS OF WORK/TRAVEL

- SPECIAL EDUCATION TEACHERS who work in institutions may sometimes work on weekends
- Most SPECIAL EDUCATION TEACHERS work well over 40 hours a week.

SAMPLE PLACES OF WORK

- Schools
- Institutions and special facilities that serve the needs of people who have emotional, mental, or physical handicaps
- Hospitals
- Rehabilitation centers
- Government agencies

236 INSTRUCTIONAL COORDINATORS

These workers plan, develop, and support educational programs. These programs may be at the primary, secondary, or higher educational level. For example, some plan and set up community health education programs. Others develop programs to provide in-service training for teachers. Some review courses of study, or order educational materials and supplies for a school system. These people work with school officials, teachers, and community groups to make sure that educational standards and goals are met.

SAMPLE WORK ACTIVITIES

- Plan a health education program for a community
 - Conduct a survey to find out about the health needs of a community
 - Set goals for a health services program
 - Prepare and send out information about health education programs
 - Develop programs to support schools
 - Talk with school officials to develop guidelines for educational programs
 - Review courses of study to be offered in schools
 - Interpret rules and laws that apply to public education
 - Conduct workshops to promote educational goals
 - Prepare teaching aids and manuals
 - Direct workers to send educational materials to schools
 - Review books, tapes, and slides to decide if they should be ordered
 - Design tests to measure how effective courses are in teaching skills
 - Direct the preparation of textbooks and guidance manuals
 - Order materials, supplies, and visual aids

HOURS OF WORK/TRAVEL

SAMPLE PLACES OF WORK

- City, County, and State school systems
- Colleges and universities
- Community health organizations
- Vocational and technical schools

239 ADULT EDUCATION AND OTHER TEACHERS, N.E.C.

These people teach special, academic, job-related, and other courses in school, business, industrial, and other settings. They may teach any one of a variety of popular courses, such as consumer education, home management, foreign language, art, music, or woodworking. They may teach job-related skills such as assembling watch parts or decorating dinnerware. They plan courses, prepare lessons, and give written or performance tests. They also may advise students in career and related matters.

SAMPLE WORK ACTIVITIES

- Conduct a consumer education program for a food, textile, or utility company
- Instruct farmers in farm management techniques
- Organize and direct the educational activities of a 4-H club
- Instruct student pilots in flight procedures and techniques
- Teach vocational subjects to students in public schools
- Teach driving skills to groups of people
- Teach foreign languages or other subject matter to children in private homes
- Plan the course of study for students enrolled in correspondence courses
- Instruct people in the techniques of modeling
- Instruct pupils in painting and sculpturing
- Teach acting principles and techniques
- Instruct pupils in ballet, tap, and other forms of dancing
- Teach instrumental or vocal music in school
- Teach sport activity at a recreational facility or school
- Teach gymnastics in a private health club or gym
- Teach people to play bridge
- Conduct a training program for employees of a business, service, or government concern

HOURS OF WORK/TRAVEL

- Many adult education courses are taught during the evenings or on weekends, so that people who work can attend.
- Many of these jobs offer opportunity for part-time work.

SAMPLE PLACES OF WORK

- Federal, State, and Local government agencies
- Industrial plants and commercial businesses
- Military services
- Nonprofit organizations, such as the 4-H club
- Public and private schools, including colleges, universities, and technical and vocational schools
- For yourself, as a self-employed instructor

24 VOCATIONAL AND EDUCATIONAL COUNSELORS

These workers counsel people on educational and career matters. They help students or workers by providing them with information about training and jobs and by helping them deal with personal problems. They collect information about people from interviews, tests, records, and other sources. They also compile job, school, and economic information. They determine people's interests, abilities, and needs and plan educational and training programs to suit them. They may help clients get training or other help from community agencies. They also keep records and write reports.

SAMPLE WORK ACTIVITIES

- Provide educational and vocational counseling services to individuals and groups

- . Collect information about people from records, tests, interviews and other sources
 - . Determine people's interests, aptitudes, abilities, and preferences
 - . Plan job-training programs
 - . Compile and study job, school, and economic information
 - . Help people to set work and school objectives
 - . Help people understand and overcome their social and emotional problems
- Offer counseling services to nursing students
 - . Prepare life histories of clients
 - . Inform clients of job requirements, wages, hours, career paths
 - . Help clients obtain training or other help from community agencies
 - Direct workers who provide educational and vocational guidance for students
 - . Assign work to counselors
 - . Conduct in-service training programs for a staff
 - . Direct testing activities
 - Provide individual and group guidance services to students who live in a dormitory
 - . Suggest remedial instruction to students who need to develop certain skills
 - . Conduct programs to orient new students to campus life
 - . Supervise dormitory activities
 - . Investigate reports of student misconduct
 - Counsel handicapped people
 - . Interview handicapped people to determine whether they meet requirements for government aid
 - . Determine what jobs would be suitable for people, based on their desires, aptitudes, and physical limitations
 - . Arrange for clients to study or train for job openings
 - . Help clients get medical services during their training
 - . Help clients obtain jobs
 - Direct a guidance program in a public school system
 - . Set guidance policies and procedures
 - . Supervise school placement services
 - . Plan and supervise the testing program in a school system
 - . Set up occupational libraries in schools
 - Help foreign students adjust to campus and community life
 - Provide information to veterans and handicapped students of a college or university

HOURS OF WORK/TRAVEL

- COUNSELORS at colleges and universities may sometimes have hectic periods where they work more than 40 hours a week. Because students are not always available during the day, evenings and weekend work is common.
- Most SCHOOL COUNSELORS work the traditional 10-month school year, with a 2-month vacation.
- EMPLOYMENT counselors usually work about 40 hours a week. However, those in community agencies may have evening appointments to counsel clients already employed.
- These jobs may require local travel to meet with clients and attend school and community meetings.

SAMPLE PLACES OF WORK

- State employment service offices
- Private and community agencies
- Institutions, such as prisons, training schools for delinquent youths, and mental hospitals
- Colleges and universities
- Public school systems

25 LIBRARIANS, ARCHIVISTS, AND CURATORS

These workers maintain collections of information and artifacts for libraries and museums. They may collect and catalog books, magazines, films, music, or reference materials. Others collect and identify documents of historical interest. They may also be concerned with the safekeeping of records, art objects, and other rare or valuable items. Some workers care for and display these items in museums, art galleries, arboretums, or similar institutions.

251 LIBRARIANS

LIBRARIANS make information available to people in libraries. They select, order, catalog, and take care of library materials such as books, magazines, newspapers, films, and records. They also help people find information they need. Other duties which they may perform include: supervising staff, preparing budgets, repairing materials, and handling special collections.

SAMPLE WORK ACTIVITIES

- Describe or show people how to use catalog files
- Arrange displays of books and other library materials
- Select and order books and audiovisual material that will have wide interest
- Work with teachers to provide materials for classroom instruction
- File cards into assigned sections of a card catalog
- Conduct storytelling, book talks, puppet shows, and film programs for children
- Teach workers about special reference subjects
- Plan and direct a library program for residents and staff in a prison or mental institution
- Compile lists of books and articles on a special subject

HOURS OF WORK/TRAVEL

- LIBRARIANS at public or college libraries may sometimes work during evenings or on weekends.
- A 40-hour week during normal business hours is common for government and other special LIBRARIANS.

SAMPLE PLACES OF WORK

- Public and private elementary and high schools
- Public libraries
- Colleges and universities
- Private industries, government agencies, hospitals, prisons and other places that have special libraries

252 ARCHIVISTS AND CURATORS

ARCHIVISTS and CURATORS conduct research on items or materials of scientific or historical interest. They appraise, edit, and direct the safekeeping of records, historical documents, art objects, and other valuable or rare items. Some plan and direct the major activities of a museum, art gallery, arboretum, or similar institution. Others work to restore or repair articles and prepare them to be exhibited.

SAMPLE WORK ACTIVITIES

- Appraise, edit, and prepare descriptions of valuable documents
- Direct workers who catalogue valuable materials
- Select documents for publication and display
- Plan special research projects

- Arrange with other institutions for the loan of collections
- Write articles for publication in scientific journals
- Oversee clerical, custodial, research, and other staff
- Direct workers who investigate, acquire, mark, and preserve historical sites
- Approve the purchase of historic homes and battlefields
- Direct workers who prepare brochures, maps, and exhibits
- Direct workers who examine and repair art objects
- Estimate the cost of restoring an art object
- Repair and clean art objects, such as pottery and etchings
- Do research on historic monuments, buildings, and scenes
- Prepare exhibits of armor, helmets, guns, and swords

HOURS OF WORK/TRAVEL

- These jobs generally involve a standard 35-40 hour work week.
- Some jobs may require travel to conduct on-site field work.

SAMPLE PLACES OF WORK

- Art galleries
- Colleges and universities
- Federal agencies, such as the National Archives and Smithsonian Institute
- Historical sites
- Museums and libraries
- State Agencies
- Zoological and botanical gardens

2599 HEALTH DIAGNOSING AND TREATING PRACTITIONERS

These workers use scientific skills to diagnose and treat disease. They are also concerned with the general health of people and in preventing disease. They may examine patients, perform preventive or corrective procedures, or prescribe treatment and medication. They may specialize in treating one part of the body, working as optometrists or podiatrists, rather than as physicians and dentists.

26 PHYSICIANS AND DENTISTS

Physicians and dentists help people maintain good health by treating disease and advising patients. They examine patients, determine preventive or corrective treatment, perform procedures to correct problems, and prescribe medication. Veterinarians perform similar services for animals.

261 PHYSICIANS

PHYSICIANS perform medical exams, diagnose diseases, and treat people who are suffering from injury or disease. They also advise patients on how to prevent disease and keep fit through proper exercise and diet. They generally work in their offices and in hospitals. Some, however, visit patients in their homes or in nursing homes. Most PHYSICIANS specialize in a certain field of medicine. Some also do research or teach in medical schools. A few write and edit medical books.

SAMPLE WORK ACTIVITIES

- Give drugs to people so they won't feel pain in surgery
- Check a patient's heartbeat with a stethoscope
- Determine the physical condition of people who are applying for insurance
- Give shots to schoolchildren to prevent them from getting diseases
- Deliver babies and care for mothers before and after childbirth
- Operate on patients' eyes to save their eyesight
- Prescribe medicine to treat skin diseases
- Treat cancer patients with x-rays
- Determine the nature and extent of mental disorders in patients
- Examine bodies to find the cause of death
- Perform surgery

HOURS OF WORK/TRAVEL

- Many PHYSICIANS have long working days and irregular hours.

SAMPLE PLACES OF WORK

- Private offices
- Hospitals
- Medical centers and clinics
- Nursing homes
- Government agencies
- Medical laboratories
- Medical schools
- Public health facilities
- Medical research firms
- Companies that publish medical books and journals
- Military services

262 DENTISTS

DENTISTS examine teeth and other parts of the mouth to diagnose diseases or disorders. They take x-rays, fill cavities, straighten teeth, and treat gum diseases. They pull teeth and replace them with dentures. They also perform surgery on gums and supporting bones to correct them. Most practice general dentistry, but a few specialize in areas of care such as childrens' dentistry or the treatment of gums. A few DENTISTS teach in dental schools, do research, or run dental health programs.

SAMPLE WORK ACTIVITIES

- Use a dentist's drill to remove diseased parts of teeth
- Inject pain killer into patients' gums
- Cap injured teeth and fill cavities
- Place braces on teeth to straighten or align them
- Remove wisdom teeth
- Design and make dentures to replace missing or diseased teeth
- Look at x-rays to find signs of cavities or other dental problems
- Use mouth mirrors, explorers and other instruments to look at or treat patients' teeth and gums
- Advise patients how to care for their teeth and gums

HOURS OF WORK/TRAVEL

- Most DENTISTS work a regular 35-40 hour week. However, some DENTISTS work overtime.
- Some DENTISTS have evening hours.
- Some DENTISTS work on a part-time basis.

SAMPLE PLACES OF WORK

- Private offices
- Military services
- Federal government agencies, especially the Veterans Administration and the Public Health Services

27 VETERINARIANS

VETERINARIANS (doctors of veterinary medicine) study, diagnose, treat, and help to control diseases and injuries among animals. They also help prevent the outbreak and spread of animal diseases, many of which can affect humans. They treat animals in hospitals and clinics or on farms and ranches. They operate on sick or injured animals and prescribe and give medicines, drugs, and vaccines.

SAMPLE WORK ACTIVITIES

- Examine animals to determine what medical care they need
- Treat animals, using surgery, drugs, medicine, and bandages
- Advise people on how to care for and breed their animals
- Study the diseases and health problems of lab animals such as hamsters, rabbits, monkeys, and mice
- Do lab tests for bacteria in the body fluids and tissue of diseased animals
- Conduct research to find how to prevent and control parasites in pets
- Inspect meat, poultry, and other foods to see if they are safe to eat

HOURS OF WORK/TRAVEL

- **VETERINARIANS** in private practice often have long and irregular hours. Others may work a standard 35-40 hour week.
- **VETERINARIANS** who specialize in large animals often travel to farms and ranches.

SAMPLE PLACES OF WORK

- Federal, state, and local government agencies
- Military services
- Medical schools
- Research labs
- Large livestock farms
- Food companies
- Drug companies
- Private practices
- Veterinary schools

28 OTHER HEALTH DIAGNOSING AND TREATING PRACTITIONERS

Other health diagnosing and treating practitioners include such occupations as optometrists and podiatrists. These workers specialize in treating one part of the body, such as certain vision problems or foot problems. They examine patients, determine treatment, perform corrective procedures, and sometimes prescribe medication.

281 OPTOMETRISTS

OPTOMETRISTS examine people's eyes for vision problems, diseases, and other disorders of the eye. They also test eyes for proper depth and color perception and focus. When necessary, they prescribe lenses and treatment. When they find evidence of disease, they refer patients to doctors who treat eyes. Most **OPTOMETRISTS** supply eyeglasses and fit and adjust contact lenses. Some specialize in work with the aged, children, or the visual safety of industrial workers. Some **OPTOMETRISTS** teach or do research.

SAMPLE WORK ACTIVITIES

- Use complex equipment to test people's vision
- Improve people's vision through the use of lenses, prisms, training, or eye exercises
- Treat eye problems of children who have trouble learning
- Adjust and repair contact lenses and eyeglasses
- Study eye diseases and how to prevent or cure them
- Teach or train other **OPTOMETRISTS**

HOURS OF WORK/TRAVEL

- Most **OPTOMETRISTS** work during regular office hours.

SAMPLE PLACE OF WORK

- Private practices
- Eye hospitals and clinics
- Schools of optometry
- Veterans Administration
- Public and private health agencies
- Industrial health insurance companies

- Military services
- As consultants to engineers specializing in safety and lighting, consultants to educators in remedial reading, or participants on health advisory committees

283 PODIATRISTS

PODIATRISTS diagnose and treat diseases and disorders of the foot. They perform surgery, fit corrective devices, and prescribe drugs, therapy, and proper shoes. To help in diagnoses, they take x-rays and perform tests. They treat a variety of foot conditions, including corns, bunions, calluses, ingrown toenails, skin diseases, fallen arches, and deformed toes. Some specialize in foot surgery, bone disorders, children's foot ailments, or foot problems of the aged. Most provide all types of foot care.

SAMPLE WORK ACTIVITIES

- Examine people's feet to find out what is wrong with them
- Perform x-ray and blood and urine tests
- Use machines and electricity to treat feet
- Perform surgery on feet
- Make and fit corrective devices
- Advise patients on how to care for their feet
- Prescribe corrective footwear
- Refer patients to other doctors, when needed
- Prescribe drugs and therapy for feet problems

HOURS OF WORK/TRAVEL

- Most PODIATRISTS work during regular office hours
- Some PODIATRISTS work on a part-time basis

SAMPLE PLACES OF WORK

- Hospitals
- Private practices
- Podiatric medical colleges
- Veterans Administration
- Public health department
- Military services

289 HEALTH DIAGNOSING AND TREATING PRACTITIONERS, N.E.C.

These workers diagnose and treat human ailments, and prescribe and give treatments for diseases and illnesses. Generally, these workers are not medical doctors. Some adjust the spinal columns and other parts of people's bodies to prevent disease and correct conditions thought to be caused by nervous system disorders. Some treat patients using natural means such as air, water, earth, food, and herbs. Some hypnotize patients to change their behavior patterns. Some use acupuncture needles to treat ailments and relieve pain.

SAMPLE WORK ACTIVITIES

- Talk with clients to determine their problems
- Examine patients using X-ray machines and medical equipment
- Diagnose, treat, and care for patients, using a system of natural laws
- Use natural medicines and remedies to treat patients
- Test subjects to see if they can be hypnotized
- Train clients in self-hypnosis

- Insert acupuncture needles in patients to treat them, under a doctor's supervision

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Private clinics and offices

2899 REGISTERED NURSES, PHARMACISTS, DIETITIANS, THERAPISTS, AND PHYSICIAN'S

These workers provide medical support services to treat and prevent disease. They may work for hospitals, pharmacies, clinics, institutions, cafeterias, convalescent hospitals and nursing homes. They may plan diets or menus, give therapy treatments, assist doctors, or fill prescriptions. They consult with doctors on appropriate medication, diet, or therapeutic treatment.

29 REGISTERED NURSES

As important members of the health care team, REGISTERED NURSES perform a wide range of functions. They observe and record symptoms, reactions, and the progress of patients. They give medicine and drugs to patients as prescribed by doctors. They also help treat patients and instruct them and their families in proper health care. Some of these nurses provide nursing services in hospitals, doctors' offices, and nursing homes. Others do research work or instruct students.

SAMPLE WORK ACTIVITIES

- Give medicines and treatments to patients, as prescribed
- Teach classes in child care, first aid, and home nursing
- Vaccinate students and keep their health records
- Visit homes to find out what patients need
- Give advice on nursing and health service problems
- Plan the policies, standards, and objectives of a school health program
- Direct nursing activities in a hospital unit, health agency, or industry
- Attend to the needs of sick and injured people in a hospital
- Inject drugs into people's spines to keep them from feeling pain
- Deliver babies

HOURS OF WORK/TRAVEL

- COMMUNITY HEALTH NURSES may be required to travel to treat patients in all kinds of weather.
- STAFF NURSES in hospitals and nursing homes may be required to work nights and weekends.
- Some NURSES work on a part-time basis.

SAMPLE PLACES OF WORK

- Hospitals, nursing homes, and related institutions
- State and local government agencies
- Schools
- Visiting nurse associations
- Clinics
- Nursing schools
- Industries
- Doctors' offices
- Patients' home
- Professional nurse organizations
- State Nursing Boards
- Research organizations
- Military services

30 PHARMACISTS, DIETITIANS, THERAPISTS, AND PHYSICIAN'S ASSISTANTS

Workers in these occupations provide medical support services to help prevent and treat disease. They may work for hospitals, pharmacies, clinics, institutions, cafeterias, convalescent hospitals or nursing homes. They may plan diets or menus, provide diagnostic services or give therapy treatments. They may fill prescriptions for medication. They consult with doctors on appropriate medication, diet, or therapeutic treatment.

301 PHARMACISTS

PHARMACISTS dispense drugs and medicine prescribed by doctors and dentists. They also advise people on the use of medicines that can be bought without a doctor's order. They may prepare medicines and test drugs for purity and strength. Some keep records of the drugs patients use and advise doctors on the selection and use of drugs. Many who work in drug stores also buy and sell goods and hire and supervise staff. Others teach, do research, do consulting work, or write and edit technical articles.

SAMPLE WORK ACTIVITIES

- Put the correct amount of pills or capsules in bottles as a doctor requests
- Mix and prepare medicines and drugs
- Refrigerate drugs, vaccines, and serums
- Advise customers how to take medicine and drugs
- Sterilize solutions for making medicines
- Sell toothpaste, deodorant, and cough medicine
- Advise doctors on the effects or strength of new drugs
- Write articles for pharmacy magazines about new or different techniques
- Answer patients questions about prescribed medicines
- Order and maintain drug supplies and chemicals
- Instruct interns in the use and effects of medicines and drugs

HOURS OF WORK/TRAVEL

- Many PHARMACISTS work extra hours in second jobs, often as consultants to nursing homes and other facilities.
- PHARMACISTS often work during evenings and weekends.

SAMPLE PLACES OF WORK

- Community pharmacies
- Hospitals
- Companies that make drugs
- Wholesale drug companies
- Government and educational institutions
- Pharmacy and medical schools
- Nursing homes
- Military services

302 DIETITIANS

DIETITIANS plan healthful and tasty meals to help people keep or recover their good health. They also supervise staff who prepare and serve meals, manage food and related purchases, prepare food budgets, and give advice on good eating habits. Some DIETITIANS plan and direct food preparation in places such as hospitals, nursing homes, clinics, and schools. Others teach, do research, or act as consultants.

