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ABSTRACT

Part of a course designed to acquaint high school students with basic information concerning careers in public service, this student guide is one of nine (each with accompanying teacher's manual) which constitute a course entitled "Orientation to Public Service." Focus in the units covered by the guide is on resources management, one of eight major public service occupational groups included in the course. The student is introduced to the six job families of resources management: parks, forests, agriculture, conservation, fish and game, and pollution control. Specific job titles, job duties, functions, and requirements are presented. Contents are divided into several units of reading and related activities, some designed for completion independently, some by groups. (The accompanying teacher's manual is CE 013 658. The total course is the first of a series of three developed as a comprehensive approach to vocational skill development in public service for Georgia high schools. Also available is a guide for the whole four-quarter program, Applied Program of Public Service, CE 013 652.) (JT).

RESOURCES MANAGEMENT

A MAJOR OCCUPATIONAL GROUP IN THE PUBLIC SERVICE CLUSTER

- Introduction
- Requirements and Qualifications
- Functions and Duties
- Nature and Conditions
- Employment Opportunities
- Future Careers

A Unit in the Public Services Cluster
Applied Program of Public Service
Gwinnett County Schools
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Daniel Cowart, Project Coordinator
Melinda Skiles, Project Implementor

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In addition, the following people and organizations directly contributed to the development of these materials.

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FOREWORD

This "Orientation to Public Service" series is one of a set of nine student centered books designed to acquaint high school students with basic information concerning careers in public service. Each book addresses itself to either a major occupational group in public service or an important supplemental area of study necessary to the understanding of public service. In addition to the student centered materials found in this book, a teacher's guide outlining how this book can be used in a course setting has been developed for the potential user.

The "Orientation to Public Service" course is the first in a series of three courses developed as a comprehensive approach to vocational skill development in Public Service for Georgia High Schools. While materials in this course are valuable to the student without benefit of the remaining two courses in the series, a student would normally enroll in "Preparing for Public Service" and the "Public Service Community Skill Development Program" subsequent to the Orientation course.

As with all curriculum materials and guides, the information contained here is a beginning point. In order for this course to effectively meet the needs of each individual student, the user must adapt to local and individual student needs. As such, I make a strong recommendation that extensive use of the curriculum guides be used with the materials. Included in these guides is a wide range of suggestions for helping these materials meet the local classroom teacher's needs.

This material was prepared by the "Applied Program of Public Service" under a direct grant to Gwinnett County Schools from the Georgia State Department Office for Adult and Vocational Education (OAVE). OAVE is presently under the direction of Dr. Russell Clark, Assistant Superintendent for Adult and Vocational Education Programs.

In the development of these materials special consideration should go to Mrs. Melinda Skiles. Her tireless efforts in evaluating these materials for their useability by the classroom student, has been invaluable.

Daniel L. Cowart

Project Coordinator and Operations Director

RESOURCES MANAGEMENT

Introduction

Do you enjoy the outdoors? Are you concerned about the misuse of our environment and about pollution? Do you want to take positive action to solve problems concerning the environment? If you do, Resources Management may be a career field for you.

WHERE AM I GOING?

By the time I complete this activity I will know the 6 job families in Resources Management.

HOW WILL I GET THERE

1. Read the section on job families.
2. Write letters requesting information.
3. Read Vocational Biographies
4. View a filmstrip on Careers in this MOG.

HOW WILL I KNOW . . .

I will complete the Self Check Activity.

I will use the information I receive to complete this MOG.

I will answer a set of questions on the biographies.

I will answer a set of questions on the filmstrip.

INTRODUCTION

Resources Management is concerned with planning for and carrying out plans to preserve, maintain, and restore our natural environment. People working in this field perform a wide variety of tasks depending upon the organization which employs them.

The common concern of every person employed in resources management is for conservation and planned management of natural resources. These people make and implement those plans to prevent exploitation, neglect, and destruction of the environment. A resources manager organizes and leads others instead of actually doing the manual labor. Stated another way, the resource manager draws up the plans and sees they are carried out.

JOB FAMILIES

The major families within resources management are: parks, forests, agriculture, conservation, fish and game, and pollution control. The following will give more information about each family.

Parks: The parks job family needs someone who can wear many "hats" and do a variety of jobs. The parks employee is called upon to serve as host, educator, law enforcer, protector, and custodian of the park and to handle visitors to the parks. The last responsibility is particularly hard during peak vacation months. Beyond these major responsibilities, park employees are hosts and educators as they give visitors to the park helpful information about the park and its heritage.

There are many parks in the U. S. and its possessions ranging from Unicoi in the North Georgia Mountains to an underwater park in the Virgin Islands. Regardless of where the park is, providing people a clean, wholesome environment to enjoy our natural heritage can be exciting, rewarding, and fun!