SAMPLE WORK ACTIVITIES

- Plan, organize, and conduct programs in nutrition and food science
- Set policies and procedures for food preparation and service in such places as schools or prisons
- Study the past diets of people to plan food programs for them
- Advise people on how to select and prepare foods and plan menus
- Evaluate food service systems
- Plan and direct the preparation and service of diets ordered by doctors
- Talk with designers and builders to plan how to build or remodel a food service unit
- Advise child care staff on how to plan and prepare foods that will meet the needs of small children
- Prepare course outlines and manuals used to teach dietetics

HOURS OF WORK/TRAVEL

- Most DIETITIANS work 40 hours a week
- DIETITIANS in hospitals may sometimes be required to work on weekends.
- DIETITIANS in commercial food service may have irregular hours.

SAMPLE PLACES OF WORK

- Hospitals, nursing homes, and clinics, including those in the Veterans Administration and U.S. Public Health Service
- Colleges and universities
- Public school systems
- Health-related agencies
- Restaurants or cafeterias
- Large companies that provide food service for their employees
- Military services

303 THERAPISTS

Workers in these occupations work with patients to help them gain abilities that may have been damaged by illness, accident, or handicap. They may work with people who have difficulty breathing or moving certain parts of their bodies. Others may develop and direct educational, vocational, or recreational programs for patients with physical, mental, or emotional problems. Some therapists work with people with speech or hearing problems. Therapists may also teach or do consulting work.

3031 RESPIRATORY THERAPISTS

RESPIRATORY THERAPISTS treat patients who have breathing problems. This treatment may range from giving short-term relief to asthma patients to giving emergency care in cases of heart failure, stroke, drowning, and shock. These workers are among the first medical specialists called in to treat breathing problems caused by head injury or drug poisoning.

SAMPLE WORK ACTIVITIES

- Set up and operate devices such as respirators and ventilators to help people breathe
- Watch gauges to make sure equipment is working properly
- Assist patients in performing breathing exercises
- Drain fluids from patient's lungs
- Keep watch on patients to see how they are responding to therapy
- Consult with doctors to solve breathing problems
- Record treatments given onto patients charts
- Show others how to set up and use respirators

HOURS OF WORK/TRAVEL

- RESPIRATORY THERAPISTS may be required to work during evenings or weekends.

SAMPLE PLACES OF WORK

- Hospitals
- Oxygen equipment rental companies
- Ambulance services
- Nursing homes

3032 OCCUPATIONAL THERAPISTS

These people plan and direct educational, vocational, and recreational activities designed to help patients with physical, mental, or emotional problems become self-sufficient. They evaluate the abilities of patients, set goals for them, and plan therapy programs. They teach skills and the use of tools to restore clients' movement, coordination, and confidence. They also plan and direct games and other activities and may design devices to aid clients. Some teach or do consulting work.

SAMPLE WORK ACTIVITIES

- Plan social activities that will help patients learn work skills as well as adjust to their handicaps
- Select activities for patients which will help them learn work skills suited to their mental and physical capabilities
- Order supplies and equipment
- Lay out materials for patients to use
- Evaluate patients' progress
- Train nurses and other medical staff to use therapy techniques
- Design, make and fit devices such as splints and braces, as specified by a doctor
- Arrange paying jobs for mental patients within a hospital

HOURS OF WORK/TRAVEL

- OCCUPATIONAL THERAPISTS sometimes may have to work during evenings and weekends.
- Many OCCUPATIONAL THERAPISTS work on a part-time basis.

SAMPLE PLACES OF WORK

- Hospitals
- Rehabilitation centers
- Nursing homes
- Schools
- Outpatient clinics
- Community mental health centers
- Research centers
- Special sanitariums or camps for handicapped children
- State health departments
- Home care programs
- Military services

3033 PHYSICAL THERAPISTS

PHYSICAL THERAPISTS give treatments to help relieve patients' pain and develop or restore their physical health. They help persons with muscle, nerve, joint and bone diseases, or injuries to overcome their disabilities. Their patients include accident victims, handicapped children, and disabled older persons. They test and measure physical abilities and plan treatment programs. They may use such means as exercise, massage, water, or electricity to relieve pain or improve the condition of muscles and skin.

SAMPLE WORK ACTIVITIES

- Study doctors' instructions and medical records to plan treatment programs for patients
- Test and measure physical traits such as strength and range-of-movement
- Instruct and assist patients in exercise and therapy
- Write reports that describe patients' progress in therapy
- Fit or adjust therapy equipment such as crutches, braces, sound machines, traction devices, and exercise machines
- Help patients develop work skills, using such means as art or photography lessons

HOURS OF WORK/TRAVEL

- PHYSICAL THERAPISTS may be required to work during evenings and weekends. This is especially true for those in private practice, who must be available at times convenient for their patients.

SAMPLE PLACES OF WORK

- Hospitals
- Nursing homes
- Rehabilitation centers
- Schools
- Doctors' offices
- Clinics
- Research firms
- Military services
- Government agencies

3034 SPEECH PATHOLOGISTS AND AUDIOLOGISTS

Workers in this field provide direct services to people by evaluating their speech, language, or hearing disorders and providing treatment. They help clients whose disorders result from causes such as hearing loss, brain injury, cleft palate, mental retardation, emotional problems, or foreign dialect. Some do research to find causes of speech and hearing disorders and better methods to treat them. Others teach or do consulting work.

SAMPLE WORK ACTIVITIES

- Use complex equipment to test people's hearing abilities
- Study clients' educational, medical and social histories
- Plan and direct programs to treat clients through hearing aids, counseling, and speech reading
- Design clinical research procedures
- Counsel clients who have speech disorders
- Advise teachers and medical workers on how to help children who have speech or hearing disorders
- Teach courses about speech or hearing disorders

HOURS OF WORK/TRAVEL

- Many SPEECH PATHOLOGISTS and AUDIOLOGISTS work more than 40 hours per week.

SAMPLE PLACES OF WORK

- Public schools
- Classrooms, clinics, and research centers in colleges and universities
- Hospitals
- Speech and hearing centers
- Government agencies
- Industries
- Private practices

3039 THERAPIST, N.E.C.

These workers plan, organize, and direct therapy programs designed to relieve patients' pain and develop or restore their physical and mental health. They consult with medical and professional staff to plan physical, occupational, recreational, and other programs. Most specialize in one type of therapy, such as musical, or athletic programs. They work directly with patients in hospitals, clinics, and other facilities. They watch patients' progress in therapy and prepare reports for use by doctors and other professionals. Some specialize in serving the needs of newly blinded patients.

SAMPLE WORK ACTIVITIES

- Plan and direct health therapy programs
- Assign duties to staff, based on workload, space, and available equipment
- Coordinate research projects to develop new therapy techniques
- Organize sports, dramatic, art, and social activities, for patients' abilities, interests, and needs
- Encourage patient to take part in therapy programs
- Evaluate patients' progress in therapy
- Maintain and repair art materials and equipment
- Direct musical activities for patients
- Train blind patients to orient themselves to their surroundings and to travel alone
- Teach patients to eat, dress, and use a phone
- Instruct patients in handicrafts, such as leather work or weaving, to improve their sense of touch
- Teach patients to read and write Braille
- Instruct patients in group activities, such as swimming or dancing

HOURS OF WORK/TRAVEL

- Although THERAPISTS generally work a standard 40-hour week, they may sometimes have to work evenings or weekends.
- Many THERAPISTS work part-time.

SAMPLE PLACES OF WORK

- Community and government health agencies
- Facilities for the mentally retarded
- Hospitals, rehabilitation centers, and nursing homes
- Military services
- Outpatient clinics and community mental health centers
- Research centers
- Sanitariums or camps for the handicapped
- Schools
- Schools for handicapped children

304 PHYSICIAN'S ASSISTANT

PHYSICIAN'S ASSISTANTS help doctors treat sick or injured patients. They provide patient services under the direct supervision of a doctor. They talk with patients to get detailed medical information. They also give medical exams and order lab tests. They provide the doctor with information needed to treat patients. They also provide minor medical services. For example, they sew up minor cuts and apply and remove casts. They may assist in surgery and counsel patients on health and disease matters.

SAMPLE WORK ACTIVITIES

- Record patients' medical histories
- Do complete physical exams on patients
- Order routine lab tests
- Counsel patients and their families on health and disease matters
- Sew up minor cuts
- Treat minor wounds
- Apply and remove casts and traction devices
- Assist a doctor in performing surgery

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Private medical offices
- Hospitals and clinics
- Government agencies, such as the US Public Health Service
- College infirmaries
- Military services

3199 WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES

These workers use their skills and talents to inform and entertain. They may work as writers or editors who publish or broadcast factual information or create entertainment. They may perform on stage as characters in movies and plays, as singers, or as stunt performers. They may use dialogue, actions, or stunts to communicate. Athletes use physical skill to compete in sports activities for the entertainment of others.

32 WRITERS, ARTISTS, PERFORMERS, AND RELATED WORKERS

Writers, artists, performers, and related workers use their talents and skills to inform, instruct, and entertain others. They may work in businesses and industries that provide factual or illustrative material for informational purposes. They may also produce scripts, fiction, works of art, or visual elements for various forms of entertainment. They may use actions, dialogue, or stunts to communicate or entertain.

321 AUTHORS

AUTHORS write to entertain and inform people. They create written material for publication in printed form and for spoken use. Some write books, plays, novels, poems, or other works. Others do such things as write words for songs; prepare scripts for radio and TV announcers; or adapt books or plays into scripts for movies. Still others use their knowledge of language to translate spoken or written passages from one language to another or to sign language.

SAMPLE WORK ACTIVITIES

- Compose verses to be sung or spoken with music
- Write plays
- Write poetry that expresses your personal feelings and submit it for publication
- Conduct research to get facts that will be helpful in writing a spy story that is based upon real life events
- Write short stories that will please and inform children
- Prepare materials to be read by news sportscasters
- Write plot outlines for screenplays that will be shown on TV
- Direct workers who translate documents from a foreign language to English
- Act as an interpreter for a foreign official
- Translate the sign language of the deaf into oral or written language for hearing people

HOURS OF WORK/TRAVEL

- Some AUTHORS may travel to do research, obtain information, or act as interpreters.
- Many AUTHORS work overtime to meet deadlines for publications.
- Some AUTHORS work on weekends, but most set their own hours.

SAMPLE PLACES OF WORK

- In your home, as a self-employed AUTHOR
- Publishing companies
- Motion picture studios
- Television and radio stations industries
- Federal government agencies
- The United Nations
- Advertising companies
- Colleges and universities
- Newspapers
- Any company that hires AUTHORS to prepare special scripts, publications, ads, or other original materials.

322 DESIGNERS

These people design products used in homes, businesses, and industries. They design all kinds of products, including toys, furniture, cars, clothes, and bank notes. Some plan home and office decorations or design sets for movie, stage, and TV productions. Others arrange flowers to decorate homes, churches, and offices or design ads to display and describe products, events, and services. DESIGNERS may use a variety of tools and equipment, including artist tools, and hand and power equipment.

SAMPLE WORK ACTIVITIES

- Design the layout for art work in a magazine or book
- Design interiors of rooms and homes
- Advise clients about the best use of space and color
- Make paste-ups or drawings of ads for clients
- Engrave plates to make dollar bills
- Build working models of machines, using hand and power tools
- Draw up designs for products, such as rugs, cars, furs, silverware, textiles, clothing, or jewelry
- Draw full-sized work drawings of stained glass windows
- Draw cartoons
- Arrange flowers and foliage
- Design trademarks or symbol to appear on a firm's products, ads, and stationary
- Design displays in department stores to show products that are for sale

HOURS OF WORK/TRAVEL

- Some DESIGNERS may occasionally work long or irregular hours.
- INTERIOR DESIGNERS may meet with clients during the evenings or on weekends, when necessary.

SAMPLE PLACES OF WORK

- Any large business or industry that advertises or make products
- Private design firms
- Furniture manufacturing firms
- Furriers' offices
- Motion picture studios
- US Department of Treasury
- Floral shops
- Companies that design or make jewelry
- Companies that make wooden boxes
- Metalwork manufacturers
- Radio and TV stations
- Large department stores or furniture stores
- Motel and restaurant chains

323 MUSICIANS AND COMPOSERS

People in these jobs write, arrange, sing to, play, or direct music. They usually specialize in either popular or classical music. They may play a musical instrument, or direct a symphony or choral group. Some sing before audiences or on records. Others compose music for movies, operas, ballets, and symphony orchestras. MUSICIANS may work alone or as part of a band, rock group, or some other musical group. They may perform on radio, on stage, or in TV or movie productions.

SAMPLE WORK ACTIVITIES

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- Play a musical instrument in a band or orchestra
- Study and rehearse music
- Conduct a choir or sleep club

- Write music for orchestras, bands, or choral groups
- Audition and select members for an orchestra or band
- Sing in an opera or as part of a rock group
- Select music to be used in movies
- Adapt a piece of music to a different style than it was originally
- Rewrite music intended for one voice or instrument to be used by another voice or instrument
- Give cues to performers in an opera
- Position orchestra members to set the proper balance in sound
- Sing gospel or choir music for records
- Sing and play country music before audiences and for records
- Assign workers to score, arrange, and copy music

HOURS OF WORK/TRAVEL

- Many MUSICIANS work at night and on weekends.
- Many MUSICIANS cannot obtain year-round work and must work at other jobs to get income.
- Many MUSICIANS travel to give performances.

SAMPLE PLACES OF WORK

- Bands, orchestras, operas, and other musical groups
- Motion picture and TV studios
- Night clubs
- Churches and schools
- Military services
- Recording studios
- Road companies

324 ACTORS AND DIRECTORS

People in these jobs work in stage, movie, TV, radio, and other productions. Some act out parts or roles to entertain, inform, or instruct audiences. Others direct or produce stage or screen production. New ACTORS and ACTRESSES often start in "bit" parts where they speak only a few lines. They may progress to larger supporting roles, but only a few become well-known stars. DIRECTORS plan and supervise radio, TV, movie, and screen production. PRODUCERS select scripts, control finances, and handle other production problems.

SAMPLE WORK ACTIVITIES

- Coach performers in acting techniques
- Conduct readings to see how well actors and actresses fit certain parts or roles
- Portray a role in a movie, stage play or TV commercial
- Rehearse parts to learn lines, cues and movements
- Read from a book to entertain audiences
- Interpret scripts, direct technicians, and conduct rehearsals to put on plays
- Suggest that actors change their voices and movements to better play their roles
- Select costumes for performers to wear
- Direct radio programs
- Give cues for curtain, lights, sound effects, and to prompt performers
- Keep talent files that contain information about peoples' past acting and experience
- Stand, walk or sit in scenes to provide background for stars in movies or on stage
- Plan and schedule a public service TV program
- Direct a radio news or sports program
- Supervise the work of people who write, direct, edit, and produce motion pictures
- Sell shares to investors to finance stage productions
- Stand in for actors in horseback riding scenes

HOURS OF WORK/TRAVEL

- Many ACTORS and DIRECTORS work long and irregular hours and do much traveling.
- STAGE ACTORS and DIRECTORS work in the evenings.

- Many performers cannot obtain year-round work and must work at other jobs to get income.

SAMPLE PLACES OF WORK

- TV and radio networks
- Motion picture studios
- Advertising companies
- Opera companies
- Stage companies
- Stock, little theater, repertory, and dinner theater companies
- Local radio and TV stations
- Colleges and universities

325 PAINTERS, SCULPTORS, CRAFT-ARTISTS, AND ARTIST-PRINTMAKERS

These people create, copy, or restore paintings, drawings, sculpture, and other art works. They may create art works or designs for use in business or industry or for use as decorations. Their duties range from designing and constructing movie scenery to creating original paintings or sculptures. They may create designs to illustrate books, advertise products, or show medical procedures. They use a variety of artist tools and materials. In some cases, they use power tools and machinery as well.

SAMPLE WORK ACTIVITIES

- Paint landscapes, portraits, still lifes, or abstracts, using watercolors, oils, tempera, or other materials
- Restore damaged or faded paintings
- Etch, engrave, carve, paint, or draw images and prepare them to be printed
- Sketch the likeness of customers by having them pose or by looking at a photograph
- Construct art works out of stone, plaster, or wood
- Paint pictures to be used in books to illustrate stories
- Make sketches to illustrate surgical and medical research procedures
- Draw pictures of clothing for use in advertising
- Draw cartoons or comic strips for publications
- Plan and prepare pictures of scenes and backgrounds used in motion picture or TV productions
- Draw animated cartoons for use in motion pictures or TV
- Advise clients on colors to use in decorating rooms
- Design and build plaster models of monuments, statues, and cemetery markers
- Make models and molds for use in casting concrete garden furniture and statuary

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Artists studios
- Businesses that sell custom-made concrete, plaster, stone, or tile products
- Fashion houses
- For yourself, as a free-lance artist or cartoonist
- Motion picture and TV studios
- Museums
- Printing and publishing companies
- Product manufacturers
- Stonework shops

326 PHOTOGRAPHERS

PHOTOGRAPHERS use still and motion-picture cameras to portray things, people, places, and events. They use a variety of cameras and lenses and many types of film. They may use special lighting equipment, such as flash units, floodlights and reflectors. Some develop and print their own photographs and enlarge and otherwise change filmed images. Many specialize in a certain type of photography, such as portrait, commercial, or industrial work. Some cover weddings and other events.

SAMPLE WORK ACTIVITIES

- Plan and direct the filming of a movie
- Take pictures of crops, forests, and cities from airplanes
- Use a special camera to film cartoon drawings and turn them into moving pictures
- Take pictures of plant and animal tissues
- Copy x-rays on special photographic film
- Take pictures of people, places, and events for a newspaper or magazine
- Pose people to film portraits
- Film movies, using special power zoom lenses
- Ask nightclub and restaurant patrons to pose for pictures
- Photograph the finish of a horse race
- Mix chemicals to process film

HOURS OF WORK/TRAVEL

- Some PHOTOGRAPHERS work long and irregular hours.
- FREELANCE, PRESS, and COMMERCIAL PHOTOGRAPHERS travel frequently.
- PORTRAIT and FREELANCE PHOTOGRAPHERS may work during weekend and evening hours to cover weddings and other special events.

SAMPLE PLACES OF WORK

- Commercial studios
- Newspaper and magazine companies
- Government agencies
- Photographic equipment suppliers and dealers
- Industrial firms
- Motion picture studios
- Colleges and universities
- Television networks and companies
- Medical research firms

327 DANCERS

DANCERS make up and perform dances. They use movements to interpret an idea or a story, or to express rhythm and sound. They may perform in ballets, in dance routines in musical shows, in folk and jazz dances, or in other kinds of dancing. They may dance in a group, with a partner, or by themselves. They may act or sing as well as dance in movie, opera, or TV shows. Many DANCERS combine stage work with teaching. Some become CHOREOGRAPHERS, who create new dances, teach them to performers and sometimes direct and stage dance routines.

SAMPLE WORK ACTIVITIES

- Perform an acrobatic dance in front of an audience
- Dance with a partner on stage
- Sing and dance in a motion picture
- Dance with a group in a musical play
- Rehearse dance movements developed by a choreographer
- Create new dances for a ballet or musical show
- Make up dance steps that will tell a story

- Instruct performers for specific parts in dance routines
- Direct a dance routine

HOURS OF WORK/TRAVEL

- DANCERS often work long hours. They may work during weekends and holidays. Many work during the evening hours.
- DANCERS who go on road shows often travel on weekends.
- Many DANCERS work in temporary jobs and move from one job to another. Sometimes, they must find other types of work when dancing jobs are not available.

SAMPLE PLACES OF WORK

- Ballet or modern dance companies
- Motion picture and TV studios
- Theater and opera companies

328 PERFORMERS, N.E.C.

These people perform feats to amaze and entertain audiences in a variety of settings, including circuses, rodeos, fairs, water shows, and amusement parks. For example, some do magic tricks, operate puppets, or dress up as clowns. Some tell fortunes or read horoscopes. Some work as jugglers, snake charmers, or fire eaters. Some perform stunts for movie or TV productions. Some train animals to do clever tricks.

SAMPLE WORK ACTIVITIES

- Perform tricks of "magic" using props such as illusion boxes, scarves, and cards.
- Design, and operate puppets
- Act out various situations, using body movements, facial expression, and gestures
- Prepare and analyze horoscopes to advise clients regarding future trends and events
- Train animals to obey commands, compete in shows, or perform tricks to entertain audiences
- Perform tumbling and balancing feats
- Perform gymnastic feats while swinging on a trapeze
- Analyze handwriting to appraise people's personal traits
- Juggle and balance objects such as balls, knives, and plates
- Perform stunts, such as overturning a speeding car for movie or TV production
- Show daring and skill by bronco riding, calf roping, or bull riding at a rodeo
- Ride a horse before judges in a horse show
- Perform water-ballet routines to entertain audiences
- Perform daredevil feats, such as diving from a high diving board into a tank of water
- Walk across a high wire and do headstands and somersaults
- Introduce acts at circus
- Work as a fire eater, snake charmer, or sword swallower at an amusement park
- Feed, describe, and identify fish enclosed in a tank for the public's amusement
- Stand in for a star performer during movie or TV scenes

HOURS OF WORK/TRAVEL

- These jobs often involve evening, weekend, and holiday work as well as irregular working hours. Some jobs offer opportunity for part-time work. Some jobs may be seasonal.
- Many of these jobs require travel and lengthy periods of time spent away from home.

SAMPLE PLACES OF WORK

- For yourself, as an independent performer
- circuses, fairs, carnivals, rodeos, and other entertainment events
- stage show productions

- Movie and TV studios
- Modeling agencies
- Night clubs
- Amusement parks and centers

329 WRITERS, ARTISTS, AND RELATED WORKERS, N.E.C

These people use their artistic and creative skills to devise materials to entertain or inform people. For example, some write scripts for comedy shows or funny things for performers to say on stage. Some compose texts for operas by fitting words to music. Some create crossword puzzles. Some create scenery used in movie or TV productions. Some prepare drawings used in furniture makings.

SAMPLE WORK ACTIVITIES

- Write humorous material for publications or performances
- Compose the text of an opera, musical play, or choral work
- Cut out profiles of customers from paper to form silhouettes
- Plan and produce audio (sound) and visual (sight) material for use in communications and trainings
- Prepare working drawings and templates of furniture to help with furniture production
- Create layouts of scenery and backdrops for use in movie and TV programs

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- For yourself, as a freelance writer or artist
- Newspapers, magazines, and other publishing and printing firms
- Fairs, carnivals, and other places where sidewalk artists work
- Furniture manufacturers
- Radio, TV, and movie companies

33 EDITORS, REPORTERS, PUBLIC RELATIONS SPECIALISTS, AND ANNOUNCERS

Editors, reporters, public relations specialists, and announcers are concerned with insuring that written and spoken information are communicated clearly and accurately. They may be responsible for seeing that published work is accurate and well-written, that facts or events are accurately and quickly reported, that a company or group is properly represented to the public, or that news, sports, or entertainment events are properly reported to audiences.

331 EDITORS AND REPORTERS

Editors and reporters insure that information or events are published or reported accurately and quickly. They may check news stories, fiction, and non-fiction for accuracy, writing style, grammar, and printing errors. They make necessary changes and approve final copy for publication or broadcast.

3312 EDITORS

EDITORS coordinate the work of writers and edit writers' material. They direct and perform editorial activities for newspapers, movie or TV studios, publishing companies, and similar organizations. They hire, assign, and supervise staff who write articles, reports, editorials, reviews, and other material. They may supervise workers who gather and edit local news, photograph news events, prepare scripts, or revise material to be published.

SAMPLE WORK ACTIVITIES

- Direct the activities of writers who prepare material for publication
- Review writers' work and make recommendations for changes
- Read copy to detect errors in spelling, punctuation, and grammar
- Inspect newspaper editions before they are released
- Write policy editorials
- Assign freelance writers to write articles, reports, reviews, or editorials
- Assign staff photographers to produce pictures and illustrations
- Plan the layout for a publication
- Supervise staff writers who prepare scripts for broadcasting on radio or TV
- Edit scripts to ensure that they meet with company policy, laws, and regulations
- Review manuscripts of books and decide whether books should be published, rejected, or revised
- Write definitions for publication in a dictionary
- Edit greeting card messages
- Edit motion picture film, TV video tape, and sound tracks

HOURS OF WORK/TRAVEL

- Newspaper **EDITORS** may be required to work during evenings or weekends. Other **EDITORS** generally have standard work week.

SAMPLE PLACES OF WORK

- Book publishing companies
- Companies that publish magazines, journals,
- Federal and State agencies
- Greeting card companies
- Motion picture studios
- Newspaper companies and other periodic literature
- Radio and TV companies

3313 REPORTERS

REPORTERS collect and analyze facts about news events and report or write stories about them. They may prepare news stories for publication in a newspaper or for broadcasting on radio or TV. Many **REPORTERS** specialize in particular subject areas, such as sports, politics, foreign affairs, fashion, or religion. Some write critical reviews of books, music, art work, or plays. Some present news over radio or TV. Some prepare ads, take photographs or write editorials.

SAMPLE WORK ACTIVITIES

- Analyze news and write a column or commentary about it
- Gather information through research, interviews, and attendance at functions
- Prepare outlines for news stories
- Write ads to be published or broadcasted on radio or TV
- Consult with sales staff to get information needed to prepare ads
- Correct and revise copy
- Write critical reviews of books, music, art work, or plays
- Write comments on topics of interest to readers

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- Examine news items of local, national, and world significance and decide which items to include in news broadcasts
- Present news over radio or TV
- Check the facts of a news story by setting information from files, libraries, and interviews
- Follow leads and newstips to develop a news story
- Give live reports from the scene of events

HOURS OF WORK/TRAVEL

- REPORTERS are under pressure to meet deadlines. Their work may demand long hours, irregular schedules, and travel. They may be required to work during weekends and holidays.
- Some REPORTERS work part time.

SAMPLE PLACES OF WORK

- Magazine companies
- National press services
- Newspaper companies
- Radio and TV stations

332 PUBLIC RELATIONS SPECIALISTS AND PUBLICITY WRITERS

These people help individuals, groups, or organizations promote ideas, services, or products and build a good public image. Some handle press or consumer relations. Some conduct political or fund-raising campaigns. Some represent an interest group and promote a policy on a public issue. In some jobs, they recruit workers or students, or prepare press releases and ads for use in newspapers, radio, and TV. They may make speeches, or plan and conduct sales campaigns.

SAMPLE WORK ACTIVITIES

- Contact members of Congress to persuade them to support certain bills
- Study proposed laws to see what effect they might have on a clients' interest
- Contact groups that have similar interests to get them to support proposed laws
- Prepare news releases to inform the public and describe a client's views on the issue
- Submit expense reports
- Prepare and distribute fact sheets, photos, scripts, and recordings to promote a product or policy
- Represent an employer at a public, social, or business gathering
- Do research to come up with new ideas to promote a company's services
- Plan a fund raising campaign for a college
- Prepare pamphlets that describe the services offered by a government agency
- Tour the country to make speeches at dealers' conventions to promote sales and goodwill for a firm
- Show groups of retail merchants how new products work

HOURS OF WORK/TRAVEL

- The work week for public relations staffs generally is 35 to 40 hours. However, schedules may be rearranged because of deadlines.
- Many PUBLIC RELATIONS SPECIALISTS travel out of town to deliver speeches, do research, and attend meetings and activities.
- Some workers in this group are on call around the clock.

SAMPLE PLACES OF WORK

- Manufacturing firms
- Public utilities

- Transportation companies
- Insurance companies
- Trade and professional associations
- Government agencies
- Schools, colleges, museums, and other educational, religious, and human services organizations
- Hospitals, drug companies, and medical associations
- Public relations consulting firms
- Advertising agencies

333 RADIO AND TELEVISION ANNOUNCERS

These people introduce and host radio and TV programs. Many RADIO ANNOUNCERS act as disc jockeys. They introduce recorded music, present news, ads, and commentary. They may operate the control board, sell ad time, and write commercials and news copy. ANNOUNCERS in TV and large radio stations often specialize in announcing sports, news, or the weather. They may do the research and writing for their own scripts. As well-known personalities, they often are asked to take part in community events.

SAMPLE WORK ACTIVITIES

- Read or make up a short speech to identify a station, introduce a show, or announce a station break
- Read news flashes to inform audiences of events
- Describe a parade or convention for an audience
- Select and play popular records and tapes for radio listeners
- Watch a sports event and give a play-by-play account of the action
- Rewrite news bulletins
- Interview guests, such as sports figures and movie stars
- Comment on music and matters of public interest during radio music breaks

HOURS OF WORK/TRAVEL

- RADIO AND TV ANNOUNCERS may work at night and during weekends and holidays.

SAMPLE PLACES OF WORK

- Radio and TV broadcasting stations

34 ATHLETES AND RELATED WORKERS

These workers are involved in sports and athletics. Some work as coaches, trainers, or scouts. Some manage business affairs for athletes. Some officiate at sports events as umpires, timers, clockers, judges, starters, or scorers. Some direct activities at sports events. Some engage in physical contact sports, such as professional hockey, football, baseball, or boxing. Some compete in car, motorcycle, horse, or other races.

SAMPLE WORK ACTIVITIES

- Direct the training of a professional sports team
- Handle business affairs for pro athletes
- Evaluate athletes' skills and try to sign them on with a team
- Direct activities at a car or motorcycle racetrack
- Advise and treat athletes to keep them in top physical shape
- Advise and treat horses for racing

- Instruct athletes in game strategies and techniques
- Drive a racing car in competition
- Ride a racehorse at a racetrack
- Watch horses at racetracks to detect broken racing rules
- Umpire at sporting events
- Take part athletic events, such as football, boxing, and hockey
- Clock (time) racehorses
- Record the laps completed by racecar drivers
- Weigh jockeys and riding equipment before and after horseraces
- Wave signal flags to start and stop car motorcycle races and to inform drivers of track conditions
- Ride racehorses to exercise and condition them for racing

HOURS OF WORK/TRAVEL

- Many of these jobs involve irregular working hours including work during evenings and weekends. As many sports are played only part of the year, some workers must look for other jobs during off seasons. Professional athletes spend long hours training and preparing for athletic contests.
- Many of these jobs require travel to take part in or officiate at sports events, or to look for new players.

SAMPLE PLACES OF WORK

- Professional sports teams
- Stadiums, coliseums, and gymnasiums
- Race tracks
- Schools and universities
- Race horse owners
- For yourself, as an independent athlete or trainer

3599 HEALTH TECHNOLOGISTS AND TECHNICIANS

Health technologists and technicians work in medical laboratories, hospitals, clinics, and offices to perform diagnostic and treatment procedures. Technologists may supervise technicians as well as perform technical procedures to analyze samples, take x-rays, perform certain nursing services, keep records, or assist in providing dental care.

36 HEALTH TECHNOLOGISTS AND TECHNICIANS

Health technologists and technicians work in medical laboratories, hospitals, clinics, and offices to perform diagnostic and treatment procedures. Technologists may supervise technicians as well as perform the same technical procedures to analyze samples, take x-rays, perform certain nursing services, keep records, or assist in providing dental care.

362 CLINICAL LABORATORY TECHNOLOGISTS AND TECHNICIANS

These people perform lab tests to get information doctors need to diagnose the causes and nature of diseases. They use microscopes, chemicals, and precise instruments to run tests on blood, tissues, and fluids from the human body. In small labs, they often perform many types of tests. In large labs, they usually specialize in one area. Most of these workers conduct tests related to patient treatment, however some do research, develop lab techniques, teach, or head lab programs.

SAMPLE WORK ACTIVITIES

- Obtain blood, urine, and pus samples from patients
- Cut, stain, and mount body tissue samples for study
- Group or type blood and crossmatch blood samples
- Determine blood types
- Direct workers who perform chemical tests on body tissue samples
- Assign workers to perform x-ray exams of bones
- Test spinal fluid for acetone bodies
- Look for signs of disease or parasites in tissue taken from dead patients
- Operate equipment to make sound patterns and pictures of body organs
- Do medical research to find ways to control or cure disease
- Prepare solutions used in chemical tests

HOURS OF WORK/TRAVEL

- CLINICAL LAB WORKERS who work in hospitals can expect some evenings and weekend duty.

SAMPLE PLACES OF WORK

- Hospitals
- Independent laboratories
- Doctors' offices
- Clinics
- Public health agencies
- Drug companies
- Research institutes
- Military services
- US Public Health Service
- Veterans Administration

363 DENTAL HYGIENISTS

DENTAL HYGIENISTS work with dentists as part of a dental health team. They try to help people develop and maintain good oral health. They clean and polish patients' teeth, give them fluoride treatments to prevent tooth decay, and tell them how to care for their teeth and gums. They also take medical and dental histories, expose and develop dental histories, expose and develop dental x-ray film, and make impressions of teeth for study models. Some give talks on dental health in schools, assist in research projects, or teach.

SAMPLE WORK ACTIVITIES

- Remove calcium deposits and stains from teeth, using a dental brush, rubber cup, and cleaning compound
- Mark charts of people's teeth to show the region and amount of decay
- Give pain-killing shots to patients
- Place and remove temporary dental structures
- Give lectures on oral health to school and community groups
- Use slide films and charts to show people how to properly care for their teeth and gums

HOURS OF WORK/TRAVEL

- Many DENTAL HYGIENISTS work part time.

SAMPLE PLACES OF WORK

- Private dental offices
- Public health agencies
- School systems
- Industrial plants
- Hospitals and clinics
- Government agencies that provide health services
- Military services

364 HEALTH RECORD TECHNOLOGISTS AND TECHNICIANS

These people maintain medical records of patients in a hospital, clinic, or doctor's office. A medical record is a permanent report of a patient's condition and treatment. These workers copy medical data onto forms, analyze and code information, compile statistics, and keep files of records. They also find medical information for doctors and others upon request. Some plan new ways to keep health records up to date.

SAMPLE WORK ACTIVITIES

- Review medical records to make sure they are complete and accurate
- Code diseases, operations, and treatments
- Compile medical data for statistical reports
- Copy medical reports
- Keep files under certain headings such as "patient," "disease," or "operation"
- Direct workers to file patient records
- Send medical reports and records to other departments
- Provide patient information to the medical staff

HOURS OF WORK/TRAVEL

- HEALTH RECORD WORKERS generally have a standard 40-hour week.

SAMPLE PLACES OF WORK

- Hospitals, clinics, and nursing homes
- Community health centers
- Government agencies
- Medical consulting firms
- Health maintenance organizations
- Public health departments
- Insurance companies

365 RADIOLOGIC TECHNOLOGISTS AND TECHNICIANS

These workers take x-ray pictures of patients to help doctors diagnose and treat injuries and diseases. They also give radiation treatments to cancer patients, as prescribed by a doctor. Sometimes, they prepare radioactive solutions for patients to swallow or have injected. They then use special cameras to find areas in body organs that have a certain reaction to the solution. They also prepare and keep treatment records and prepare work schedules for assistants.

SAMPLE WORK ACTIVITIES

- Position patients under x-ray machines
- Place lead plates over parts of patients' bodies to protect them from the x-rays
- Give patients drugs so that their organs will appear on x-ray pictures
- Adjust x-ray equipment to change the time of exposure
- Direct the work of an x-ray department
- Use Geiger counters to trace radioactive materials in patients' bodies
- Make minor repairs to equipment
- Use lab techniques to study red blood cells

HOURS OF WORK/TRAVEL

- These workers generally work a 40-hour week that may include evenings or weekend hours.

SAMPLE PLACES OF WORK


- Hospitals
- Medical laboratories
- Doctors' and dentists' offices or clinics
- Federal and state health agencies
- Public school systems

366 LICENSED PRACTICAL NURSES

LICENSED PRACTICAL NURSES help care for sick and injured people in hospitals, clinics, doctor's offices, and private homes. They work under the direction of doctors and registered nurses to provide bedside patient care and help examine and treat patients. They bathe, dress, feed and give medicines to patients. They also try to make patients comfortable and cheer them up. Those who work in a doctor's office may set appointments, record medical information, and perform other clerical tasks.

SAMPLE WORK ACTIVITIES

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ERIC  take patients' temperature, blood pressure, and pulse rate
give enemas and alcohol rubs

- Dress wounds with bandages and medicines
- Assemble equipment such as oxygen units
- Prepare food trays and feed patients
- Record patients' daily fluid intake and output
- Bathe and dress patients
- Clean rooms and make beds
- Take care of small infants
- Give medicines to patients

HOURS OF WORK/TRAVEL

- LICENSED PRACTICAL NURSES who work in hospitals generally have a 40 hour week, but often this includes some work at night and on weekends and holidays.
- In private homes, PRACTICAL NURSES usually work 8 to 12 hours a day and go home at night.
- Some PRACTICAL NURSES work part-time.

SAMPLE PLACES OF WORK

- Hospitals
- Nursing homes
- Clinics
- Doctors' offices
- Sanitarium and other long-term care facilities
- Public health agencies
- Welfare and religious organizations
- Private homes

369 HEALTH TECHNOLOGISTS AND TECHNICIANS, N.E.C.

These people perform various technical tasks to get information needed for the diagnosis, treatment, and control of diseases. They also may help treat patients or conduct programs to control and prevent health hazards and diseases. Some use medical equipment to test body specimens. Some mix and dispense drugs. Some prepare patients for surgery. Some fit patients with artificial limbs. Some take precise readings of patients' heart rates and brain waves. Some perform routine medical lab tests.

SAMPLE WORK ACTIVITIES

- Prepare vaccines and serums used to prevent animal diseases
- Design artificial (fake) limbs for patients who have lost an arm or leg
- Test people's hearing
- Set up and operate artificial kidney machines
- Measure people's brain waves
- Perform routine lab tests in a medical lab
- Plan and direct programs to set and enforce health standards
- Conduct a program in an industrial plant to prevent health hazards
- Keep patient records, schedule appointments, and prepare patients for exams
- Give medical aid to workers aboard submarines or ships
- Help people who have eye defects develop and use their vision
- Give first-aid treatment to people as a member of an emergency medical team
- Prepare patients and operating rooms for surgical procedures
- Apply, adjust, and remove casts and splints for patients

HOURS OF WORK/TRAVEL

- Some of these jobs may require evenings and/or weekend work.

SAMPLE PLACES OF WORK

- Hospitals and clinics
- Doctors' offices
- Emergency health services
- Ambulance services
- Medical laboratories
- Public health agencies
- Schools and universities
- Military services
- Veterinarians' offices
- Companies that make medical devices

3699 TECHNOLOGISTS AND TECHNICIANS, EXCEPT HEALTH

These workers use specialized skills to perform tests, provide information, or develop products. They may work with engineers or scientists, performing practical tasks to test ideas or theories. They may operate specialized equipment or control air traffic. They may write computer programs, draft legal documents, write technical manuals, or assist surveyors and cartographers in map-making and drafting.

37 ENGINEERING AND RELATED TECHNOLOGISTS AND TECHNICIANS

These workers assist engineers in examining data and testing products. They may test mechanical equipment, industrial tools, or electrical products designed by engineers. They record data from experiments and projects or calculate results. They may work with architects, surveyors, or cartographers gathering data, drawing plans, noting land forms, or doing calculations. They use mathematics, drafting skills, and technical knowledge of engineering principles.

371 ENGINEERING TECHNOLOGISTS AND TECHNICIANS

People in these occupations help engineers, scientists, and surveyors. They may help electrical engineers design and build electrical or electronic equipment. They may work with mechanical engineers to design and develop machinery, or they may help industrial engineers plan and implement production of goods and services. They test equipment, conduct studies, and help solve problems.

3711 ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGISTS AND TECHNICIANS

People in these jobs work with engineers and scientists to design and build electrical and electronic equipment. They also install, repair, test, and operate such equipment. The types of equipment they work with range from radio, radar, sonar, and TV equipment to industrial and medical measuring and control devices.

SAMPLE WORK ACTIVITIES

- Test electronic instruments in a lab and use math to reduce test results to usable form
- Put together switch panels and transformers
- Prepare design plans and models for new equipment
- Inspect electronic units for faults and replace worn or damaged parts
- Train and supervise workers who install, test, and repair meters
- Test, repair, and adjust visual and sound equipment
- Prepare technical reports, charts, and graphs that describe how new equipment works

HOURS OF WORK/TRAVEL

- In most jobs, these workers have a standard 35-40 hour work week.

SAMPLE PLACES OF WORK

- Private businesses of manufacturing firms
- Companies that make electrical or electronic equipment
- Communications firms
- Government agencies
- Military services

3712 INDUSTRIAL ENGINEERING TECHNOLOGISTS & TECHNICIANS

These workers help industrial engineers plan the best uses of workers, materials, and machines to produce goods and services. They prepare layouts of machinery and equipment, plan the work flow, do statistical studies, and determine production costs. They also conduct time and motion studies (analyze the time and movements a worker needs to complete a task).

SAMPLE WORK ACTIVITIES

- Study and record the time, motion, methods, and speed used by workers to complete tasks
- Prepare charts and graphs that show work flow and floor layouts
- Perform workers' tasks to see how fast they might get tired
- Use a stop watch, camera, and other equipment to measure how fast a worker performs a task
- Suggest ways to change equipment to make work easier
- Help plan worker assignments
- Study job tasks to set standard production rates

HOURS OF WORK/TRAVEL

- Most workers in these jobs have a regular 35-40 hour work week.

SAMPLE PLACES OF WORK

- Large manufacturing or industrial plants
- Engineering consulting firms
- Federal government agencies, especially the Departments of Defense, Transportation, Agriculture, Interior, and Commerce
- State and local government agencies

3713 MECHANICAL ENGINEERING TECHNOLOGISTS & TECHNICIANS

These people help engineers in design and development work. They make sketches and rough layouts of machinery and other equipment and parts. They also figure out the costs and usefulness of product designs. They often use complex instruments, test equipment, and gauges to test new product design. They may estimate labor costs, equipment life, and plant space needed for new operations. Sometimes they work with engineers to solve production problems.

SAMPLE WORK ACTIVITIES

- Study blueprints to determine how to test new machinery and equipment
- Make detailed drawings of machine parts
- Build and test equipment models
- Write work orders and purchase requests
- Lay out cutting lines for machinery
- Plan how to make, install, and test a climate control system
- Estimate how much it will cost to build, test, and install a heat-transfer unit
- Study master drawings of auto-body parts to see if designs meet shop standards
- Check math calculations used in designing a machine

HOURS OF WORK/TRAVEL

- Most of these workers have standard work hours.