Forests: The forests job family involves management of a multi-use resource – the forest. Many industries such as paper and building depend upon forest products. The forest provides cover for animals and provides the necessary conditions for moisture to be held in the earth. The forest has to be carefully managed to avoid harm to our environment, thus endangering our survival.

The employee who works in forest management does many things. Among those things are watershed management, providing for recreational use in forests, sale of timber from public lands, road location, setting timbering boundaries, planning for logging and slash disposal, reforestation and rehabilitation of the forest land. All of these tasks plus many more require the forest manager to have knowledge and skills (know-how) to plan and to implement ways to have the forest produce necessary products, but at the same time avoid throwing the balance of nature off-balance.

Agriculture: The American farmer provides food for himself and his family plus 42 other Americans. Agriculture is certainly one of the most important industries we have. Farmers today are a very competent and self-sufficient group; however, special technical assistance is necessary often. Generally this assistance is provided through county level agencies, often in the person of the County Agent.

The Agriculture Manager is concerned with problems of individual farmers as well as those of concern to all farmers. The agriculture manager performs tasks in crop production, insect and disease control, farm subsidies, and provides assistance to farmers. The agriculture manager may coordinate plans to destroy a common pest such as the fire ant in Georgia. The agriculture resource manager is concerned with helping the farmer to get the most production from the soil for now and in the future.

Agriculture management may be non-farm related, too. Many persons who are graduates of agricultural colleges may do research for state and national agriculture experimental stations. These persons provide information to farmers who manage large farms or agri-businesses and to local consultants such as county agents. The ultimate purpose of agricultural research is to wisely manage the use of resources and production on American farms.

Conservation: The conservation job family covers a broad group of careers. It has a twofold purpose. First, it is concerned with activities which preserve and replenish all natural resources. The conservation manager will oversee a variety of specialized tasks ranging from construction projects to maintain rock formations to planting trees to lower carbon dioxide in the air.

Second, it is concerned with problems in conservation not handled as a priority by other agencies or job families. This includes mineral resource claims management, flood control, appraisal of farm properties,and preparation of studies and analyses of hazards in or to the environment.

Fish and Game: The employee in this job family is most popular with the sportsmen and sportswomen of America. The fish and game manager makes sure that enough fish and game are available for those who enjoy fishing and hunting. However, the fish and game manager's most important effort is to manage the land, water, plants, and animals for an environment conducive to wildlife reproduction and survival. This manager is concerned about providing sport, but not at the expense of the environment or wildlife.

In recent years more and more people have visited or inhabited once sparsely populated areas of public lands. There is less land for hunting and fishing now, therefore, the fish and game manager must find a balance between wildlife control and sport hunting and fishing. The game and fish employee has the authority to enforce rules and regulations to maintain a favorable environment and to protect wildlife.

Pollution Control: The job family revolving around pollution control is striving to ensure man's very survival. The workers in this field believe that water, soil, air, open space, undeveloped areas, and other public resources must be protected for the enjoyment and survival of future generations.

Pollution comes in many forms: water pollution from industrial and municipal wastes, air pollution from cars and industries, trash on streets and sidewalks, graffiti on rocks and trees, loud mufflers and stereos (noise pollution). The anti-pollution workers are involved in such activities as water treatment, garbage collection, getting anti-noise laws passed, and deciding if aerosol sprays do harm to the ozone layer.

Needless to say, this job family provides many exciting and different careers. The common thread throughout all of them is protection of natural and man-made environments.

Activity 1

Do not write on this form.

Objective: I will define the general purpose of resources management and identify the major job families in resources management.

Materials: The previously read material and this activity page.

ACTIVITY

In order to successfully complete this activity you will need to read the enclosed material on the purpose and job families of resources management and then complete the self-check.

Self Check

Place the letter of the job family in the space next to the statement best describing that job family. A letter may be used more than once.

A. Parks	C. Agriculture	E. Fish and Game
B. Forests	D. Conservation	F. Pollution

_____ 1. Primarily concerned with crop production, nusiance control, and technical assistance to the farmer.

_____ 2. Manages land, water, plants, and animals for wildlife production and survival.

_____ 3. Motivated by increased population and movement into wilderness areas. Efforts to control elements in order to establish a favorable balance.

_____ 4. Primarily concerned with providing and maintaining scenic and recreational areas in the public domain.

_____ 5. Concerned with the preservation and growth of all natural resources.

_____ 6. Protects environment against destructive elements of waste, noise, etc.

_____ 7. Manages a multi-use resource so that products can be utilized without harming the balance of nature and destroying the resource.