SAMPLE PLACES OF WORK

- Machinery, electrical equipment, and aerospace industries
- Engineering firms
- Federal government agencies, especially in the Departments of Defense, Transportation, Agriculture, Interior, and Commerce
- State and local government agencies
- Colleges and universities
- Businesses that sell mechanical parts and equipment

3719 ENGINEERING TECHNOLOGISTS AND TECHNICIANS, N.E.C.

These people assist engineers in lab and production work. They do such things as set up and operate testing equipment, build experimental products, and prepare drawings of machinery and equipment. They record meter readings, take measurements, and prepare graphs and charts. They may prepare equipment specifications and interpret engineering plans for other workers. They may operate electronic sound devices.

SAMPLE WORK ACTIVITIES

- Operate equipment to test metal aircraft parts for faults in their design and construction
- Organize information for engineering reports
- Build and repair experimental products
- Prepare charts, and perform tests to help a chemical engineer develop products
- Test fluids taken from oil well sites to see how much oil the well might produce
- Conduct experiments to help an engineer develop new welding equipment and processes
- Measure the strength, hardness, and other properties of metal samples, using special testing machines
- Prepare detailed drawings of farm machinery
- Interpret engineering plans for production workers
- Operate equipment to control the loudness of voices and music during stage performances
- Record music, voices, or sound effects during radio or TV shows
- Operate an electronic device to record shock waves from explosions
- Edit music, dialogue, and sound effects used in movie films

HOURS OF WORK/TRAVEL

- These people work in a variety of places, including labs, workshops, studios, mines, and oil fields. Some jobs require travel to collect information, perform on-site tests, or record stage performance. Others involve little or no travel.
- Some of these jobs may require work during evenings and weekends.

SAMPLE PLACES OF WORK

- Aircraft manufacturers
- Research laboratories
- Oil companies
- Iron and steel industries
- Theaters
- Movie, radio, and TV studios
- Companies that manufacture glass products

372 DRAFTING OCCUPATIONS

DRAFTERS prepare detailed plans and drawings based on rough sketches, specifications, and calculations made by scientists, engineers, architects, and designers. These plans and drawings are used in construction, manufacturing, and engineering. They also calculate the strength, quality, quantity, and cost of materials. They use drafting tools, technical handbooks, tables, and calculators.

SAMPLE WORK ACTIVITIES

- Draw the structural features of buildings
- Prepare plans for drainage and irrigation systems
- Draft engineering drawings of airplanes and missiles
- Draft drawings of wiring diagrams for use by construction crews and repairers
- Draft layout drawings used in the manufacture, assembly, and repair of TV cameras and computers
- Draft detailed construction drawings, maps, and other plans used to plan and construct highways
- Draw plans and details for reinforced steel, concrete, and wood structures
- Draft detailed drawing plans for the manufacture of tools
- Draw maps, diagrams, and profiles to show land formations and the location of oil deposits
- Draw the structural and mechanical features of ships, docks, and other marine structures
- Examine drawings of auto parts for accuracy
- Draft designs of aircraft engines and rocket control systems

HOURS OF WORK/TRAVEL

- Generally **DRAFTERS** have a regular 35-40 hour work week.

SAMPLE PLACES OF WORK

- Colleges and universities
- Construction industries
- Electrical equipment industries
- Engineering and architectural firms
- Fabricated metals industries
- Federal, state and local government agencies
- Machinery manufacturers
- Petroleum industries

373 SURVEYING AND MAPPING TECHNICIANS

These workers help surveyors and cartographers identify natural and political boundaries, land formations, and distances. This information is used for legal descriptions, construction data, or map-making. Workers may operate survey equipment, record distances and angles, or obtain photographs, survey notes, and legal records. They use technical and drafting tools to plot elevations, draw maps, or make charts and graphs.

3733 SURVEYING TECHNICIANS

SURVEYING TECHNICIANS help surveyors determine the location and boundaries of land areas for construction, mining, and other purposes. **PARTY CHIEFS** are **SURVEYING TECHNICIANS** who lead the day-to-day work activities of a survey. **INSTRUMENT ASSISTANTS** adjust and operate survey instruments and equipment. They also compile notes, make sketches, and keep records of data obtained during field surveys.

SAMPLE WORK ACTIVITIES

- Lead the work of a survey party under the direction of a land surveyor
- Use surveying instruments and equipment to determine land angles, points, and contours
- Compile notes, make sketches, and keep records of data obtained and work done
- Direct other survey team members
- Use an electronic instrument to measure distances

HOURS OF WORK/TRAVEL

- SURVEYING TECHNICIANS usually work an 8-hour day, 5 day week (Sometimes they work longer hours during summer months.)
- SURVEYING TECHNICIANS sometimes must travel long distances or find temporary housing near survey sites.

SAMPLE PLACES OF WORK

- Construction companies
- Federal government agencies, including the:
 - . US Geological Survey
 - . Bureau of Land Management
 - . Army Corps of Engineers
 - . Forest Service
 - . National Ocean Survey
 - . Defense Mapping Agency
- State and local government agencies, especially in highway departments and urban planning and redevelopment agencies
- Engineering and architectural consulting firms
- Crude petroleum and natural gas companies
- Public utilities

3734 CARTOGRAPHIC TECHNICIANS

These workers plan, design, draw, and edit maps and charts. Some supervise map production. They work from survey notes, photographs, and land records to prepare maps, charts, and drawings that show land features. They determine the location and names of natural and constructed features, political boundaries, and other features. They use drafting, mapping, and other precision tools to complete and measure scaled distances and prepare the maps.

SAMPLE WORK ACTIVITIES

- Supervise map production
 - . Decide the size maps should be and the scale by which they should be drawn.
 - . Inform workers of maps, surveys, and equipment they might use in drawing maps.
 - . Supervise drafting workers who make maps used for building pipelines.
 - . Check completed maps for neatness and accuracy.
- Prepare maps and charts that show natural land features, construction, and/or political boundaries
 - . Study maps, survey data, and records to find out the names and locations of land features.
 - . Letter in the names of rivers and towns on maps
 - . Compute and measure distances between points.
 - . Use drafting tools to draw and revise maps
 - . Make plastic models of maps that show raised areas such as mountains
 - . Use geometry to determine the elevation of hills, trees, and buildings

HOURS OF WORK/TRAVEL

- Some of these workers occasionally go on field trips with a survey crew to collect information for maps.
- Workers in these jobs may sometimes work overtime to meet deadlines.

SAMPLE PLACES OF WORK

- Federal government agencies, such as the:
 - . Army Corps of Engineers
 - . Defense Mapping Agency
 - . National Ocean Survey
 - . U.S. Forest Service
 - . U.S. Geological Survey
- Construction companies
- Engineering and architectural consulting firms
- Gas, water, and electric utilities
- Oil and natural gas companies
- State and local government agencies such as highway departments and urban planning and redevelopment agencies
- Public utilities

3739 SURVEYING TECHNICIANS, N.E.C.

These workers help prepare information used in mapmaking. They study field notes, photographs, and other information collected by engineering survey parties. They use this information to compute the angles, areas, and directions of land formations. They work from reference tables and use calculators or computers to perform math calculations.

SAMPLE WORK ACTIVITIES

- Study survey field notes
- Work from survey reference tables (listings of the distance markers set by a survey crew)
- Use a calculating machine or computer to compute angles, areas, and directions

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- U.S. Geological Survey
- Bureau of Land Management
- Army Corps of Engineers
- U.S. and State forest services
- State highway departments
- Urban planning and redevelopment agencies
- Private surveying firms
- Oil companies

38 SCIENCE TECHNOLOGISTS AND TECHNICIANS

These workers use scientific, mathematical, and technical skills to help scientists and engineers develop and test products and ideas. They may carry out experiments to improve production or test for quality control. They may use mathematics to test theories and ideas of engineers and scientists. Some work with nuclear matter, measuring radiation levels. Some record the results of experiments and projects.

382 BIOLOGICAL TECHNOLOGISTS AND TECHNICIANS, EXCEPT HEALTH

These people work in labs, where they perform tests and run experiments to help scientists develop better ways of producing plant and animal products. Their work varies from looking for ways to increase production from animals to trying to improve the quality of natural fibers. Some are involved in animal breeding or the development of new types of seeds. Others study the effects of various feeds on animal growth and health.

SAMPLE WORK ACTIVITIES

- Develop new and better ways to produce and preserve dairy products
- Study animal, plant, and man-made fibers to find ways to improve their quality
- Test new blends of fibers for strength
- Study animal tissues under a microscope
- Record information about animals for use in breeding new stock
- Clean and sterilize lab equipment
- Grow and identify bacteria found in animal products
- Test seeds for purity, weed content, and ability to grow
- Prepare plant and animal specimens for use as teaching aids
- Give test feeds to animals and observe the effects they have on animal growth and health
- Treat trees and shrubs to improve their appearance, health, and value
- Test chicken blood for disease
- Collect semen from roosters and use it to fertilize hens and eggs
- Inject prepared bull semen into cows to breed new stock
- Identify plant and insect specimens

HOURS OF WORK/TRAVEL

- Most of these workers keep regular hours in laboratories and industrial plants. Others work part or all of their time outdoors.

SAMPLE PLACES OF WORK

- Agricultural laboratories and experimental stations
- Animal breeding associations and artificial insemination distributorships
- Farms and dairies
- Federal and state government agencies
- Firms that provide technical services to farmers
- Private industry

383 CHEMICAL AND NUCLEAR TECHNOLOGISTS AND TECHNICIANS

These workers test chemicals, petroleum products, and nuclear materials for scientists and engineers. They may do research to develop new products or test for quality control. They may prepare nuclear materials for shipping, test radiation levels, and record data from experiments. They use computers, complex lab equipment, and mathematical skills as they research and test materials and products.

3831 CHEMICAL TECHNOLOGISTS AND TECHNICIANS

These people help chemists and chemical engineers develop and test chemicals and related products and equipment. Most do research and development work. Some work in production, where they put into operation the processes and products developed in the research labs. They also test materials, processes, and products to make sure they meet standards. Many workers in these jobs use computers and complex lab equipment.

SAMPLE WORK ACTIVITIES

- Set up and adjust lab equipment, such as microscopes and centrifuges
- Use chemical and math formulas to prepare solutions
- Use furnaces, beakers, pipettes, and other lab equipment to test materials and products
- Write reports that describe testing procedures used in a study
- Develop color formulas for use in printing cloth
- Test water to see whether it is safe to drink
- Grow yeast cell cultures used in making beer
- Measure and test fiber samples to control the quality of fiber products
- Test ore and minerals to determine their value and physical properties
- Smell and test perfumes to make sure that they meet set standards
- Test food products for purity
- Keep records of materials in storage

HOURS OF WORK/TRAVEL

- Most CHEMICAL TECHNOLOGISTS and TECHNICIANS work regular hours in a laboratory or industrial plant.

SAMPLE PLACES OF WORK

- Firms in the following product areas:
 - . Drugs
 - . Electronics manufacturing
 - . Food processing
 - . Industrial chemicals
 - . Nuclear energy
 - . Paper and related products
 - . Petroleum refining
- Federal and State Government agencies, primarily in the Departments of Defense, Agriculture, and Interior
- Public and private research firms
- Water treatment facilities

3832 NUCLEAR TECHNOLOGISTS AND TECHNICIANS

These people work with radioactive materials. Some use remote control devices to prepare nuclear matter for shipping. Some test nuclear materials, or measure levels of radiation in work areas. Some record information about nuclear experiments and operations. These workers often use math formulas and complex instruments and equipment. They must use caution in performing their jobs, as the materials they work with are extremely dangerous.

SAMPLE WORK ACTIVITIES

- Operate remote-controlled equipment to do tests on radioactive materials
- Make sure that support systems (such as water cooling and power source) are ready before an experiment is run
- Watch displays on a control panel during experiments
- Record information about experiments in a log
- Control equipment used to make materials radioactive
- Compute the radiation time and dosage for experiments
- Put paper, food, plastic, or metal materials into a tube to be irradiated

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- Use meters and gauges to test the physical properties of irradiated materials
- Remove samples of radioactive materials from a nuclear reactor
- Calculate the temperature and pressure limits for a nuclear reactor

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Federal Government agencies, particularly in the research program of the U.S. Department of Energy
- Nuclear manufacturing facilities
- Nuclear power plants
- Nuclear research laboratories
- Weapons manufacturing plants

3833 PETROLEUM TECHNOLOGISTS AND TECHNICIANS

These workers do technical tasks to support the prospecting, drilling, and production operations of an oil company. Some use special instruments to find land areas that contain oil deposits or to determine the amount of oil or gas a well will produce. Some collect information on the drilling, exploration, and leasing activities of other companies in order to identify promising areas to explore and lease. Some classify and sort rocks and fossils taken from a well to prepare them for lab tests. Some analyze samples of mud and drill cuttings to see if they contain oil or gas.

SAMPLE WORK ACTIVITIES

- Use electrical instruments to find land areas that contain oil deposits
 - . Transport prospecting equipment to land sites
 - . Help lay out and connect cables, instrument panels, and other electrical equipment
 - . Adjust the instruments
 - . Open and close circuits to send current into the earth
 - . Read dials and record the readings
 - . Determine why instruments are not working properly and make repairs
- Use sound or nuclear measuring instruments to determine how much oil or gas a well will produce
 - . Signal a worker to lower the instruments into the well
 - . Turn dials on a control panel to adjust and start a recording device
 - . Print copies of recorded graphs in a truck darkroom
 - . Interpret graphs for customer
 - . Use precision devices to measure the dimensions of the borehole
- Collect information about oil well drilling operations from other oilfields, the press, lease brokers, and other sources
 - . Interview people and watch field operations to get information, such as the depth of wells and the amount of oil flow
 - . Collect rock and oil samples from wells
 - . Obtain information on the purpose and locations of lease purchases made by other companies
- Analyze mud and drill cuttings to detect the presence of oil or gas
 - . Attach measurement devices to drilling equipment
 - . Read gas-detection meters
 - . Use lab equipment to analyze mud
 - . Keep records of dial readings and tests made

Classify and sort rock and fossil specimens taken from a gas or oil well

- Clean, wash, and prepare the samples using brushes or cleaning solutions
- Separate the specimens by type and category

- Compile background information about rocks or fossils
- Mount the specimens for use in lab tests

HOURS OF WORK/TRAVEL

- Most oilfield jobs involve work in remote areas. Workers may expect to move from place to place since their work in a particular field may be complete in a few months. PROSPECTING WORKERS may be required to move even more frequently. They may be away from home for weeks or months at a time.

SAMPLE PLACES OF WORK

- Oil and natural gas companies

384 MATHEMATICAL TECHNICIANS

MATHEMATICAL TECHNICIANS use complex math to help engineers and scientists solve specific problems in industry or research. They study information to determine the best math approach to solve specific problems. They translate this information into numerical values, equations, flow charts, and graphs. They also may change standard math formulas to meet data processing requirements.

SAMPLE WORK ACTIVITIES

- Talk with scientists and engineers to plan projects
- Study raw data recorded on magnetic tape, punched cards, or film
- Decide the best way to use math to solve problems
- Use algebra, geometry, and calculus to translate data to meaningful and useful terms
- Decide how to process data by hand and machine
- Study processed data to see if there are errors

HOURS OF WORK/TRAVEL

- Most of these workers have standard work hours.

SAMPLE PLACES OF WORK

- Aerospace, communications, machinery, and electrical equipment industries
- Federal government agencies, especially in the Department of Defense and the National Aerospace Administration
- Research and development consulting firms
- Colleges and universities

389 SCIENCE TECHNOLOGISTS AND TECHNICIANS, N.E.C.

These workers perform tasks to help scientists in lab and production work. They perform lab tests and help collect and study new information. They may inspect, install, repair, or adjust equipment and read meters and gauges. They may collect and record information and write technical reports. Their job duties range from testing smoke coming from smokestacks to studying aerial photographs to detect military bases.

SAMPLE WORK ACTIVITIES

- Analyze the air in industrial plant to detect foreign matter
- Test and inspect products at various stages of processing
- Build and test new laser devices
- Repair and adjust medical equipment and instruments
- Plan the use of space and facilities for an agency or business
- Test tractors and other farm equipment using testing and recording instruments
- Test soundproofing materials used in cars
- Read meters and gauges to measure the waterflow and pressure in streams and pipelines
- Observe and record weather conditions for use in weather forecasting
- Conduct tests and field studies for engineers and scientists who try to control pollution
- Test samples of oil products during processing
- Identify mechanical devices, chemicals, and other evidence held in criminal cases
- Perform chemical tests on packaged beer
- Perform standard lab tests on textile materials
- Pilot an underwater craft to conduct research in marine biology

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Ore dressing, smelting, and refining industries
- Electronics manufacturers
- Instrument manufacturers
- Agricultural equipment manufacturers
- Automobile industries
- Military services
- Light, heat, and power companies
- Textile mills
- Private research firms

39 TECHNICIANS; EXCEPT HEALTH, ENGINEERING, AND SCIENCE

These workers use specialized knowledge to complete technical tasks such as writing computer programs for business or industry, controlling air traffic in airports, or writing technical manuals. They may work with radio broadcast equipment, communicating with ships, transmitting radio photographs, or producing TV programs. Some work with such technical information as legal briefs, wills, and contracts, while others may decode emergency or defense messages.

392 AIR TRAFFIC CONTROLLERS

These workers direct and control air traffic while planes and other aircraft take off, land, and are in the air. They keep track of planes flying in their assigned area and talk to the pilots by radio to give them instructions and information. Their first concern is safety, but they must also make sure that planes quickly enter and leave the airport to cut down on delays. Some regulate airport traffic. Others regulate flights between airports.

SAMPLE WORK ACTIVITIES

- Manage the movement of air traffic between altitude sectors and control centers
- Watch assigned air sectors, and radio information such as altitude and course to pilots
- Receive and send flight plans, weather, and other information by radio
- Relay traffic control instructions to pilots
- Keep files of plans for operating under visual flight rules
- Contact other airports to get information on overdue aircraft
- Report lost aircraft to control center for rescue service
- Push buttons and pull switches to control airport runway and hazard lights
- Keep written records of messages received from aircraft
- Supervise workers in an air traffic control tower
- Use radio equipment to receive reports and requests from firefighting crews

HOURS OF WORK/TRAVEL

- AIR TRAFFIC CONTROLLERS work a basic 40-hour week; however, they may work extra hours for overtime pay or time off.
- Because control towers and centers must be operated 24 hours a day, 7 days a week, CONTROLLERS rotate night and weekend shifts.

SAMPLE PLACES OF WORK

- For the Federal Aviation Administration at airports and air route traffic control centers

393 RADIO OPERATORS

These workers operate radio equipment to communicate with aircraft, ships, or other ground stations, or to transmit radio and TV broadcasts. They also may test, repair, and maintain the equipment. Their jobs vary. Some send weather and other information to flight crews. Some send and receive radio photographs. Some receive radio signals from emergency units, enemy groups, or ships in distress. Some control sight and sound equipment used in TV broadcasts.

SAMPLE WORK ACTIVITIES

- Send and receive radio messages
- Inspect radio equipment to make sure it meets with standards
- Direct workers who install, test, and operate equipment to broadcast events from remote locations
- Send weather information and flight instructions to aircraft by radio-telephone
- Operate radio equipment to receive reports and requests from firefighters
- Operate radio equipment aboard a ship
- Keep a log of messages sent and received
- Watch emergency frequencies for distress calls
- Use test equipment, handtools, and power tools to test or repair radio equipment
- Operate electronic equipment to send and receive radio photographs
- Control sound equipment during TV or radio broadcasts

HOURS OF WORK/TRAVEL

- RADIO OPERATORS work in a variety of jobs and settings. Work hours and travel requirements depend upon the specific job and settings.

SAMPLE PLACES OF WORK

- Airlines
- Emergency rescue operations
- Federal and state agencies
- Military services
- Police and fire departments
- Private communication firms
- Radio and TV stations
- Ship lines

396 LEGAL TECHNICIANS

LEGAL TECHNICIANS assist lawyers and others in the legal field. They do such things as search for public records and prepare lists or summaries of legal documents. Some study papers to see if they meet legal requirements. Others hold funds and records until legal contracts are fulfilled. Sometimes they help lawyers prepare drafts of legal documents such as briefs, wills, contracts, deeds, sworn statements, or patent applications.

SAMPLE WORK ACTIVITIES

- Prepare patent applications and present them to the US Patent Office
- Direct workers who search for public records
- Write summaries of laws for LAWYERS to refer to in court
- Review legal contracts to see if they conform to certain regulations
- Research appeals cases of civil service workers
- Research laws, investigate facts, and prepare legal papers to help lawyers prepare court cases
- Look through public records to find property titles and other legal records
- File and deliver deeds and other legal papers
- Find out if taxes have been paid on land that is up for sale
- Search through public and private records to compile lists of legal documents that affect property titles
- Hold funds for contracting parties

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Private and corporate law offices
- Real estate companies
- Oil companies
- Title-insurance companies
- Federal and state agencies

397 PROGRAMMERS

Workers in these occupations write computer programs for use in business, research, and industry. The programs they write may do audits, keep billings and payroll records, and handle other kinds of information. Programs are also used to control machining processes or to solve math, engineering, and scientific problems. Programmers study the job to be done by the computer and write detailed, coded instructions to the computer for each task it needs to do to complete the job.