Briefly describe (5 or 6 sentences) in your own words the purpose of resource management career.

How will I know I've done it correctly? . . . I will check my answers with the answer sheet.

Do not write on this form.

Activity 2

Objective: I will add to my resources in this MOG by writing letters requesting information.

Materials: Paper, pen, envelope, Vocational Biographies, list of local agencies, and letter writing form (obtain from your teacher).

ACTIVITY

In order to complete this activity you will need to do the following things:

1. Go to the resource table and locate the list of local agencies.
2. From that list select an agency to write for information about this MOG.
3. From the back of the 2 Vocational Biographies you read, select 2 agencies to write for information on this MOG.
4. Following the form in your workbook, write a letter to each agency requesting information on this MOG.
5. When you receive the information from the agencies, place it in a folder and keep it with your MOG packet. You will be using this information to answer questions and to prepare displays.

How Will I Know I've Done it correctly? . . . I will complete a letter and have my teacher check it for accuracy. I will file the information which I receive and use it in other activities.

Activity 3

Do not write on this form.

Objective: I will become familiar with some basic things about Resources Management through reading about the lives of some actual workers.

Materials: Vocational Biographies on Resource Table.

ACTIVITY

This activity will help you to better understand some of the things you will read in the packets.

1. Go to the resource table and select the Vocational Biographies for this MOG.
2. Read at least 2 of the biographies.
3. Answer the questions on the form provided. Answer a separate set of questions for each biography read. You should have at least two sets of questions.

NOTE: The Vocational Biographies are kept in folders on the resource table. Each folder contains all the biographies for a particular MOG.

Biography Questions

1. Job Title _____
2. What kind of education is required for this job?
   _____ high school _____ technical school _____ 2 years College
   _____ 4 years college _____ advanced degree _____ other (write in)
3. Is this a job which often requires after hours or overtime work? ___ yes ___ no ___ can't tell from biography
4. Persons with this job title _____ work alone, _____ work outdoors, _____ work in groups, _____ work indoors, _____ travel, _____ direct the activity of other workers, _____ use tools
5. Would you like to have this job? ___ yes ___ no
   (Write 6 sentences for each)
   Why _____
   Why not _____

How Do I Know I've Done it Correctly? . . . I will have my teacher check my answers.

Do not write on this form.

Activity 4

Objective: I will view an introductory program in order to gain an orientation to the MOG.

Materials: Film on Careers in this MOG, Audio vance viewer.

ACTIVITY

This activity is designed to help you learn some basic things about careers in this MOG.

1. Go the the resource table and select film/cassette set or sets which goes with this MOG.
2. After you have prepared the Auto-Vance for Viewing, read the Introduction to the Film/Cassette program which will be found in the inside pocket of each package.
3. View the Film/Cassette program.
4. Answer the questions for each Film/Cassette program. These questions are included in your workbook.
5. You may view the program as many times as you wish in order to answer the questions.

How will I know I've done it correctly? . . . Take your completed answers to your teacher for review.

RESOURCES MANAGEMENT

Requirements and Qualifications

By completing this section you will learn what qualifications, knowledge, and skills you will need to get a Resources Management Job. As you will see, each job in this career cluster generally requires a college degree but there are entry level jobs available.

WHERE AM I GOING?

By the time you complete this activity you will know the general requirements for jobs in the resources management career cluster.

HOW WILL I GET THERE

1. Find out about college courses leading to Resources Management Jobs.
2. Know what the entry level jobs are in Resources Management.

HOW WILL I KNOW . . .

I will complete the Review of College Requirements.

I will complete the "Entry Level Jobs" form.

REQUIREMENTS AND QUALIFICATIONS

Forests Management

Careers in forestry span a wide range of opportunities for men and women who are interested in this area. In planning for this type of career, you should begin preparation as early as possible. Generally, foresters take a four-year course of study at an university school of forestry. A fifth year of study is recommended for certain fields of specialization, such as forest management, wood chemistry, and wood utilization. Advanced degrees may be required for those who have responsibility for important, complex tasks.

The forest manager must have a college degree and experience, ~~too.~~ A forest manager begins at the bottom of the career ladder. After some years of learning facts and skills from "first-hand" on-the-job experiences, and with a degree you can qualify as a forest manager.

All forest managers must understand the principals of silviculture (tree growing), wildlife management, soil and water conservation, and the operation of forest industries. You can get a "head start" in preparing for a forestry career by taking science and math courses while in high school.

You must be physically fit to work outside in the rugged terrain of the forest. Probably, the most important requirement is to love the resource you are protecting and managing. This appreciation for and love of the forest and its contribution to man's survival help you to make decisions which will protect our forest. Without this love and appreciation, one will eventually lose sight of the need to carefully manage and protect the forest.

In order to get a job in forestry working for the state or federal government, you must pass the civil service examination. In industry, a degree from a college and an examination may be required before you are hired.

Agriculture Management

Careers in agricultural management provide men and women with many interesting job alternatives. Farming today is as much of a business as operating a manufacturing plant or running a store. A farmer must bring together land, labor, machines and money to make the farm economically successful.

Farming above all requires experience and good business judgement. However, a good education in agriculture or agri-business increases a farmer's chance of success. Many farmers have college degrees, yet some do not.

An agriculture manager may be a farmer who controls a large farm, or a governmental official who serves as a consultant to farmers. Both of these people must know about and have skill in growing plants, harvesting, insect and weed control, genetics, fertilizer, marketing, etc. These skills and knowledge can best be acquired in college. If one plans to be a county agent, to do research in agriculture, or manage a large agri-business, a college degree is a must.

Schooling is important, if you are considering a career in agricultural management, but you must enjoy the work, too. Good health and an aptitude toward agriculture are helpful. Students interested in agriculture should stress biological sciences and vocational agriculture in high school to prepare for that career. Farmers, of course, may go into business with no more requirements than land and money to buy supplies. However, people wanting positions with the government agricultural agencies must have a college degree and pass a civil service examination.

Pollution Control

Careers relating to curbing or stopping pollution or misuse of our natural resources are vital now and will be in the future. Only recently in the story of mankind have the public and government recognized the need for preventing pollution, so this is a relatively new job area.

Presently, state and national governments as well as private organizations are attempting to determine the severity of pollution of all kinds, how pollution harms the environment and how to stop pollution with as few economic hardships as possible.

One planning a career in pollution control must have a good background in the sciences, math, and social studies. The sciences and math provide informaton about how pollution and misuse are harming the environment; the social studies provide the student with understandings into the social and econimic problems accompanying pollution and its control. In addition, the leader in pollution control must know how to deal with people, since some kinds of pollution control (such as devices to control car emissions) are unpopular. Knowing psychology and human relations skills is important to the pollution control leader.

Because of the complex problems related to pollution, leaders in this area are generally required to have degrees from an accredited four-year institution. The degree, however, is not the only requirement. The leader in pollution control must have the desire and the commitment to protect the environment. Believing your job or career is important will lead to better job performance.

If you desire to work with pollution control for a governmental agency, you will have to take a civil service exam. Private pollution control agencies such as the Georgia Conservancy in Atlanta, Georgia may require special tests. In any case, gearing your formal schooling in high school and college will prepare you for such exams. In addition, most of these leadership jobs are competitive. You may begin in a "follower" role, but eventually your experience and education will prepare you for a leadership role in pollution control.

Parks Management

State and national parks are maintained for recreation, for conservation of natural beauty, and as historical sites for present and future generations. Some parks are the Grand Canyon Park (natural), Ocmulgee National Monument (historic), Lake Lanier Islands (recreation), and Great Smokey Mountains with its Indian lore (cultural). Parks provide enjoyment and education to all people.

The parks manager is concerned with providing recreation and protecting the park environment. You having this job should know how to provide proper recreational equipment and facilities, know how not to destroy the balance of nature, and know how to deal with people. Parks managers are trained in recreation, and/or management of wildlife, water, and land. A college degree is generally required for these jobs; however, there are non-managerial positions open to non-college graduates.

Fish and Game Management

Fish and Game Managers operate more than 350 wildlife refugees and several research centers. The managers and other workers help to enforce the Endangered Species Conservation Act of 1969.

Fish and game management careers require college training. Men and women interested in this career must have a strong background in the biological sciences. If you are interested in such a career, you may take biology courses while in high school, and major in wildlife management in college. Any career in fish and game management will be civil service requiring you to take a civil service exam. In addition, good health, love of the outdoors, and love of wild things are important to be a good fish and game manager.

Conservation

Conservation offers many kinds of careers if you are interested in preserving our natural resources. Many experts are needed to solve the problems of conservation. An interest in the outdoors may lead to soil, water, or wildlife conservation. A love of laboratory work could lead you to careers in water purification or biological studies.

The conservation management jobs require a college degree in areas ranging from geology to wildlife. The area of conservation differs widely requiring you to decide specifically what resource you are interested in. Any of the sciences will help you prepare for a job in conservation. The careers attached to conservation are generally government jobs. Therefore, civil service exams are required.

Activity 1

Do not write on this form.

Objective: I will identify some of the college requirements for a selected career in Resources Management.

Materials: Bulletins from colleges and universities, such as The University of Georgia (or your state university), Ohio State University and Clemson College.