3971 PROGRAMMERS, BUSINESS

These workers write computer programs to help businesses do audits, keep payroll records, and handle other types of information. Programs are detailed instructions that list steps machines must follow to organize data, solve problems, or do other tasks. PROGRAMMERS write specific programs for each problem. They break each step into a series of coded instructions, using one of the languages developed for computers. They test the programs and then prepare instruction sheets for workers to use in running them.

SAMPLE WORK ACTIVITIES

- Study a workflow chart of a business problem to figure out the steps a computer must use to solve the problem
- Talk with business managers to find out the purpose and requirements of programs to be written
- Write detailed flowcharts of symbols that describe how information will be entered into and treated by computers
- Correct program errors
- Plan and direct the preparation of programs to process and solve business problems
- Study test runs on the computer to correct coded programs and input data
- Train workers to use program codes
- Develop codes for computers to use to store, find, and retrieve information
- Prepare records and reports

HOURS OF WORK/TRAVEL

- BUSINESS PROGRAMMERS work about 40 hours a week, but their working hours sometimes may vary.
- Sometimes PROGRAMMERS may report to work early or work late to use the computer when it is available. They may sometimes work on weekends.
- When a new program is being tested, PROGRAMMERS may get calls from COMPUTER OPERATORS asking for advice at all hours of the day and night.

SAMPLE PLACES OF WORK

- Manufacturing firms
- Banks and insurance companies
- Data processing service organizations
- Government agencies
- Consulting firms
- Any large firm that uses computer systems

3972 PROGRAMMERS, SCIENTIFIC

These people write computer programs to help solve math, engineering, and scientific problems. Programs are detailed instructions that list the steps computers must follow to organize data or solve a problem. PROGRAMMERS study problem descriptions and then write specific programs for each problem. They break down coded instructions, using one of the special languages developed for computers. They test the programs to see if they work correctly and then prepare instructions for workers to use in running them.

SAMPLE WORK ACTIVITIES

- Talk with ENGINEERS or SCIENTISTS to find out if problems can best be solved using a computer
- Convert technical problems into forms which computers can understand and work with
- Decide what symbols to use in writing programs
- Prepare flow charts and block diagrams that show how math operations should be carried out
- Develop codes for math equations
- Develop ways to simplify programs and codes

HOURS OF WORK/TRAVEL

- SCIENTIFIC PROGRAMMERS work about 40 hours a week, but their hours vary.
- Once or twice a week a PROGRAMMER may work early or late to use the computer when it is available. Sometimes they may work on weekends.
- When a new program is being tested, PROGRAMMERS may get calls from computer operators asking for advice at all hours of the day or night.

SAMPLE PLACES OF WORK

- Manufacturing firms
- Research organizations
- Data Processing service organizations
- Government agencies
- Companies that make computers
- Colleges and universities
- Consulting firms

3974 PROGRAMMERS: NUMERICAL, TOOL, AND PROCESS CONTROL

These people write computer programs used in industry to control machine processes. They study drawings and design data (information) to find out how machines work, and then write step-by-step instructions for the machines to follow in making a product or controlling a system. Some write programs used in steel making, fuel recovery, product testing, and other process control systems. Others write instructions for machines to follow in shaping metal parts.

SAMPLE WORK ACTIVITIES

- Study sketches of metal parts to figure out how machines should be set up to produce them
- Figure out the direction of machine cutting paths
- Prepare graphs that show how parts should be cut
- Write instruction sheets for workers who set up and operate machines
- Write instructions in special codes that computerized metal-cutting machines can follow
- Write a whole set of instructions for a computerized machine used in a steel making plant to follow

HOURS OF WORK/TRAVEL

(No Information)

SAMPLE PLACES OF WORK

- Any industry that uses automatic machines controlled by a computer including
 - . Machine tool manufacturers
 - . Petroleum refiners
 - . Auto manufacturers
 - . Steel mills

398 TECHNICAL WRITERS

These people research, write, and edit technical materials. They put technical information into readable language. They study reports, blueprints and other technical matter and talk with engineers or scientists to get information. They use this information to write manuals, training materials, and research reports. They write proposals to get money to conduct projects, develop products, or do research. A few write speeches and news releases. They also may prepare tables, charts, and artwork for publication.

SAMPLE WORK ACTIVITIES

- Watch products being made and describe in detail the materials and procedures used
- Read journals and reports to learn about production methods
- Look at trade catalogs and drawings to see how equipment is used
- Study blueprints, drawings, and product samples to describe how products are made
- Recommend changes in the format and content of published documents
- Choose photos and charts that help describe how products are made
- Keep records and files of writing projects
- Write speeches and articles for public release
- Edit materials prepared by other writers
- Write articles for technical publications

HOURS OF WORK/TRAVEL

- TECHNICAL WRITERS occasionally work overtime to meet deadlines.
- FREELANCE WRITERS set their own hours and often work at home.
- Some TECHNICAL WRITERS must travel to inspect new projects or to do research.

SAMPLE PLACES OF WORK

- Large firms in the electronics, aviations, aerospace, chemical, drug, and computer manufacturing industries
- Firms in the energy, communications, and computer software fields
- Research laboratories that do both basic and applied research, (especially those in manufacturing companies, universities, government agencies, or private foundations)
- Federal government agencies, (especially those in the Departments of Defense; Interior; Agriculture; Health, Education and Welfare; and in the National Aeronautics and Space Administration)
- Publishing programs in colleges and universities
- Publishing houses, (especially publishers of: business and trade publications; professional journals in engineering, medicine, physics, chemistry, and other sciences; or scientific and technical literature)
- Hospitals
- Public relations firms
- Advertising agencies
- Commercial firms that provide their clients with access to a computerized data base
- Technical information centers run by major industrial firms and research laboratories

- Private agencies and consulting firms

399 TECHNICIANS, N.E.C.

Workers in these jobs perform various tasks that require special skills and knowledge. For example, some identify fingerprints or decode secret messages. Some stuff and mount dead animals or preserve human corpses. Some explore areas of land to find mineral deposits. Some help plan cities. Many of these jobs require specialized training in a particular field. Others may be learned through on-the-job training.

SAMPLE WORK ACTIVITIES

- Prepare, stuff, and mount the skins of birds or animals in a lifelike form
- Test various types of food products
- Test-fire small weapons and bombs to evaluate their performance
- Specify the types of packing materials and handling procedures to be used in shipping art objects
- Help people find information in a public library
- Help school teachers by preparing lesson outlines and teaching aids
- Study secret coding systems and decode messages for military, political, or law agencies
- Give civil service qualifying exams
- Examine handwritten material to detect forgeries
- Question people to see if they are telling the truth, using lie-detector equipment
- Conduct studies to determine factors that influence traffic conditions
- Examine gemstones to see if they are real
- Use radiography equipment to test metal materials for flaws or cracks
- Compile information for maps and reports needed by an urban planner
- Collect plant specimens for scientists to study
- Prepare daily TV schedules for newspapers and magazines
- Prepare bodies for burial, as an **EMBALMER** or **APPRENTICE EMBALMER**
- Build and install equipment used to produce special effects for TV or movie shows
- Help design and build movie sets

HOURS OF WORK/TRAVEL

- These people work in a variety of industries and settings. Work hours and travel requirements vary. Most **TECHNICIANS** keep regular office hours. However, some travel and spend considerable time away from home.

SAMPLE PLACES OF WORK

- Schools and universities
- Radio and TV stations
- Movie studios
- Police departments and crime prevention laboratories
- Ammunition and firearms manufacturers
- Nuclear power facilities and other industries that use radioactive materials
- Oil companies
- Libraries
- Mortuaries
- City planners' offices
- Federal, State, and Local governments
- Museums

3999 MARKETING AND SALES OCCUPATIONS

These workers sell goods and services to individuals and companies. They work in stores and offices or travel to meet clients in their territory. They help customers make selections, arrange credit and contract terms, accept payment, and arrange delivery. They may provide support services such as advertising, building maintenance, or debt collection. They may act as agents, buying and selling on a client's behalf and providing investment counseling.

40 SUPERVISORS, MARKETING AND SALES OCCUPATIONS

These workers plan, supervise, and control the business operations of marketing and sales staff. They hire and train staff, establish work procedures, and set goals. They may order stock or supplies and keep business records. They may act on their own, on the owner's behalf, or in partnership. They may perform some or all of the duties of the staff they supervise.

401 SUPERVISORS; SALES OCCUPATIONS, INSURANCE, REAL ESTATE, & BUSINESS SERVICES

These workers manage businesses or offices involved in the sale of insurance, real estate, or business services. They plan, organize, and control business operations through staff. They establish work procedures, assign duties to staff, and coordinate staff activities. They interpret and enforce company policies, prepare business reports, and help staff solve difficult problems. They direct the hiring, training, and evaluation of staff. They also approve purchase requests, resolve customer and staff complaints, and may direct sales campaigns.

SAMPLE WORK ACTIVITIES

- Manage a business that rents or leases machinery, tools, and equipment
 - Talk with customers to determine the articles required and the time they will be needed
 - Determine leasing or rental charges, based on the type of articles and the time they will be needed
 - Prepare rental or lease agreements
 - Direct workers who do bookkeeping, take inventories, and handle rental equipment
 - Manage a branch or district office of an insurance company
 - Hire and train workers who sell insurance and process insurance claims
 - Review activity reports to make sure that sales quotas are met and that claims are processed promptly
 - Talk with company officials to plan ways to increase sales and lower costs
 - Prepare activity reports
- Manage the business operations of a private employment agency
 - Direct the hiring, training, and evaluation of workers
 - Study placement reports to see how effective employment interviewers have been
 - Develop ways to promote business for the company
 - Approve requests for the purchase of equipment and supplies
 - Prepare budget requests
 - Investigate and resolve customer complaints
- Manage the sales activities of a drycleaning firm
 - Coordinate the activities of service attendants and sales route drivers
 - Visit customers to make estimates on proposed work, such as cleaning draperies and rugs
 - Direct advertising and sales campaigns

HOURS OF WORK/TRAVEL

- Generally, these SUPERVISORS keep regular office hours. However, they may sometimes work long hours.

- Some of these jobs may involve occasional travel to attend sales meetings or meet with customers.

SAMPLE PLACES OF WORK

- Insurance companies
- Employment agencies
- Businesses that provide customer services, such as drycleaning and equipment rental

402 SUPERVISORS; SALES OCCUPATIONS (COMMODITIES EXCEPT RETAIL)

These people manage wholesale businesses. They supervise workers who receive, store, and sell wholesale products. They estimate consumer demands and determine the types and amounts of goods or services to be sold. They determine prices, credit policies, and work procedures. They plan budgets and arrange for stock to be bought for resale. They hire, train, and fire staff. They count and deposit money received, check inventories, and keep business records. They enforce safety, health, and security rules and resolve customer and staff complaints.

SAMPLE WORK ACTIVITIES

- Manage a wholesale firm that buys, sells, and distributes goods, such as furniture, groceries, construction materials, or other products
 - . Estimate stock requirements based on sales orders, inventory, projected sales, and market conditions
 - . Authorize the purchase of goods
- Manage a tobacco warehouse
 - . Oversee the auction sale of tobacco to wholesale buyers and pay growers for tobacco sold
 - . Direct advertising activities
 - . Review bills for incoming goods and customers' orders
 - . Assign workers to check and store goods and prepare orders for delivery
 - . Set procedures for handling and disposing of merchandise
- Manage a meat sales and storage business
- Manage an import-export business
 - . Export goods to foreign merchants and consumers
 - . Import foreign goods for sale in the United States
 - . Arrange for goods to be bought and shipped
- Manage a commissary store to sell to food and other products to workers
 - . Determine the amount of foodstuffs or other goods needed to stock the commissary
 - . Study inventory records and prepare orders for goods
 - . Keep records of purchases, sales, and orders placed for goods
- Manage a wholesale distribution warehouse
 - . Direct workers who buy, process, and sell meats
 - . Prepare daily work schedules
 - . Examine products bought for resale or received for storage
 - . Advise customers on the quality of food and methods of preparing and storage food

HOURS OF WORK/TRAVEL

- These jobs may require some evening, weekend, and overtime work.

SAMPLE PLACES OF WORK

- Wholesale businesses, including:
 - . Import and export businesses
 - . Meat storage businesses
 - . Tobacco warehouses
 - . Wholesale distributors
- Military stores (commissaries)
- Company stores (such as those run by logging and mining companies)

403 SUPERVISORS; SALES OCCUPATIONS, RETAIL

These people plan, organize, and control the operations of a retail business or department. They estimate consumer demands and decide the types and amounts of goods or services to be sold. They determine prices, credit, policies, and operating procedures. They plan budgets, and authorize payments. They hire and train staff, assign duties, set salaries, and promote and fire workers. They enforce safety, health, and security rules. They count and deposit money received, order goods, take inventories, and keep accounts and other records. They also handle customer complaints and may perform some or all of the duties of their workers.

SAMPLE WORK ACTIVITIES

- Manage an automobile service station
 - . Set policies for the station, such as hours of operation, workers required and their duties, and prices for products and services
 - . Hire and train workers and prepare work schedules
 - . Assign workers to specific duties, such as customer service or repair work
 - . Help in performing services, such as
 - PUMPING gas, and washing windshields
 - . Inform customers when their tires are worn or their oil is low to promote the sale of products and services
 - . Compare cash on hand with gas pump readings, sales slips, and credit card charges
 - . Order and keep inventories of oil, gas, car accessories, and parts
- Manage a refreshment stand at public gatherings, sports events, or an amusement park
 - . Buy refreshments that people will enjoy
 - . Direct workers who store, prepare, and serve refreshments
 - . Assign vendors to locations
 - . Take inventory of supplies on hand at the end of each day
- Manage a retail store that sells a specific line of merchandise, such as groceries, meat, liquor, clothing, jewelry, or furniture
 - . Determine pricing policies
 - . Direct workers who prepare product displays and ads
 - . Keep business records
 - . Enforce security, sales, and record keeping policies
- Supervise workers who operate the vending machines of a State program for the blind
- Supervise workers who sell magazines door-to-door
- Supervise workers who store, deliver, and sell ice
- Supervise sales and service activities at a marina

HOURS OF WORK/TRAVEL

- These jobs may sometimes require evenings and weekend work and long working days.

SAMPLE PLACES OF WORK

- Retail businesses, including (for example):

- . Advertising agencies
- . Auto parts stores
- . Automobile service stations
- . Clothing stores
- . Food concessions
- . Furniture stores
- . Grocery stores
- . Hardware stores
- . Jewelry stores
- . Liquor stores
- . Magazine companies

- Government services
- Business services

41 INSURANCE, SECURITIES, REAL ESTATE, AND BUSINESS SERVICE SALES OCCUPATIONS

These workers sell insurance, stocks and bonds, real estate, and business services to individuals and/or businesses. They may act as agents, settling claims, buying stocks and bonds, or arranging for the sale of property. They may advise clients on the amount of insurance they need or inform them of favorable investment opportunities. They may provide businesses with maintenance or security services or sell advertising time or space, for example.

412 INSURANCE, REAL ESTATE, AND SECURITIES SALES OCCUPATIONS

These workers sell insurance, stocks and bonds, or real estate. They may advise clients on the type and amount of insurance they need and help them settle claims. Others inform clients of stock market conditions and buy and sell security interests for them. Some show properties which they sell or manage. They arrange financing and insure that all legal matters are in order when selling property. These workers may provide financial counseling or other services.

4122 INSURANCE SALES OCCUPATIONS

People in these jobs sell life, fire, accident, and other types of insurance. They sell policies that protect individuals and businesses against losses or damages. They may help plan financial protection for families. They may advise clients on ways to protect their cars, homes, businesses, or other property. Some help clients set settlements for insurance claims. These workers spend much of their time discussing insurance needs with clients. They prepare reports, keep records, and plan insurance programs for clients.

SAMPLE WORK ACTIVITIES

- Contact people by phone or in person to encourage them to buy insurance
- Discuss the good and bad points of different types of insurance policies with clients to help them make a choice
- Select an insurance company for a client, based on the type of coverage the client wants
- Use an adding machine to compute the amount of payments required by different types of policies
- Submit forms to an insurance company for review
- Contact insurance companies to see if policies were issued or rejected
- Call on clients to deliver and explain their policies
- Collect weekly or monthly payments from policyholders

HOURS OF WORK/TRAVEL

- INSURANCE AGENTS and BROKERS often must travel to meet with clients.
- Many INSURANCE AGENTS arrange their own hours of work, and often schedule evening and weekend appointments with clients. Some AGENTS work more than 40 hours a week. Others work part time.

SAMPLE PLACES OF WORK

- Insurance brokerage companies
- Insurance companies
- For yourself, as an independent AGENT serving several insurance companies.

4123 REAL ESTATE SALES OCCUPATIONS

REAL ESTATE AGENTS and BROKERS assist clients in the buying or selling of a home or property. BROKERS not only sell real estate, but also rent and manage properties, make appraisals, and develop new building projects. They often arrange for loans and title searches for buyers and set up meetings between buyers and sellers. REAL ESTATE AGENTS are independent sales workers who work for a broker. They help buyers find homes or property and provide many of the services offered by the brokerage firm.

SAMPLE WORK ACTIVITIES

- Rent, buy, and sell property for clients on a commission basis
- Show apartments, homes, or mobile home lots
- Use brochures and drawings to show features of new home designs to customers
- Plan and promote the sale of new and custom-built homes
- Inspect houses and other real property for construction, condition, and design
- Measure property
- Estimate the value of property for purchase, sale, replacement, investment, mortgage, or loan purposes
- Arrange building loans with a mortgage company
- Search public records of sales, leases, and other transactions to get information about property
- Draw up real estate contracts, such as deeds, leases, and mortgages
- Look for undeveloped areas that might make good building sites

HOURS OF WORK/TRAVEL

- REAL ESTATE SALES WORKERS often work more than 40 hours a week. They often must work evenings and weekends to suit the convenience of their clients.
- Many workers in these jobs sell real estate on a part-time basis.
- These jobs often require a great deal of local travel to meet with clients and inspect and show property.

SAMPLE PLACES OF WORK

- Real estate firms and brokerages
- Construction companies
- Companies that sell or rent mobile homes, home sites, and other real property.

4124 SECURITIES AND FINANCIAL SERVICE SALES OCCUPATIONS

These workers buy and sell securities (stocks and bonds) for customers. They give clients advice and information on the stock market and on businesses in which they might want to invest. Some provide loans, tax counseling, and accounting or auditing services to clients. Some sell travelers' checks, credit reports, or other services to businesses or banks. Some encourage people to open accounts with financial firms. Many of these workers attend sales and trade meetings and meet with community groups to find new clients and to stay informed of economic trends.

SAMPLE WORK ACTIVITIES

- Buy and sell securities for clients on the floor of a stock exchange
 - . Study market conditions for clients and trends to determine the buy-and-sell price of stocks
 - . Give clients information and advise on stocks, bonds, and market conditions
 - . Record buy or sell orders and send them to the trading division
 - . Calculate and record the cost of transactions for billing purposes
 - . Develop lists of selected investments for customers
 - . Compile lists of possible customers to be contacted
- Call on businesses and individuals to get them to open accounts with a bank or savings and loan company
 - . Explain a bank's services to possible customers
 - . Develop financial plans for customers
- Attend sales and trade meetings to develop new business and gain information
- Visit banks and travel agencies to service accounts and find new outlets for bank travelers' checks
 - . Write daily reports of business activities
 - . Meet with community groups to promote travel and the use of travelers' checks
- Sell services such as credit reports and credit-rating books to businesses
 - . Call on banks and other businesses to explain services offered by the agency

HOURS OF WORK/TRAVEL

- These workers generally keep regular office hours. However they may sometimes work during evenings.
- These jobs may involve local travel to call on clients and attend community meetings and events.

SAMPLE PLACES OF WORK

- Securities and investment companies
- Banks and other financial institutions
- Mutual fund companies
- For yourself, as an independent investment counselor or stock broker

415 BUSINESS SERVICE SALES OCCUPATIONS

These workers sell services to businesses. These may include building maintenance, credit reporting, pest control, security, or telephone answering services. They may also sell advertising, including art work, TV and radio time, billboard space, or classified ads. They contact businesses by telephone or in person to tell of available services. They handle scheduling, billing, customer complaints, and advise customers on how service can meet their needs.

4152 BUSINESS SERVICE SALES OCCUPATIONS (EXCEPT ADVERTISING)

These people sell services such as building maintenance, pest control, travel aid, credit reporting, security, printing, and telephone answering. They sell services for a company by phoning or calling on people to inform them of services available. They may find new customers by studying directories or company records. They take orders for services, compute the cost, and schedule the services to be delivered. They also advise customers on ways to solve problems, handle customer complaints, and write reports.