ACTIVITY

Resources Management careers usually require a college education. This activity will help you in planning your high school courses if you wish to go into Resources Management.

Follow these steps in completing the activity.

Step 1: Where would you like to go to college? Do you want the rah-rah and crowds of a big university like University of Georgia, Michigan, Florida or Southern California, or do you prefer to go to a smaller college like North Georgia or Villanova where you have individual treatment and aren't just a number? You decide and select four (4) colleges you think you'd like to attend. Write them down.

Step 2: From all the resource managers careers, elect one (1) you'd particularly like to have. Forest ranger, county agent, head of Environmental Protection agency, are some of the careers.

Step 3: Secure from the counselor's office copies of the catalog of the college you are interested in attending. If the catalog from your chosen college isn't available, you may write to the college asking for a catalog or select a college catalog that is available.

Step 4: What kind of courses are offered in your career area? How much math, English, science, social science, etc., will you have to take? What degree will you have if you pursue this career? Is there a degree above a bachelor's offered in your career area? Please answer these questions.

Please answer these questions below. When you finish, decide which of the colleges is best for preparing for a career in resources management and decide what courses you should stress in high school. Write these decisions on the same page as your questions.

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1. Name of College (4 of these)

2. Name the courses listed for one job in Resources Management.

   a. c. e.

   b. d. f.

3. What degrees can you get? _____ Bachelors (B.S.) Masters (M. S.) Doctorate (Ph.D.)

   Would you choose this college? _____ Yes _____ No

   Why _____

   Why not _____

4. What high school courses will be the most helpful to you in Resources Management?

How will I know I've done it correctly? . . . I will have this activity sheet checked by my teacher.

Activity 2

Do not write on this form.

Objective: I will identify entry level positions available in resources management in Georgia.

Materials: This MOG and The Georgia Merit System Directory.

ACTIVITY

Before going into resources management, you should have experience in the area to be served. As an example, a forest manager must have had experience in that area as a ranger or other duty. This activity will tell you something about entry level jobs in Georgia.

In order to complete this activity, you will need to do the following things:

1. Read the following section on Entry Level Jobs.
2. Choose five of the nine entry level jobs found in Georgia.
3. Fill the information required on the Entry Level Jobs Form. You will need five (5) forms.

How will I know I've done it correctly? . . . I will have my teacher check the completed forms.

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Entry Level Jobs. Entry Level jobs (those usually found on the first step of the career lattice) in Resources Management number nine (9) in Georgia. They usually require a minimum of skill and education. They are:

Parks: Ground Keeper, Park Ranger I
Forests: Forest Towerman, Forest Patrolman
Conservation: Conservation Ranger
Fish and Game: Wildlife Technician Trainer
Pollution: Environmental Technician I, Energy Technician
Agriculture: Agriculture Trainee

Typical Career Ladders. The career lattices for several job families in resource management are not readily identifiable. In job families such as Conservation or Fish and Game, promotions are usually achieved through a series of salary increases.

In general, the way up for a person in the Park job family consists of a series of preprofessional positions. For example, a person may start as a laborer, which in turn may lead to a gardener, then to gardener-foreman. The position of supervisor is typically the ultimate step and usually requires many years of experience, together with education beyond high school.

Career ladders in forestry work vary with the agencies. A worker in the U. S. Forest Service for example, may qualify as District Ranger, Staff Specialist, or perhaps Forest Supervisor in a National Forest, and may go on to a position in a regional or national office. In a federal research agency, the forester may advance to Research Forester specializing in forest management or silviculture. The top jobs in forestry work are usually held by people experienced both as rangers and as foresters.

Most of the government service positions in agriculture and pollution control are at a professional level on the career lattice, and require at least a college degree. In most instances these positions require specialization in a specific field of study, as well as a master's degree.

ENTRY LEVEL JOBS FORM

Job Title _____

Education and training requirement _____

Experience requirement (if any) _____

Next ladder step (if any) _____

Typical duties of worker _____

_____

_____

ENTRY LEVEL JOBS FORM

Job Title _____

Education and training requirement _____

Experience requirement (if any) _____

Next ladder step (if any) _____

Typical duties of worker _____

_____

_____

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RESOURCES MANAGEMENT

Functions and Duties

In order for you to decide upon a career in resources management, you need to know what functions and duties you are expected to perform or for which you have responsibility. This activity packet will provide you the opportunity to explore the functions and duties of various careers in resources management.

WHERE AM I GOING?

By the time I finish this activity packet, I will understand the functions and duties of resources managers in forestry, agriculture, pollution control, parks, fish and game, and conservation.

HOW WILL I GET THERE?

1. Read the enclosed section.
2. Participate in the problem solving activity.
3. Read and solve problems in resources management.
4. Create a sample or model park.
5. Research information in this MOG.

HOW WILL I KNOW . . .

I will complete the Self Check Activity.

I will make a decision about the problem.

I will come to a decision on a problem solution.

I will complete the environmental design activity.

I will prepare or use Job Cards.

FUNCTIONS AND DUTIES

The purpose of resources management is to protect natural resources and to make sure that our resources are properly used. In each career in resources management, the natural resources are controlled and developed through careful planning. Our natural resources are too important to be left to chance.

Forests Management

Forestry means planned management of forests to provide a continuous supply of forests products. Its purpose is to help forests grow crop after crop of high quality trees. Forestry plays an important part in the conservation of our natural resources. A well-managed forest helps to conserve soil. The roots of trees hold down soil to prevent erosion by wind and water. The leaves provide humus or mulch which returns minerals to the soil. In addition, forestry helps water conservation. A well-managed forest serves as a good storage place for underground water, and as an excellent watershed. The forest is valuable too in providing the natural cover for wildlife native to the woods.

The forest manager's function is planning and coordinating actions to conserve forest resources and provide enough forest and forest products to meet man's needs. The forest manager works both behind a desk and out in the field.

Within this overall function, the forest manager has many specific duties or tasks to perform. The forest manager must understand the principals of tree growing and how forest industries operate. Harvesting trees requires knowing when and how many trees to cut. The step after harvesting is reforestation or replanting trees on land that was once covered by forests. The forest manager is required to perform these duties to keep man's need of forest products satisfied; however, the forest manager must stay within a budget. The problem of managing the money is also part of the forest manager's job.

Careful, wise harvesting and reforestation is directly related to conservation of forest resources. Trees are cut, but in such a way that soil erosion and water pollution do not occur. The forest is restored by planting new trees (reforestation). The forest manager also sees that the forest is protected from natural and man-made dangers or disasters.

The forest manager is a consultant to tree farms, too. As such, the forest manager sees that the forestry standards are met and gives assistance to the tree farmer to protect the forest against fire, insects, disease, and destructive grazing.

Initially, a forester may perform tasks working in the woods, such as taking forest inventories or estimating the amount of usuable timber in a forest. Other tasks include tree planting, surveying, mapping, marking trees for harvest, preventing and fighting fires, and doing research at forests experiment stations.

If you are interested in knowing much more about the careers in forestry at the national level, you can write to the U. S. Forest Service, U. S. Department of Agriculture, Washington, D. C. 20250, and the Society of American Foresters, 1010 16th Street, N. W., Washington, D. C. 20036. In Georgia you may write to the Department of Agriculture, Atlanta, Georgia.

Agriculture Management

The function of the agricultural manager is to produce enough food for our consumption. The food produced is expected to be nutritious and reasonably priced. In order to perform this function the agriculture manager has to know how to raise crops that will meet these requirements. In addition, the agriculture manager must see that the farmer has a profit to remain in business. In short, the agriculture manager have business sense, as well as knowledge and skill in growing foodstuffs.

An agricultural manager may have responsibility for managing a large agri-business. These people are responsible for growing and getting foodstuffs to market. The specific duties here require selecting seed and fertilizer, buying stock and machines, hiring farm workers, keeping books, arranging credit, selling foodstuffs to companies and getting foodstuffs to market. Small farmers are an agricultural manager of their own farm; for large agri-business people the tasks are multiplied many times.

County Agents share their skill and knowledge with farmers. The county agent provides any technical assistance needed by farmers ranging from selection and marketing of crops to insect and disease control.

Other employees of the U. S. Department of Agriculture serve as agricultural managers by administering farm programs and conducting scientific research. In addition, people schooled in agriculture may teach in high school and colleges and in agriculture extension services to assist present or future farmers in food production

Pollution Control Management

The function of the pollution control leader is to coordinate efforts to stop or curb pollution from either governmental or private agencies. The pollution control leader is engaged in active problem-solving to clean up the air, water, wilderness, and the land. The pollution control leader is concerned about the environment, but, at the same time, must be mindful of the solutions to problems. The pollution control leader's basic function is problem-solver to improve the environment.

The specific duties of the pollution control leader vary with the agency and type of job in which he or she is employed. However, overall each leader will be involved in gathering information in order to decide what actions will best control a pollution problem. Getting information about the "environmental impact" of building in a wilderness area may be supplied by researchers. Pollution control leaders guide and coordinate these activities. A pollution control leader may help draft laws and regulations from this information. Another pollution control leader may represent public and private agencies to see that laws to protect the environment are followed, and to find new sources and incidents of pollution and to end them. Another pollution control leader may serve to distribute information and education to the public. In sum, there are many specific types of duties a pollution control leader may perform. The specific job will determine what duties he or she is expected to do, but the overall function is the same for all.