SAMPLE WORK ACTIVITIES

- Visit companies to show employees how to use a company's telephone equipment
- Sell warehouse space and services to manufacturers and jobbers
- Sell public relations, counseling, and testing programs to schools and businesses
- Sell services, such as food vending, trading stamps, telephone, or cleaning services to businesses
- Sell pest control or weed-killing services to home and business owners
- Arrange hotel rooms and travel tickets for customers of a travel agency
- Book customers on airlines, trains, ships or other carriers
- Call on firms to sell freight services
- Show travel movies to people to stimulate their interest in travel
- Visit managers of new businesses to try to get them to use the services of a parcel-delivery firm
- Contact people in government, business, and social groups to promote business for a hotel, motel, or resort
- Contact homeowners to sell TV and cable services

HOURS OF WORK/TRAVEL

- Many of these jobs require travel to call on potential customers.
- In some jobs, evenings and weekend work may be required at times.

SAMPLE PLACES OF WORK

- Cleaning and janitorial companies
- Companies that provide testing, counseling, training, and other services
- Companies that provide weed-killing services
- Food service companies
- Freight and storage companies
- Pest control companies
- Printing companies
- Public relations firms
- Security and detective agencies
- Shipping and delivery companies
- Telephone answering services
- Telephone and telegraph companies
- Trading stamp companies
- Travel agencies

4153 ADVERTISING AND RELATED SALES OCCUPATIONS

People in these Jobs call on businesses to sell advertising materials and services. For example, some sell art work for use in composing ads. Some sell advertising time on radio and TV programs. Some sell classified ad space in newspapers or magazines. Some arrange leases for outdoor advertising. Some promote the display of a company's products in local stores. These workers figure the costs of providing products and services, advise clients on advertising matters and draw up sales or service contracts.

SAMPLE WORK ACTIVITIES

- Sell illustrations and photography to advertising agencies and industrial firms
 - . Plan and sketch layouts to meet customer needs
 - . Advise customers in methods of composing layouts for ads
 - . Compute the cost of providing products and services to customers
 - . Deliver proofs of ads to customers for approval
- Call on advertising and sales promotion people to sell them signs and displays
 - . Suggest ideas for signs and displays
 - . Draw up contracts for the sale of displays and services
- Obtain leases to sites for outdoor advertising
 - . Persuade property owners to lease sites where billboards can be put up
 - . Draw up leases for ad sites
- Sell classified ad space for publications
 - . Prepare a list of possible customers from leads in other papers and old accounts
 - . Visit advertisers to point out the advantages of running ads in a certain publication
- Contact businesses to sell radio and TV time on a broadcasting station or network
 - . Call on prospects and show them outlines of various programs or commercials
 - . Arrange for prospects to see auditions
- Persuade customers to use the sales promotion display items of a wholesale distributor
 - . Visit department stores, taverns, and supermarkets to persuade them to use the company's display items
 - . Deliver posters, glasses, napkins, samples, or other promotion items to stores
 - . Arrange product displays in stores

HOURS OF WORK/TRAVEL

- Some of these Jobs require travel to call on industrial or commercial accounts.
- Some of these Jobs may require occasional evening, weekend, and/or overtime work.

SAMPLE PLACES OF WORK

- Advertising agencies
- Companies that make and sell custom-made signs and billboards
- Firms that provide business services
- Printing and publishing companies
- Radio and TV broadcasting companies
- Wholesale distributors

42 SALES OCCUPATIONS, COMMODITIES EXCEPT RETAIL

These workers sell products and services to businesses and industries. They may travel throughout an assigned territory as representatives of manufacturers or distributors. They show how their products will meet the client's retailing or production needs, providing samples and catalogs. They advise customers on purchases, quote prices, fill out contracts, and arrange credit terms and delivery. Some work in showrooms or take phone orders.

421 SALES ENGINEERS

These workers are engineers who specialize in the sale of technical products and services. They may sell either mechanical, electrical, electronic, chemical, or related products. They call on engineers, architects, or other professionals to explain and describe products and services. They review blueprints, plans, and other customer documents and estimate the costs of providing products or services. They advise clients on the use, operation, and upkeep of equipment. They also draw up sales contracts and may provide technical training to clients.

SAMPLE WORK ACTIVITIES

- Sell one or more of the following to business or industrial accounts:
 - . Aeronautical products and services
 - . Electrical products and systems
 - . Ceramic products
 - . Mechanical equipment
 - . Chemical processing equipment and services
 - . Mining and oilwell equipment and services
 - . Farm machinery, equipment, and services
 - . Marine machinery and equipment
 - . Nuclear machinery, equipment, and services
- Call on firms to convince their technical managers to buy equipment, supplies, or services
- Review customers' blueprints, plans, and other technical documents and service needs
- Prepare cost estimates for products and services
- Propose changes in equipment, processes, or use of materials that will save customers' money
- Provide services to clients, such as help in the layout and upkeep of equipment

HOURS OF WORK/TRAVEL

- These jobs require travel to call on and provide services to customers. SALES ENGINEERS often spend a good deal of their time providing technical assistance to clients. They may spend days or even weeks at a particular site.
- These jobs may sometimes require evenings or weekend work.

SAMPLE PLACES OF WORK

- Firms that manufacture or distribute:
 - . Aeronautical products
 - . Ceramic products
 - . Chemical equipment
 - . Electrical and electronic equipment
 - . Farm machinery
 - . Marine machinery
 - . Mechanical equipment

423 TECHNICAL SALES WORKERS AND SERVICE ADVISORS

These workers sell products that require a technical knowledge of the product and its use. They may sell farm equipment, industrial machinery, or chemicals and drugs, for example. They must be able to understand client needs and show how their product will meet those needs. They may travel throughout an assigned territory, showing samples and catalogs, filling out contracts for orders, and arranging credit terms and delivery.

4232 TECHNICAL SALES WORKERS, AIRCRAFT

People in these jobs sell aircraft, aircraft equipment, and parts to private customers and to business and industrial firms. Some travel to call on customers in an assigned area. Others talk with customers on a sales floor or by phone. They help customers choose aircraft equipment. They quote prices and credit terms, and prepare sales contracts for orders obtained. They also keep business and expense records. Some may take customers on flights to point out safety and other features of aircraft.

SAMPLE WORK ACTIVITIES

- Talk with customers and point out features of different types of aircraft
- Take customers on flights to show them how well the plane handles
- Check customers' credit ratings
- Prepare contracts for plane storage and servicing
- Rent aircraft to customers
- Sell aircraft engines, fuel tanks, and tires
- Make up a list of people or businesses that might want to buy aircraft parts
- Show customers pictures of aircraft or aircraft parts
- Estimate the delivery date for aircraft equipment, based on a firm's delivery schedule

HOURS OF WORK/TRAVEL

- Some of these workers travel an assigned territory to call on business and industrial customers.
- Generally, these workers have a standard 35-40 hour work week.

SAMPLE PLACES OF WORK

- Wholesale and retail companies that sell or distribute aircraft or aircraft equipment and parts

4233 TECHNICAL SALES WORKERS, AGRICULTURAL EQUIPMENT AND SUPPLIES

These workers sell farm equipment, and supplies such as tractors, combines, milking machines, tools, and fertilizer. They also advise farmers on crop raising, animal care, disease prevention, and similar problems. They call on farmers and store owners to show them samples and catalogs, explain new products, and take orders. They quote prices and credit terms and fill out sales contracts. They may install and service equipment, show customers how to use equipment and give advice on the proper use and care for materials and equipment. They prepare sales reports and keep daily expense records.

SAMPLE WORK ACTIVITIES

- Sell animal feed products to farmers and retail stores
- Suggest feed changes to improve the breeding of fowl and stock
- Sell farm and garden machinery and supplies, such as tractors, feed, and fertilizer

- Sell spare parts and service contracts for machinery
- Sell poultry equipment and supplies, such as brooders, coolers, feeders, and washers
- Advise customers on the care and feeding of poultry
- Tell customers how to set up poultry equipment
- Sell dairy supplies, such as cheese wrappings, filters, and cheese coloring
- Sell, install, and repair milking equipment
- Call on farmers to sell repair services and new milking equipment
- Show customers how to operate milking machines

HOURS OF WORK/TRAVEL

- These workers travel to call on farmers and retail stores in an assigned territory. Those with large territories may sometimes spend several days a week away from home.
- Some jobs may require long working days and irregular hours.

SAMPLE PLACES OF WORK

- Manufacturers and distributors of products such as:
 - . Animal feeds
 - . Dairy supplies
 - . Farm and garden equipment and supplies
 - . Farm equipment dealerships
 - . Milking machines
 - . Poultry equipment and supplies

4234 TECHNICAL SALES WORKERS, ELECTRONIC EQUIPMENT

These workers sell electronic equipment. Some call on businesses to sell products such as communications, navigation, and production control devices. Others sell stereos, radios, and similar products to customers in a store or show room. They show products, give technical information, quote prices and credit terms, and prepare sales slips or contracts. They also may take payments, arrange for deliveries, write sales reports, and keep expense records.

SAMPLE WORK ACTIVITIES

- Sell telephone, telegraphic, radio, and other communications equipment to businesses
 - . Travel an assigned territory to call on industrial and commercial accounts
 - . Make lists of possible new customers and contact people on the list to tell them about products available
 - . Study businesses' communication needs and recommend equipment that will serve their needs
 - . Sell devices that clean, test, or process materials using high frequency sound waves
 - . Show samples or product catalogs to buyers and point out the various features of products
 - . Quote prices and credit terms to customers
 - . Estimate the date products will be delivered, based on the firm's delivery schedules
 - . Prepare sales reports and expense account records
- Sell stereo, recordings, radio, and other electronic sound equipment to customers in a store
 - . Show merchandise to customers and point out their selling points
 - . Take payments or obtain credit approvals for sales
 - . Tell customers how to install sound equipment
 - . Place new merchandise on display
 - . Take inventories of stock on hand

HOURS OF WORK/TRAVEL

- Some of these jobs require travel over an assigned territory to call on and sell products to firms. Overnight trips may be required. Also, these jobs often involve irregular working hours and some evenings and overtime work.

- Some of these jobs involve selling electronic equipment at a store or sales office. Weekend and/or evening work may be required.

SAMPLE PLACES OF WORK

- Retail stores that sell electronic sound equipment
- Wholesale trade firms that sell electronic equipment to industrial, commercial, and retail accounts

4235 TECHNICAL SALES WORKERS; INDUSTRIAL MACHINERY, EQUIPMENT, AND SUPPLIES]

These workers sell industrial machinery, equipment, and supplies to industrial and commercial firms. Their jobs require technical knowledge of the products and services sold. They travel throughout an assigned territory, sell products and services, advise customers in the selection, installation, and maintenance of products. They quote prices and credit terms and fill out sales contracts. They may read blueprints and other documents to get information needed to prepare bids for contract work. They also prepare sales reports and keep daily expense records.

SAMPLE WORK ACTIVITIES

- Read blueprints to determine the materials and supplies needed by customers
- Prepare price lists and bids based on knowledge of material and labor costs
- Advise engineering, production, and purchasing staffs on industrial processes and methods
- Recommend specific machines that are best suited for customers
- Compute the cost of installing machinery
- Arrange for equipment to be installed
- Recommend the placement of equipment
- Show customers how to operate installed equipment
- Interpret graphs and survey information for customers
- Call on business and industrial firms to sell items such as:
 - . Textile machinery
 - . Radiographic equipment, supplies and services
 - . Railroad equipment and supplies
 - . Foundry or machine shop products, such as
 - . Machine parts
 - . Abrasive materials
 - . Building materials, equipment, and supplies
 - . Construction machinery
 - . Metalworkings, woodworkings, and food processing
 - . Machines
 - . Lubricating equipment and supplies
 - . Conveyor systems, chain hoists, and other
 - . Material-handling equipment
 - . Copper, iron, steel and other metals
 - . Oilfield supplies and machinery

HOURS OF WORK/TRAVEL

- These workers travel throughout an assigned territory to call on business and industrial accounts. Those who have large territories may sometimes spend several days a week away from home.
- These jobs may involve irregular hours and long working days.

SAMPLE PLACES OF WORK

- Manufacturers and distributors of products such as:

- . Abrasives
- . Building equipment and supplies
- . Construction machinery
- . Foundry and machine shop products
- . Lubricating equipment
- . Material-handling equipment
- . Metals

- . Oilfield supplies and equipment
- . Radiograph-inspection equipment
- . Railroad equipment and supplies
- . Textile machinery
- . Welding equipment
- . Wire rope

4236 TECHNICAL SALES WORKERS; MEDICAL AND DENTAL EQUIPMENT AND SUPPLIES

These workers sell medical equipment and supplies to doctors, dentists, veterinarians, and representatives of hospitals and other medical centers. They travel an assigned area to call on customers and advise them of new medical products. They describe or show products to customers and write orders for products requested. They also advise customers on equipment purchases and discuss the dosage, use, and effects of new drugs and medicines. They keep expense and sales records and write sales reports.

SAMPLE WORK ACTIVITIES

- Call on doctors and dentists to inform them of new drug products
- Explain clinical studies conducted with drugs
- Discuss the dosage, use, and effect of new drugs and medicines
- Give samples of new drugs to doctors
- Compile information about equipment and supplies preferred by customers
- Advise customers on equipment purchases
- Sell surgical appliances, such as supports, braces, and artificial limbs
- Measure customers to determine the type and size of surgical appliance required
- Order custom-made appliances for customers
- Sell medical instruments, drugs, equipment, supplies, and packaged food to veterinarians and animal hospitals
- Sell drug products to wholesale and retail drug firms

HOURS OF WORK/TRAVEL

- Many of these jobs require travel over an assigned territory to call on medical professionals, drug companies, and/or medical institutions.

SAMPLE PLACES OF WORK

- Distributors of medical equipment and supplies
- Drug companies
- Medical equipment manufacturers
- Pharmaceuticals manufacturers

4237 TECHNICAL SALES WORKERS; CHEMICALS & CHEMICAL PRODUCTS

People in these jobs sell chemicals and chemical products such as explosives, acids, medicines, drugs, and compounds used in industry and farming. Some sell these products by calling on business or industrial customers in an assigned territory. Others deal directly with customers at a sales office or store. They show customers samples or descriptions of products and take orders for products. They quote prices and credit terms and prepare sales contracts. They also prepare business and expense reports.

SAMPLE WORK ACTIVITIERS

- Call on plant PURCHASING AGENTS to sell industrial chemicals
- Phone customers to see if they want to order more chemical products
- Show customers pictures and descriptions of medicines and drugs in catalogs
- Inform customers of the delivery dates of products
- Keep detailed records of business expenses
- Look in business directories to find new leads on possible customers for chemical products

HOURS OF WORK/TRAVEL

- Some of these workers travel an assigned territory to call on business and industrial customers.
- Generally, these workers have a standard 35-40 hour work week. Occasional overtime work may be required in some jobs.

SAMPLE PLACES OF WORK

- Wholesale and retail companies that manufacture or distribute chemicals and chemical products

4239 TECHNICAL SALES WORKERS, N.E.C.

These workers specialize in promoting the use of products or services, such as power, heating, and lighting and electroplating services. Their jobs require technical knowledge of the products and services offered. They travel throughout an assigned territory to call on customers. For example, some call on homeowners and businesses to promote the increased or economical use of a public utility. Others call on industrial firms to advise on and promote the use of a particular industrial process or product. These workers give technical advice to customers, quote rates, installation charges, and operating costs, and fill out sales contracts or service orders. They may inspect a customer's equipment or operations and advise on the use of products or services. They also may prepare business reports and keep daily expense records.

SAMPLE WORK ACTIVITIES

- Call on businesses and homeowners to promote the increased or economical use of public utilities, such as gas, electric power, or telephone service
- Inspect installed equipment or review plans for new equipment to determine the need for additional utility services
- Advise customers on the best use of a utility to promote energy conservation and reduce costs
- Quote rates, installation charges, and operating costs
- Explain the company's services to customers
- Write service orders and applications
- Sell electroplating services to companies that produce formed metal and plastic products
- Visit industrial firms, such as those that make metal car parts or plastic radio and TV control panels
- Evaluate the structure and properties of products to determine the finishing processes required, such as plating and coloring
- Talk with production staff to analyze special problems related to the customer's product

HOURS OF WORK/TRAVEL

- These workers travel to call on customers. In some jobs, overnight trips may sometimes be required.

SAMPLE PLACES OF WORK

- Light, heat, and power companies
- Telephone companies
- Manufacturers and distributors of electroplating materials

424 SALES REPRESENTATIVES

These workers sell goods to business and industrial concerns as sales agents for manufacturers or distributors. They may work in showrooms or travel throughout an assigned territory, meeting customers and explaining products. They may help retailers or industries decide which products best meet their needs. They quote prices, fill out sales contracts, arrange credit terms, and estimate delivery dates. They find new customers, write sales reports, and keep records.

4242 SALES REPRESENTATIVES; COMMERCIAL AND INDUSTRIAL EQUIPMENT AND SUPPLIES

These people specialize in the sale of small machines, tools, precision instruments, parts, furniture, and other equipment and supplies. They sell these products to businesses and industrial plants as sales agents for a manufacturer or distributor. They travel throughout an assigned territory to call on regular and potential customers. They carry sample products and catalogs to show customers. They also describe products to customers and advise them in selecting products which will best serve their needs. They quote prices and credit terms and fill out sales contracts for orders obtained. They also may take orders by phone. They prepare sales reports and keep daily records of their business expenses.

SAMPLE WORK ACTIVITIES

- Sell safety clothing and equipment, such as goggles, masks, shoes, belts, helmets, fireproof suits, and hearing-protection devices
- Tour industrial plants and suggest protective clothing and devices to prevent accidents
- Sell new and used electric motors
- Estimate the costs of repairs to electric motors
- Use test equipment to determine defects in motors brought in for repair
- Estimate repair costs, using pricelists for parts and labor
- Keep records of exchanges and sales
- Sell passenger and freight elevators, escalators, and dumbwaiters to building owners and contractors
- Contact property owners to obtain blueprints of proposed new construction
- Talk with property owners to determine the type of installation required
- Inspect buildings to see if requested equipment can be installed
- Provide the engineering department with blueprints and building specifications
- Present bids to customers for installation work
- Inform customers of work progress
- Attend sales and trade meetings and read journals to keep informed of market conditions and business trends
- Sell fiberboard, metal, plastic, or wood containers
- Sell printing supplies, such as ink, plates, rollers, and type
- Sell textile-pattern designs and equipment used for printing patterns on textile products
- Sell computers and electronic data-processing systems to business and industrial firms
- Study customer needs and recommend computer systems that best meet customer requirements
- Sell church furniture and supplies, such as pews, pulpits, candles, and prayer books
- Measure church areas to be furnished
- Prepare drawings, estimates, and bids
- Sell commercial furniture, equipment, and supplies to businesses
- Sell cordage and twine, such as nylon, orlon, and cotton, to businesses
- Sell hotel and restaurant equipment and supplies, such as dishwashers, ranges, glassware, and furniture
- Sell office machines, such as typewriters and adding machines, to businesses
- Sell school equipment and supplies, such as blackboards, art supplies, and school furniture
- Sell florist supplies, such as fake flowers, vases, ribbon, and wire
- Sell spring scales used in weighing and measuring devices
- Sell architectural and engineering supplies, such as protractors, slide rules, and T-squares, to business and industrial firms

- Sell precision instruments, such as lab, navigation, and surveying instruments

HOURS OF WORK/TRAVEL

- These workers travel throughout an assigned territory to call on regular and potential customers. Those who have large territories may sometimes spend several days a week away from home.
- Many of these jobs may involve long and irregular working hours.

SAMPLE PLACES OF WORK

- Manufacturers and distributors of products such as:
 - . Safety apparel and equipment
 - . Cordage
 - . Electric motors
 - . Office machines
 - . Elevators and related products
 - . Textile designs
 - . Church furniture and religious supplies
 - . School equipment and supplies
 - . Supplies
 - . Florist supplies
 - . Precision instruments
 - . Containers
 - . Printing supplies
 - . Architectural and engineering supplies
 - . Hotel and restaurant equipment

4243 SALES REPRESENTATIVES, GARMENTS AND RELATED TEXTILE PRODUCTS

These workers sell garments, textiles, or trimming for apparel to stores and manufacturers. They may suggest items of clothing, fabric, or trim to be sold by stores or used in making garments. Representatives contact customers at their place of business or meet them in showrooms or sales offices. They demonstrate products, quote prices and credit terms, and arrange delivery of items. They prepare business reports and keep expense records.

4244 SALES REPRESENTATIVES; MOTOR VEHICLES AND SUPPLIES

These workers sell motor vehicles, parts, and accessories to dealers, garages, and other sales outlets. They also advise dealers on ways to promote sales. They travel throughout an assigned territory to call on accounts and take orders for vehicles and parts. They show samples and catalogs to dealers and point out the features of various products. They quote prices and credit terms, prepare sale contracts. They also prepare sales reports and keep expense accounts.