Parks Management

The parks manager's function is to provide recreational facilities and to protect the natural beauty of any of the state or national parks located in the United States. The parks manager's role is to coordinate all activities under his/her control to attain that end.

The many duties of a parks manager include hiring personnel to handle educational, recreational, maintenance, and law enforcement duties in parks, deciding how and where to provide appropriate recreational facilities for a specific environment, presenting ideas for new laws to provide and protect parks to legislators, etc. The parks manager's role varies with the level at which he or she serves. Managers of a park may both plan and implement changes and improvements, meaning he/she would work both inside and out-of-doors. The national level parks manager is more likely to be a desk job.

Fish and Wildlife Management

The function of the fish and wildlife manager is to coordinate efforts to protect the nation's birds, mammals, fish, and other wildlife. Part of the duties of the fish and wildlife manager is to survey and protect water-fowl breeding, help states establish hunting regulations and quotas, and supply fish for sport in inland waterways. The parks and wildlife manager also provides for education and information about wildlife in the United States.

Probably the most urgent duty of the fish and wildlife manager is the protection of endangered animals. The Whopping Crane, California Condor, and others are close to extinction. Careful management to protect breeding environments necessary to the survival of these animals is as important as protection of the animal.

Conservation Management

The function of conservationists is to protect all natural resources and to conserve those resources for future generations. The conservationist is responsible for the natural resources not protected by the other career groups. Some of their specific duties include development of policies and plans of action for the use of coal, oil and other minerals wisely, development of ways and means to clean up cities (urban renewal), and surveys of land to locate minerals.

Conservation managers perform many tasks according to the specific job they hold. Conservation is a very broad career area covering many jobs, but all working toward preservation of all natural resources.

Activity 1:

Do not write on this form.

Objective: I will check my understanding of the reading through the Self Check.

Materials: The previous reading.

SELF CHECK

A. Forests
B. Agriculture
C. Pollution Control
D. Parks
E. Fish and Wildlife
F. Conservation.

Fill in the blank with the letter of the career area that performs this function or task. (There may be more than one correct answer.)

_____ 1. Works primarily with agri-business.
_____ 2. Designs national, state, and local parks.
_____ 3. Harvests trees and is responsible for reforestation.
_____ 4. Is concerned about wise use of natural minerals such as oil and coal.
_____ 5. Ensures enough sport fish and animals for sportsmen and for wildlife survival.
_____ 6. Purpose is to help forests grow crop after crop of trees.
_____ 7. Is usually a county agent.
_____ 8. Functions to provide recreational facilities and to protect the beauty of nature.
_____ 9. Protects and breeds wildlife.
_____ 10. Consultant to tree farms.
_____ 11. Serves to protect all natural resources.
_____ 12. Coordinates efforts to stop or curb pollution.
_____ 13. Works to protect nearly extinct wildlife.
_____ 14. Basic function is helping in production of foodstuff.
_____ 15. Does research to find the "environmental impact" of building.

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How will I know I've done it correctly? . . . I will check my answers with the answer sheet.

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Activity 2

Do not write on this form.

Objective: I will engage in problem solving so that I can develop a basic understanding of a skill necessary to resources management.

Materials: The attached problem, your own mind and skills in solving a problem, and a friend to work with.

ACTIVITY

A common duty to all resources managers is solving problems. The resolution of a problem has to be made sometimes without knowing what the actual results will be. For fun and practice in problem solving, you have nine "tense" situations with a problem to solve. All you have to do is to solve the problem, preferably with another person.

To complete this activity, follow the directions of Problem Solving Activity B, and share what happened with your instructor.

Problem Solving Activity B — Fallout Shelter

Form a group of from 2 to 6 people. You are to decide how to resolve this problem.

Your group are members of a department in Washington, D. C. that is in charge of experimental stations in the far outposts of civilization. Suddenly the Third World War breaks out and bombs begin dropping. Places all across the globe are being destroyed. People are heading for whatever fallout shelters are available. You receive a desperate call from one of your experimental stations, asking for help.

"It seems there are ten people but there is only enough space, air, food, and water in their fall-out shelter for six people for a period of three months — which is how long they estimate they can safely stay down there. They realize that if they have to decide among themselves which six should go into shelter, they are likely to become irrational and begin fighting. So they decide to call your department, their superiors, and leave the decision to you. They will abide by your decision.

"But each of you has to quickly get ready to head down to your own fall-out shelter. So all you have time for is to get superficial descriptions of the ten people. You have half-an-hour to make your decision. Then you will have to go to your own shelter.