SAMPLE WORK ACTIVITIES

- Sell cars, motorcycles, tractors, trucks, or other vehicles to dealers
- Sell batteries, tires, motors, tools, lubricants, and other parts and supplies to service stations
- Talk with car dealers and review sales records to determine the number of vehicles to order
- Advise customers in methods of increasing their sales
- Carry sample products and catalogs to show customers
- Complete sales contracts and order forms
- Keep daily records of business expenses

HOURS OF WORK/TRAVEL

- These workers travel to call on business accounts. Those with large territories may sometimes have to spend several days a week away from home.

- These Jobs may involve irregular hours and long working days.

SAMPLE PLACES OF WORK

- Vehicle manufacturers and distributors
- Manufacturers and distributors of auto parts and accessories

4245 SALES REPRESENTATIVES; PULP, PAPER, AND PAPER PRODUCTS

People in these jobs sell paper and paper products to business and industrial accounts as sales agents for a manufacturer or distributor. The products they sell include newsprint, wrapping paper, stationery, wallpaper, and paperboard containers. They may sell products at a sales office, by phone, or at customers places of business. They look for new business by compiling lists of potential customers from newspapers and directories. They show samples or catalogs to customers, point out features of products, quote prices and credit terms. They also prepare sales reports and expense accounts.

SAMPLE WORK ACTIVITIES

- Contact new businesses by phone to promote the sale of a company's products
- Travel from business to business in an assigned area to take orders for paper products
- Point out products in a catalog which customers may wish to order
- Fill out sales contracts that list products purchased and their prices
- Estimate the delivery date for orders, based on knowledge of the manufacturer's delivery schedules
- Fill out and submit monthly expense account forms

HOURS OF WORK/TRAVEL

- Many of these workers travel to call on businesses and industries in an assigned territory. Some may spend several nights a week away from home.
- These jobs may involve irregular and/or long working hours.

SAMPLE PLACES OF WORK

- Paper and paper products manufacturers and distributors

4246 SALES REPRESENTATIVES; FARM PRODUCTS AND LIVESTOCK

These workers sell farm produce, livestock, and other farm products. They call on wholesale, retail, industrial, and other customers to take orders. They show and describe products to buyers, quote prices and credit terms, and arrange for products to be delivered. They may take bids for farm products and then sell the products to the highest bidder. Many work on a commission basis. They must know market conditions and be able to judge the value of farm products.

SAMPLE WORK ACTIVITIES

- Sell livestock at stockyards for owners

- Appraise and sort livestock on the basis of weight, sex, age, and appearance
- Contact purchasing agents and inform them of livestock they can buy
- Show livestock to buyers and take bids for their purchase
- Sell cattle, horses, hogs, and other livestock to packing houses or farmers on a commission basis
- Review market information and inspect livestock to determine their value
- Inform buyers of the care and breeding of livestock
- Attend livestock meetings to keep informed of livestock trends and developments
- Sell bulk shipments of farm produce to wholesalers or other buyers
- Deduct expenses and commission from payment received for the sale of produce and give the balance to the shipper
- Call on restaurants to sell produce

HOURS OF WORK/TRAVEL

- SALES REPRESENTATIVES often have long, irregular work hours. Although they call on customers during business hours, they may travel at night or on weekends to meet their schedules. They also may spend evenings writing reports and orders.

SAMPLE PLACES WORK

- Large farms that employ sales workers to market their goods
- Sales agencies that specialize in farm produce
- For yourself, as an independent sales agent

4249 SALES REPRESENTATIVES, N.E.C.

These people sell one or more lines of goods to business and industrial concerns as a sales agent for a manufacturer or distributor. The items they may sell range from franchise businesses to magazines to manufactured products. They may sell products at a sales office, call on companies to sell products and/or take orders for products by phone. They look for new business by compiling lists of possible customers for newspapers and directories. They show samples or catalogs to customers, point out features of articles, quote prices and credit terms, and prepare sales contracts. They prepare sales reports and expense accounts, and may arrange for products to be delivered.

SAMPLE WORK ACTIVITIES

Sell one or more of the following items to business and industrial accounts:

- Beer and malt liquors
- Tobacco products
- Canvas goods
- Coal, coke, wood or other fuels
- Petroleum products
- Bottles and bottling equipment
- Rubber saskets and washers
- Funeral equipment and supplies
- Shoe leather and shoe repairing supplies
- Hobby and craft materials
- Souvenirs, toys, and trinkets
- Ballpoint pens
- Boxes and shipping containers

HOURS OF WORK/TRAVEL

- SALES REPRESENTATIVES often travel to call on customers in an assigned area. Those with large territories may sometimes spend several nights a week away from home.
- These jobs may involve irregular working hours and long working hours.

SAMPLE PLACES OF WORK

- Wholesale manufacturers and distributors of any equipment:
 - . Hobby and craft goods
 - . Leather goods
 - . Mortician supplies
 - . Novelties
 - . Petroleum products
 - . Plastic products
 - . Bottle equipment
 - . Canvas products
 - . Food products
 - . Fuels
 - . Tobacco products
 - . Rubber goods
 - . Shoe leather
 - . Vending and coin machines
 - . Writing and marking pens
- Record companies
- Franchised business operations
- Magazine and book companies
- Newspaper companies

43 SALES OCCUPATIONS, RETAIL

These workers are concerned with selling goods in small quantities directly to consumers. They may demonstrate or explain items. They may arrange contracts, credit terms, or delivery. Others provide support services for retail sales. They may appraise items for sale or insurance, comparison shop, collect debts, or work as auctioneers. Some work as cashiers, street vendors, or sell door-to-door.

434-5 SALES OCCUPATIONS, COMMODITIES

These workers sell new or used products in retail stores, outlets, and showrooms. They may sell vehicles, boats, cosmetics, musical instruments, jewelry, clothes, gift items, sporting goods, shoes, or furniture, for example. They may meet customers, demonstrate or explain products, and arrange for sale. They fill out contracts or arrange credit terms. They may accept payment and arrange delivery. They may display items, take inventory, and order new stock.

4342 SALESPERSONS; MOTOR VEHICLES, MOBILE HOMES, AND SUPPLIES

These people sell new or used vehicles, such as cars, trucks, or motorcycles. They also sell related accessories and equipment. They sell these items to customers in a store or showroom. They greet customers and ask them the make, type and price range of the vehicle they wish to see. They show vehicles or accessories to customers. They point out the features and prices of the items shown, and may take customers on rides to show them how vehicles handle. They also prepare sales slips or contracts, take payments and may arrange credit purchases.

SAMPLE WORK ACTIVITIES

- Sell new or used cars at a car agency
- Explain features of cars to customers
- Take customers on car rides to show them how cars operate
- Suggest extra equipment for customers to buy

- Compute and quote sales prices
- Explain financing requirements and terms to customers
- Sell auto supplies and accessories such as tires, batteries, seat covers, and headlights
- Read a catalog to find the stock number of items
- Sell trailers, mobile homes, and truck campers to people
- Show customers how to use equipment and furnishings

HOURS OF WORK/TRAVEL

- Some of these jobs may require weekend and evening work or irregular hours.

SAMPLE PLACES OF WORK

- Automobile dealerships
- Auto parts stores
- Motorcycle shops and other recreation vehicle dealerships
- Mobile home dealerships
- Used car agencies

4343 SALESPERSONS; MUSICAL INSTRUMENTS AND SUPPLIES

These workers sell musical instruments and supplies, such as pianos, organs, guitars, drums, horns, music books, and records. Some sell these products to customers in a store. Others sell musical products for a manufacturer or distributor by calling on retail stores to take orders. They show customers how instruments are played and explain the functions, and care of the instruments. They may help customers select sheet music or recordings. They prepare sales slips or contracts, and may take payments and arrange deliveries. They also may wrap purchases, take inventory of stock, and order replacement products.

SAMPLE WORK ACTIVITIES

- Play instruments to show their tonal qualities
- Advise customers on the styles of organ or piano that will best go with their other furnishings
- Appraise used organs or pianos for trade-in allowances
- Explain the functions, mechanisms, and care of musical instruments
- Discuss the quality of tone in instruments of different prices
- Rent musical instruments to customers and prepare rental contracts
- Sell phonograph records and tape recordings
- Sell books and sheet music for instrumental and vocal groups

HOURS OF WORK/TRAVEL

- These jobs may require evening or weekend work. Some jobs may offer opportunity for part-time work.
- Some of these jobs require travel in an assigned territory to call on businesses and retail stores. A few workers may travel to customers' homes to sell or demonstrate products on a shop-at-home basis.

SAMPLE PLACES OF WORK

- Retail stores that sell musical instruments and supplies
- Record shops
- Wholesale manufacturers and distributors of musical instruments and supplies

4344 SALESPERSONS; BOATS AND MARINE EQUIPMENT AND SUPPLIES

These people sell boats and boating equipment and supplies for a manufacturer or distributor. Some travel an assigned area to call on retail store buyers. Others sell products to customers at a sales office, showroom, or store. They help customers decide what types of boats or equipment to buy. They may show pictures of boats to customers or even take them on boat rides. They also fill out order forms or sales slips, quote prices and credit terms, keep sales records, and arrange for deliveries.

SAMPLE WORK ACTIVITIES

- Call on retail businesses to sell boating equipment such as fixtures, pumps, and motor parts
- Show boats to customers on a sales floor
- Show pictures and blueprints of boats to customers and explain how boating equipment works
- Advise boat owners on the selection of new equipment
- Take customers on a boat ride to show them how well the boat performs
- Arrange for boats to be inspected and delivered
- Prepare sales contracts for orders obtained
- Keep sales records and expense accounts
- Tell customers about prices and credit terms
- Compile lists of possible new customers

HOURS OF WORK/TRAVEL

- Some of these workers travel over an assigned territory to call on businesses. Often, these workers set their own working hours.
- SALESPERSONS who work in a store generally have a standard 35-40 hour work week. However, they may be required to work some during evenings and weekends.

SAMPLE PLACES OF WORK

- Retail companies that sell boats and marine equipment and supplies
- Boat manufacturers and distributors

4345 SALESPERSONS; SPORTING GOODS

These people sell sporting goods used for athletic activities. Some call on stores and other establishments in an assigned area to sell athletic, playground or other such equipment. Others sell sporting goods and athletic equipment to customers in a store or showroom. These workers help customers choose the products they need and then fill out sales contracts or sales slips. They also may take payments, wrap goods, keep sales records, check inventories and perform other related tasks.

SAMPLE WORK ACTIVITIES

- Sell toys, games, and playground equipment to retail stores in an assigned territory
- Sell tennis rackets, golf clubs, and other sports items to customers in the sports department of a store
- Advise customers on the types of sporting equipment that would be best for specific purposes
- Explain how to take care of sporting equipment
- Tell customers about places for hunting, fishing, or skiing
- Prepare monthly reports that describe the types of goods sold
- Arrange for the delivery of sporting goods to customers
- Tell customers about prices for items and credit terms

HOURS OF WORK/TRAVEL

- Some of these workers travel over an assigned territory to call on businesses and other establishments.
- Often, these workers may set their own work hours.
- SALESPERSONS who work in stores usually have a standard work week, with some weekend and evening work.

SAMPLE PLACES OF WORK

- Wholesale companies and outlets that sell or distribute sporting goods
- Sporting goods shops, department stores, toys shops, and other retail establishments

4346 SALESPERSONS; GARMENTS AND TEXTILE PRODUCTS

These workers sell clothing and accessories to customers in a store or showroom. They greet customers and help them select and try on garments. They may measure customers, advise them on styles, and answer their questions about the care and cost of garments. They may suggest gift items or sizes. They prepare sales slips and take payments or credit cards for purchases. They also may wrap purchases, take inventories of stock, and place new items on display.

SAMPLE WORK ACTIVITIES

- Observe people's age, coloring, figure, and shape of face to select garments suitable for them
- Measure customers, using a tape measure
- Select garments to fit customers
- Advise customers try on garments
- Fit garments on customers and use pins to mark necessary alterations
- Estimate the cost of altering, remodeling, or repairing garments
- Answer questions about the weave, washability, strength, or color fastness of various fabrics
- Suggest gift items or sizes of infants' clothes
- Receive fur garments for storage
- Sell clothing items such as:
 - . Corsets, girdles, and other foundation garments
 - . Fur capes, coats, and stoles
 - . Infants' and children's clothing
 - . Men's and boy's suits, trousers, and coats
 - . Neckties, shirts, belts, and other men's accessories
 - . Women's coats, sportswear, dresses, and fashion accessories

HOURS OF WORK/TRAVEL

- Many retail clothing stores are open during evenings and on Saturdays. SALESPERSONS may work during these times. They also may work on a part-time basis. These jobs often offer opportunity for temporary work during busy shopping seasons, such as holidays.
- A few of these SALESPERSONS may visit customers' homes by appointment to sell garments on a shop-at-home basis.

SAMPLE PLACE OF WORK

- Department stores
- Retail clothing stores
- Specialty shops that sell clothing

4347 SALESPERSONS; BOOKS, STAMPS, COINS, AND STATIONERY

These workers sell books, magazines, stamps, coins, stationery, greeting cards, and related products in a store. They show items to customers and suggest selections that might meet their needs. They may discuss the value of items with customers or help them choose gift items. They prepare sales slips and take payments for purchases. They may wrap purchases, arrange product displays, and take inventory of stock. Some appraise (assign a value to) coins and stamps and buy them from collectors for resale.

SAMPLE WORK ACTIVITIES

- Sell books in a book store or department store
 - . Suggest books for people to buy
 - . Review current literature, publishers' catalogs, and book reviews
 - . Arrange books on shelves and racks according to type, author, or subject matter
- Sell stamps or coins to collectors
 - . Locate stamps or coins described by customers
 - . Discuss the value of stamps with customers
 - . Use a magnifier and catalog to appraise (assign a value to) or classify stamps or coins
 - . Buy coins or stamps for resale
 - . Take payments and make change
 - . Set up coin displays

HOURS OF WORK/TRAVEL

- Many retail stores stay open Saturdays and evenings. SALESPERSONS at these stores may work during these times. Some may work part-time.

SAMPLE PLACES OF WORK

- Retail stores, including:
 - . Book stores
 - . Stationary stores
 - . Coin and stamp specialty shops
 - . Department stores

4348 SALESPERSONS; FURNITURE AND HOME FURNISHINGS

People in these jobs sell goods used in the home such as furniture, floor coverings, drapes, glass and chinaware, metalware, and related products. Some sell products by traveling to call on businesses and industries. Others sell goods to customers in a store or showroom.

SAMPLE WORK ACTIVITIES

- Examine worn or damaged furniture and determine what kinds of repair are needed
- Set up displays to show goods such as floor coverings, carpets, and rugs
- Advise customers as to the style, type, color, strength, and finish of household goods that will best serve their needs
- Estimate the costs of goods and repairs
- Prepare sales reports and expense accounts
- Handle customer complaints about the delivery of damaged or incorrect goods

HOURS OF WORK/TRAVEL

- Some jobs require travel to call on businesses or industries or to meet with customers in their homes
- Some jobs require long or irregular hours
- Some jobs require evenings and weekend work

SAMPLE PLACES OF WORK

- Furniture wholesale and retail outlets
- Department stores
- Jewelry stores

4351 SALESPERSONS, SHOES

These people fit and sell shoes, boots, and other footwear to customers in a store. They measure customers' feet, select the desired style, color, and size shoes from stock on hand, and help customers try on shoes. They also set up shoe displays, advise on styles, prepare sales slips, take payments, and package or wrap shoes. Some also take inventory of shoes on hand and order new shoes from the stockroom. A few sell shoes to customers in their homes.

SAMPLE WORK ACTIVITIES

- Greet customers and find out what type of shoes they desire
- Measure customers' feet with a special foot-measuring device
- Look at shoes on customers' feet to see if they fit correctly
- Stretch and pad shoes
- Sell related products, such as handbags, hose, and shoe polish
- Draw outlines and take measurements of customers' feet to order custom-made shoes
- Sell corrective shoes to people who have foot problems
- Read doctors' orders to determine the types of corrective shoes needed by customers

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 35-40 hour work week.
- Some of these jobs require evenings or night work.
- Some of these jobs require weekend work.

SAMPLE PLACES OF WORK

- Shoe stores
- Wholesale and retail factory outlets
- Department stores that sell shoes
- Sporting goods shops that have shoe departments

4352 SALESPERSONS; RADIO, TELEVISION, HIGH FIDELITY AND HOUSEHOLD APPLIANCES

People who work in these jobs sell items such as radios, TV's, stereo equipment, stoves, washers, dryers, vacuum cleaners, and sewing machines. Some travel to sell products to businesses or industries in an assigned area. Others sell products to customers in a store or showroom. They also fill out sales slips, arrange credit terms, display new products, and advise customers on the use and care of products.

SAMPLE WORK ACTIVITIES

- Show customers how to thread and adjust sewing machines and set machines to sew various stitches
- Quote prices and credit terms and prepare sales contracts for radio and TV orders obtained from dealers and customers
- Judge the trade-in value of customers' used appliances
- Show products in a catalog to customers
- Prepare sales reports and expense accounts
- Take inventories of stock on hand and order new stock from the stockroom
- Tell customers how to install new stereo equipment

HOURS OF WORK/TRAVEL

- Most of these jobs involve a standard 35-40 hour work week
- Some of these jobs require evening and weekend work.
- Some of these jobs require travel over an assigned route.

SAMPLE PLACES OF WORK

- Wholesale and retail dealerships
- Appliance stores
- Radio and TV dealerships
- Department stores
- Discount stores

4353 SALESPERSONS; HARDWARE

These workers sell hardware and related items, such as power tools, handtools, paints, garden supplies, and electrical and plumbing supplies. They may sell products to customers in a store, or to businesses that use or resell such items. They show products to customers, advise them in making selections and on the uses of tools and materials. Those who call on businesses quote prices and credit terms and prepare sales contracts and expense accounts. Those in stores prepare sales slips and take payments. They also may wrap purchases, arrange product displays, and take inventory of stock.

SAMPLE WORK ACTIVITIES

- Advise customers on the quality of various types and brands of products
- Show customers how to use hardware, tools, and equipment
- Estimate the amount of paint required to cover a given area
- Advise customers on methods of mixing paint
- Tell customers how to cut screens, glass, wire, or window shades to desired sizes or lengths
- Advise customers on the selection of plants and methods of planting and caring for them
- Suggest garden tools suited for specific purposes
- Water and trim growing plants on sales floor
- Take payments and make change
- Set up displays of merchandise

HOURS OF WORK/TRAVEL

- **HARDWARE SALESPERSONS** may work during evenings and weekends on Saturdays. Some work part time.
- **HARDWARE REPRESENTATIVES** travel throughout an assigned territory to call on businesses and take orders for products.

SAMPLE PLACES OF WORK

- Retail stores, including hardware stores, greenhouses, garden supply shops, and department stores
- Hardware products manufacturers and distributors

4354 SALESPERSONS; COSMETICS, TOILETRIES, AND ALLIED PRODUCTS

These workers sell items such as makeup, perfumes, soaps, face creams, and wigs. They may sell these items to customers in a store or to stores or businesses that use or resell such products. They show products or samples to customers, point out features of articles, and advise on selections. They quote prices and credit terms, prepare sales contracts or slips, and may take payments. Those who travel to call on accounts keep business and expense records. Those who work in stores may arrange product displays, wrap purchases, and take inventory of stock.

SAMPLE WORK ACTIVITIES

- Sell wigs, falls, and other hairpieces in a salon, department store, or speciality shop, or at customers' homes
 - . Look at people's facial features to select wigs for them to try on
 - . Fit wigs on customers
 - . Comb and brush wigs to style them
 - . Advise customers on the care and homestyling of wigs
 - . Style wigs and hairpieces for display purposes
 - . Clean, cut, and style hairpieces for customers
- Sell cosmetics, perfumes, soaps, face creams, and other toilet items
 - . Show customers how to apply various types of makeup
 - . Explain the good points of various products
 - . Suggest shades or types of makeup to suit customers' complexions
 - . Weigh and mix face powders to obtain desired shades, using a formula

HOURS OF WORK/TRAVEL

- These SALESPERSONS may work during evenings, weekends, and some holidays. They may also work part time.
- Some jobs involve traveling throughout an assigned territory to call on and sell products to business accounts or to sell products to customers in their homes

SAMPLE PLACES OF WORK

- Retail stores, including department stores, drug stores, and specialty stores
- Stores that sell wigs and hairpieces
- Cosmetic manufacturers and distributors

4356 SALESPERSONS; JEWELRY AND RELATED PRODUCTS

These people sell jewelry, gems, watches, and other similar items. Some travel over an assigned area to sell products to business and industrial firms. Others sell products to customers in a store or showroom. They point out the different features of jewelry to customers, quote prices and credit terms, and prepare sales contracts or slips. Those who travel often carry catalogs or sample cases so that they can show products. In stores they may take payments or get credit approved for purchases.

SAMPLE WORK ACTIVITIES

- Advise customers on the quality, cut, and value of Jewelry and Gems
- Inform customers of the different grades of watch movements
- Suggest designs for custom Jewelry
- Travel to a customer's place of business to sell Jewelry items and watches
- Talk with customers on a sales floor or by phone to take orders for Jewelry items
- Show customers samples of Jewelry products
- Inform customers of the dates Jewelry orders will be delivered
- Prepare reports that describe the number and amounts of sales
- Place new Jewelry items on display in a store or showroom
- Fill out sales slips and take payments for products

HOURS OF WORK/TRAVEL

- Some of these jobs require travel over an assigned area to call on business and industrial firms.
- Some of these jobs may require some evening and weekend work.

SAMPLE PLACES OF WORK

- Jewelry manufacturers and distributors
- Watch manufacturers and distributors
- Jewelry stores
- Department stores and other retail trade stores that sell Jewelry and related products

4359 SALESPERSONS; N.E.C.

People in these jobs sell products in specialty shops, department stores, or wholesale outlets. They greet customers and find out the type and amounts of goods they desire. They suggest selections, and point out selling points of articles. They also may explain how to use or care for products. They prepare sales slips and take payments or process credit cards for items purchased. They also may put products on display, wrap purchases, and take inventory of stock.

SAMPLE WORK ACTIVITIES

- Sell flowers, potted plants, and floral pieces
 - . Advise customers on flowers and arrangements to use for specific occasions
 - . Arrange displays of flowers and vases
 - . Contact florists in other communities to place orders for out-of-town deliveries
 - . Design and make up corsages and wreaths
- Sell yard goods made from cotton, wool, and other fibers
 - . Unroll bolts of cloth to show fabrics to customers
 - . Advise customers on the type and amount of material required to make garments and drapes
 - . Discuss the weave, texture, color, and washability of fabrics
 - . Suggest colors that go well together
 - . Measure and cut fabric, using scissors and a yardstick
 - . Sell dress patterns, needles, threads, and other sewing accessories
- Sell hearing aids to customers in a store
 - . Test customers' hearing, using an audiometer
 - . Show customers how to use hearing aids
 - . Fit hearing aids to customers
- Sell pets and pet accessories

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- . Advise customers on the care, trainings, feeding, and living habits of pets
 - . Explain the use of equipment, such as aquarium pumps and filters
 - . Feed and water pets
 - . Clean cages and tanks
- Sell photographic and optical equipment, such as cameras, projectors, film, and binoculars
 - . Show customers how to use photographic equipment
 - . Explain the uses of various cameras, filters, and lenses
 - . Receive film for processing
 - Sell toy trains and accessories, such as tracks, batteries, tunnels, and signal lights
 - Sell paintings, art materials, and picture frames
 - Sell merchandise in many departments in a store, on an as-needed basis

HOURS OF WORK TRAVEL

- Many SALESPERSONS work on Saturdays. Some may work evenings as well.
- These jobs generally offer opportunity for part-time work.

SAMPLE PLACES OF WORK

- Retail stores, including:
 - . Curio shops
 - . Department stores
 - . Flower shops
 - . Hearing aid shops
 - . Ice plants
 - . Pet shops
 - . Photography shops
 - . Toy shops
 - . T

436 SALES OCCUPATIONS: OTHER

Workers in these occupations sell products to customers. They may work in department stores, businesses that offer services, or as street vendors. Some sell products from a cart or truck while others sell door-to-door. They may help customers select goods or simply receive money for goods or services selected. Some clerks make out receipts for goods sold or received for services. They may operate cash registers or keep records. They may check and stock shelves, package purchases, or take inventory.

4362 SALES CLERKS

SALES CLERKS sell a variety of products to customers in such places as department stores, drugstores, hardware stores, and grocery stores. They show items to customers and help them decide what to buy. They also do such things as stock shelves with goods, wrap and package customers' purchases, take payments for goods, make change, and keep records of sales.

SAMPLE WORK ACTIVITIES

- Show products to customers in a drugstore, candy store, or liquor store, or some other shop
- Stock counters, shelves, and tables with goods that are for sale
- Use a cash register or adding machine to total the costs of goods
- Collect sales tax on goods
- Direct customers to a fitting or dressing room or to a cashier
- Stamp, mark, or tag prices on goods
- Show customers goods in a catalog
- Weigh food items to figure out how much to charge for them
- Pack items that customers buy in bags, wrappers, or cartons

- Clean display cases, shelves, and counters

HOURS OF WORK/TRAVEL

- Many of these jobs require weekend work.
- Some of these jobs require evenings and night work.
- Some of these jobs allow for part-time work.

SAMPLE PLACES OF WORK

- Department stores
- Hardware stores
- Candy and bakery shops
- Self-service food stores
- Liquor stores
- Grocery markets
- Trading stamp redemption centers
- Any retail store

4363 COUNTER CLERKS

COUNTER CLERKS work in businesses that offer services such as car rentals, dry cleaning, printing, repair, or storage. They take orders for services and may receive articles to be serviced. They advise customers of the types and costs of services available and the dates when orders will be completed. They may examine articles received, record information about them, and tag them. They also collect payments for services and may keep records of cash receipts and articles received and delivered. In some jobs, workers may have other duties in addition to those described above.

SAMPLE WORK ACTIVITIES

- Use an adding machine to total the cost of dry cleaning customers' laundry
- Keep records of garments left by customers
- Receive, type, route, and collect payments for telegraph messages
- Cash money orders for customers
- Rent cars to customers at an airport or hotel
- Quote prices for car rentals, based on per-day and per-mile rates
- Complete rental contract forms and get customers to sign them
- Receive clocks and watches to see what repairs are needed
- Examine broken watches to see what repairs are needed
- Estimate the cost of repairing a clock
- Estimate the value of fur garments received for storage
- Record descriptions of garments, their estimated values, and the names and addresses of their owners
- Measure ruzz received for cleaning
- Tag ruzz so that workers will know how they should be cleaned
- Tell customers when cleaning or repair services will be completed
- Prepare work tickets for articles to be cleaned or repaired
- Weigh soiled laundry items to figure out the amount to charge for cleaning them.

HOURS OF WORK/TRAVEL

- Some of these jobs may require evenings and/or weekend work.

SAMPLE PLACES OF WORK

- Laundry and dry-cleaning stores
- Self-service laundries

- Telegraph companies
- Car rental companies
- Retail trade stores that offer repair services
- Storage companies
- Repair shops

4364 CASHIERS

CASHIERS handle payments from customers for businesses. Most CASHIERS receive money, make change, fill out charge forms, and give receipts. They also may sell tickets or goods, add up the cost of purchases, and operate several types of machines. A growing number of them use electronic registers that automatically add in taxes and record inventory numbers and other information. Some use adding machines or change-dispensing machines.

SAMPLE WORK ACTIVITIES

- Take orders and receive payments for food and drinks
- Receive cash and checks from customers in person or by mail
- Use a charge plate to prepare credit card slips for customers to sign
- Count money to make sure the amount is correct
- Give out receipts for payments made by customers
- Make change and cash checks
- Record the amount of money received and paid out
- Operate office machines, such as calculators, bookkeeping, and check-writing machines
- Sell travelers checks in a bank
- Pay purses (winnings) to owners of winning race horses
- Use an adding machine to add up the costs of goods bought by customers
- Record the amount of sales on a cash register
- Compare the amount of cash received in a day with the recorded amount of cash sales
- Pay off bets placed by patrons of a gambling establishment
- Cash checks, prepare money orders, and take payments for utilities bills
- Take money from truck drivers and give them receipts for cash collected on shipments
- Collect tolls charged for the use of a bridge, highway, or tunnel
- Count, sort, and issue money at a racetrack
- Sell tickets for travel on a ferryboat, streetcar, or bus
- Sell tickets at a skating rink, or amusement park

HOURS OF WORK/TRAVEL

- Depending upon the job, some CASHIERS may be required to work during evenings and on weekends. Many of these jobs offer opportunity for part-time work.

SAMPLE PLACES OF WORK

- Supermarkets and other food stores
- Department stores, drugstores, shoestores, hardware stores, furniture stores, and other kinds of retail stores
- Restaurants and cafeterias
- Theaters and hotels
- Schools and hospitals
- Federal government, primarily in the Department of Defense, in clubs, cafeterias, and exchanges on military bases
- Amusement parks, baseball parks, racetracks, gambling houses, and other entertainment centers
- Banks and other financial institutions
- Public utilities
- Transportation companies,
- Any business

4365 NEWS VENDORS

NEWS VENDORS sell newspapers. Some sell newspapers to customers on the street or from newspaper stands. Others sell and deliver newspapers door-to-door along an assigned route or in a neighborhood. These workers may walk or ride a bicycle to deliver newspapers. They collect payments for newspapers and return change. Some also keep records of customer accounts.

SAMPLE WORK ACTIVITIES

- Sell newspapers to customers on the street
- Deliver newspapers to people's homes
- Collect money for newspapers that are sold and return correct change to customers
- Buy newspapers at wholesale price and sell them to customers at retail price
- Walk or ride a bicycle to deliver newspapers
- Keep records of accounts
- Contact people and try to sell them newspaper delivery subscriptions

HOURS OF WORK/TRAVEL

- Many of these jobs require early morning, evening, or night work.
- Many of these jobs require weekend and holiday work.

SAMPLE PLACES OF WORK

- Newspaper companies
- Newspaper stands
- As an independent vendor or newspaper carrier

4366 STREET VENDORS, DOOR-TO-DOOR SALESWORKERS, AND RELATED OCCUPATIONS

People in these jobs sell products in places other than stores. For example, some sell various items to guests at home parties; magazines, books, or cosmetics, from door to door; flowers to ships' passengers or candy and cigars to hotel or nightclub guests; fruits, vegetables, or ice cream from a cart or truck; refreshments at sports events and parades. These workers take payments and make change. Some take orders and deliver products.

SAMPLE WORK ACTIVITIES

- Arrange the date, time, and number of guests for a sales party in someone's home
- Show and sell products to guests in a home
- Go from door to door in a neighborhood to sell books, brushes, or make-up
- Tell people about the good qualities of products
- Deliver products, collect money, and make change
- Make leis (wreaths of flowers) and sell them to people on a ship or at a dance
- Walk among guests in a nightclub to sell cigarettes or flowers
- Sell sandwiches, candy, and drinks to passengers in a railroad car
- Push a cart along streets to sell fruits, flowers, or ice cream
- Call out food items for sale at a ballgame
- Plan and conduct a fund-raising program for a charity
- Write to people to ask them to give money for a charity or some other cause
- Phone businesses to ask that employees donate blood for a blood bank
- Call people to explain services or products that are for sale
- Use a prepared sales talk to try to persuade people to buy products

HOURS OF WORK/TRAVEL

- Many of these Jobs require work during evenings and on weekends.
- Many people in these Jobs work part time.

SAMPLE PLACES OF WORK

- Companies that hire workers to sell products at people's homes
- Magazine companies
- Encyclopedia companies
- Brush and cosmetic companies
- Railroad companies
- Hotels and nightclubs
- Charity organizations
- Ice cream companies
- For yourself, as an independent salesperson or vendor

4367 SALESPERSON; PARTS

People in these Jobs work behind counters in repair shops or parts stores. They sell spare or replacement parts for such items as appliances, machines, and equipment. They also do such things as prepare sales slips, receive payments, and keep records of the parts kept in stock.

SAMPLE WORK ACTIVITIES

- Look at broken parts to determine the make, year, and type of replacement part needed
- Read parts catalogs to find the stock number and price of parts
- Write parts needed on an order form
- Sell parts to customers, collect money, and return change
- Look at returned parts to see if they can be exchanged
- Order parts from a catalog when they are out of stock
- Keep records of sales and exchanges of parts
- Mark and store parts in the stockroom
- Use a parts and labor price list to figure out how much it will cost to repair appliances, machines, and other equipment

HOURS OF WORK/TRAVEL

- Most of these Jobs involve a 35-40 hour work week.
- Some of these Jobs may require weekend and/or evening work.

SAMPLE PLACES OF WORK

- Automobile repair shops
- Parts or equipment stores
- Motorcycle repair shops
- Parts departments in discount or department stores
- Appliance stores and repair shops

4369 SALES OCCUPATIONS; SERVICES, N.E.C.

People in these jobs sell or rent out specialty products or sell special services. Some sell items such as cemetery plots, season tickets, special courses, or custom-made movies. Some rent out bicycles, boats, fishing equipment, cars, tools, clothing, or TV sets. They may sell items at a store or counter, or by phoning, writing to, or visiting potential customers. They explain the products or services available, quote prices, take orders, and fill out sales contracts or rental forms. They also compute fees and accept payments.

SAMPLE WORK ACTIVITIES

- Contact businesses to sell movies or recordings designed to inform people about goods, services, or procedures
- Contact people to encourage them to enroll in a technical, industrial, or commercial school
- Telephone, visit, or write to people to persuade them to buy season tickets to sports or cultural events
- Sell dancing instructions to patrons at a dance studio
- Sell burial needs, such as cemetery plots, crypts, and grave markers
- Rent formal clothes or costumes to customers
- Rent tools and equipment to customers
- Charter or rent airplanes to licensed pilots
- Rent baby strollers and wheelchairs in shopping or amusement areas
- Rent bicycles to patrons at a beach or resort,
- Rent canoes, motorboats, rowboats, and fishing equipment
- Rent TV sets to hospital patients
- Rent trailers, trucks, and other power-driven equipment to customers

HOURS OF WORK/TRAVEL

- Many of these jobs require some weekend work.
- Some of these jobs require travel to people's homes or places of business to promote the sale of goods or services. However, much of the type of work is usually done by phone.

SAMPLE PLACES OF WORK

- Companies that sell custom-made movies and other audio-visual products and services
- Vocational, technical, and commercial schools
- Groups that sponsor theater, sports, or cultural events
- Car-rental firms
- Shops that sell or rent formal clothing, such as gowns and tuxedos
- Funeral parlors and cemeteries
- Businesses that make and sell burial materials, such as monuments and grave markers
- Stores that rent out tools and equipment to customers
- Companies that rent out wheelchairs, baby strollers, and similar equipment at public places
- Bicycle-rental shops and counters
- Boat-rental firms, including those at parks and beaches
- TV-rental counters at hospitals
- Automatic car washes

44 SALES RELATED OCCUPATIONS

These workers perform such sales-related tasks as determining the value of goods for pawning, sales, or insurance purposes. They may work as appraisers, auctioneers, or comparison shoppers. Others may collect past-due accounts, demonstrate products, model for advertisements, take measurements for draperies or other custom goods, or provide other sales support services.

444 APPRAISERS AND RELATED OCCUPATIONS

People in these jobs examine objects to determine how much they are worth. The objects they appraise include jewelry, cameras, machinery, works of art, and many other items. Some estimate the value of articles to be pawned, insured, or sold. Others inspect paintings, antiques, and other works of art to see if they are authentic and to assign values to them. APPRAISERS may weigh items, inspect them with magnifying glasses, or use chemical tests in deciding the value of objects.

SAMPLE WORK ACTIVITIES

- Weigh gold or silver articles on coin scales to see how much they are worth
- Test gold objects, using acids, to see how pure the gold is
- Inspect diamonds and other gems for flaws and color, using a loupe (magnifying glass)
- Assign pledge values to articles based on listings of wholesale prices
- Refuse to accept items for pawning that have no pledge value
- Sell pledged (pawned) items that owners have not claimed on time
- Appraise machinery that belonged to a bankrupt firm
- Estimate the value of property to be held as security for bank loans
- Prepare reports for insurance companies that describe the condition and value of property to be insured
- Examine paintings for color values and style of brushstrokes
- Judge the value of antiques and sculptures

HOURS OF WORK/TRAVEL

NO INFORMATION

SAMPLE PLACES OF WORK

- Insurance companies
- Banks and other lending institutions
- Pawnshops
- Auction houses
- Private appraisal firms
- Art museums
- For yourself, as an independent appraiser

445 DEMONSTRATORS, PROMOTERS, AND MODELS

People in these jobs work to create buying interest on the part of the public. They do this in a number of ways. Some demonstrate and answer questions about merchandise in a store. Others model clothes, pose for advertising pictures, or visit people to persuade them to join a club or buy a store's products or services. Duties may range from promoting a store's sales by playing Santa Claus to escorting potential buyers of real estate on tours of property. Workers also may sell the products or services they promote.

SAMPLE WORK ACTIVITIES

- Promote goodwill for local business firms
- Develop lists of possible clients from sources such as newspaper items, utility records, and local merchants
- Visit new residents, new parents, and newly married couples to explain the services offered by local merchants
- Visit or contact people to persuade them to join a club or trade association
- Display products and explain their features
- Show customers how products are used, produced, or maintained
- Visit schools and community groups to demonstrate the use and care of home appliances
- Attend exhibits to answer visitors' questions, and explain the exhibits.
- Show customers in a store how to operate sewing machines

- Escort possible real estate buyers on tours of property
- Model garments, such as dresses, coats, underclothing, and swimwear, for garment designers
- Play a character such as Santa Claus or Snow White to promote sales activity in a store
- Pose for pictures to be used in ads

HOURS OF WORK/TRAVEL

- The work hours of these workers vary. Some jobs may require evenings and/or weekend work.
- Some of these jobs require travel to call on potential customers, pose for pictures, attend exhibits, or model clothing.

SAMPLE PLACES OF WORK

- Civic and other organizations
- Fashion houses
- For yourself, as an independently employed model or sales promotion agent
- Product manufacturers
- Retail stores
- Sales promotion agencies
- Utility companies

446 SHOPPERS

SHOPPERS visit or contact stores to buy or gather information about products for customers or a store. Some select and buy items for customers as requested by mail or phone. Others phone auto dealers to find types of cars desired by customers. Still others, called COMPARISON SHOPPERS, visit stores to get information about the prices, packaging, types, and styles of goods in competing stores. This information helps the companies they work for to set prices and buying policies.

SAMPLE WORK ACTIVITIES

- Compare prices and physical characteristics of goods in competing stores
- Check out customer complaints about the prices of items by going to other stores to see what the same items cost there
- Prepare reports about the prices and types of items that have been checked
- Buy items in different stores so they can be compared for quality
- Check with store buyers to see if advertised prices and sales dates are correctly described in ads

HOURS OF WORK/TRAVEL

- Because evenings and Saturdays are important times for store sales, some SHOPPERS may have to work during these times.

SAMPLE PLACES OF WORK

- Department stores
- Clothing stores
- Hardware stores
- Retail businesses

447 AUCTIONEERS

AUCTIONEERS ask people to bid for articles at an auction, and then sell each item to the highest bidder. Before an auction begins, they decide what articles are worth and arrange them according to their type or value. They may select articles to be auctioned or let the bidders choose items they wish to bid on. They begin the auction by asking for a starting bid. They also describe the merchandise and may tell the bidders about the history or ownership of items. They finally sell each item to the highest bidder.

SAMPLE WORK ACTIVITIES

- Examine articles before sale and decide what they are worth
- Assemble articles in lots according to their value
- Select articles to be auctioned
- Decide how much money to ask for items at the beginning of an auction
- Describe items for sale and tell bidders about their history
- Encourage people to bid on articles
- Sell items to the highest bidder
- Write newspaper ads to let the public know about auctions

HOURS OF WORK/TRAVEL

- AUCTIONEERS may work at nights or on weekends. Their work hours may be irregular.
- AUCTIONEERS must often travel to conduct auctions in nearby cities and towns.

SAMPLE PLACES OF WORK

- Auction companies
- Wholesale and retail companies
- Real estate companies
- For yourself, as an independent auctioneer

449 SALES OCCUPATIONS; OTHER, N.E.C.

These workers perform tasks to support the sales activities of a business or firm. They engage in various activities such as advising brides-to-be on the selection of clothing and china, recording bids at an auction, or measuring people's windows for drapes. Some wrap gifts, mark prices on goods, or make deliveries. Some assist customers in trying on clothing or in trying on eyeglass frames.

SAMPLE WORK ACTIVITIES

- Advise women on how to plan their weddings
 - Compile lists of prospective brides from newspaper articles
 - Mail out ads that describe wedding services
 - Advise brides on the selection of silverware patterns, china, and catering services
- Call at customers' homes to take measurements for making drapes and upholstery
 - Draw sketches of work to be done
 - Discuss the selection of fabric with customers
 - Inform customers of material and labor costs
- Measure and fit customers with eyeglass frames

- . Read prescriptions to obtain lens specifications
 - . Measure customers for size of eyeglass
 - . Advise customers in choosing eyeglass frames
 - . Adjust eyeglasses to fit customers
- Deliver products and perform other tasks for a retail store
 - . Mark prices on articles and stack them on counters
 - . Collect money from customers
 - . Sweep floors, run errands, and wait on customers
 - Gather and count garments tried on by customers in a store
 - . Hang garments on display racks, according to size
 - . Refasten belts, buttons, and zippers on garments
 - . Count the number of garments carried into and out of dressing rooms

HOURS OF WORK/TRAVEL

- Many of these jobs may require work during weekends. Some may require evening work as well.
- Some of these jobs require local travel to attend auctions, deliver purchases, or take measurements in customers' homes.

SAMPLE PLACES OF WORK

- Retail stores, including specialty shops and department stores
- Auction companies
- Laundry plants
- Any business or group that uses posters or banners to advertise products or events