"So, as a group you now have a half-hour to decide which four of the ten will have to be eliminated from the shelter. Before you begin, I want to impress upon you two important considerations. It is entirely possible that the six people you choose to stay in the shelter might be the only six people left to start the human race over again. This choice is, therefore, very important. Do not allow yourself to be swayed by pressure from the others in your group. Try to make the best choices possible. On the other hand, if you do not make a choice in a half-hour, then you are choosing to let the ten people fight it out among themselves, with the possibility that more than four might perish. You have exactly one-half hour. Here is all you know about the ten people:

1. Bookkeeper; 31 years old
2. His wife; six months pregnant
3. Black militant; second year medical student
4. Famous historian-author; 42 years old
5. Hollywood starlette; singer; dancer
6. Bio-chemist
7. Rabbi; 54 years old
8. Olympic athlete; all sports
9. College co-ed
10. Policeman with gun (they cannot be separated)

Have someone give 15, 10, 5 and 1-minute warnings and then stops the groups exactly after a half-hour. Remember: 1. Everyone must agree on the six people. 2. The task must be done in half-an-hour. 3. If you don't, no one survives - gasp!

Who did you decide could survive? Why? Was the decision hard to make? Did you all agree? Can you say why?

This activity was provided to have you practice problem solving in situations that could mean life or death. Of course, this wasn't real, but maybe you felt the confusion of not having a "pat" or no-fail answer. You had to use what you knew and felt was important for survival. This will be true when you serve as a resources manager or in any decision making job. Therefore, you must know the facts and be able to balance conflicting information to make an ultimate decision.

How will I know I've done it correctly? . . . I will arrive at a decision to the problem.

Activity 3

Do not write on this form.

OPTIONAL EXTRA CREDIT ACTIVITY

Objective: To solve a realistic environmental problem.

Materials: The attached simulation, library, librarian, Reader's Guide to Periodical Literature, card catalog, books and magazines related to the problem.

ACTIVITY

Your job in this activity is to solve a real problem a resources manager faces every day across the nation. The problem is how to protect the environment but not wreck chances for economic growth.

To complete this activity follow the directions given in the simulation. Be sure to complete the writing assignments and turn them in to your teacher.

Simulation:

Your job as a resources manager is to protect the environment, but at the same time provide the necessary resources to keep our nation's economy going. This simulation will allow you the opportunity to see how complex this is.

Your job in this simulation is to make a decision to resolve the issue. Whatever you decide, remember always that you, as a resources manager, work to protect the environment and to provide wise use of natural resources.

For this activity at least two people should work together to make the decision. This will allow each of you to do some research into the problem. Explore both the positive and negative results possible from resources development explained in the Situation. Each member of the team should read and get information from six sources of printed matter (books, magazines, pamphlets) pertaining to the problem. The information found should be written down so that it can be shared at the group's meeting to make the decision.

You should spend from two to four days researching the problem. On the fifth day, begin the meeting to make the decision. You may take as long as necessary to resolve the issue. You may organize the meeting room or procedures however you wish. Usually there is someone to preside and rules of order established before the meeting. Don't be as worried about the meeting procedure, however, as you are about considering all sides of the issue. You will have groups from both sides asking why you made "that" decision.

To provide you with some extra help, here are some questions to ask to find the positive and negative results of this or any resources development.

Projected Positive Results of Resources Development:

Economic: Will it add a needed product or service to the market? will provide jobs? will strengthen the economy?

Sociological: Will it improve the standard of living?

Political: Will it strengthen the power base of the political jurisdiction in which the activity is located?

Projected Negative Results of Resources Development:

Economic: How much more energy will be used in production and utilization of products? Will growth patterns in the producing area be drastically altered? Are full costs being considered: the resource, energy, pollution, and disposal costs of the action?

Sociological: Will claims of life quality improvement be broadly-based or touch only an elite group?

Political: Will politically palatable decisions outweight important economic, social, or environmental considerations? Does this local action fit the overall goals of the region? Has legislative consideration been given a long-range resource allocation?

Here are the steps you should follow in this simulation:

Step 1: Form a group of at least 2 people.

Step 2: Read the Situation.

Situation:

A proposed $250 million dollar factory in Jacksonville, Florida would hire 10,000-12,000 people; it would generate $5 million in tax revenue; it has promised a 23% minority hiring.

The Jacksonville factory, which would assemble floating nuclear power plants, would be sited on 900 acres of marsh and bayou along the St. John's River. 1300 acres in all would be subject to dredge-and-fill activities. Two-thirds of all the fish and shellfish along the East Coast spend their early lives in marshes like the one which would be destroyed.

Proponents claim that Jacksonville, would be growing itself and providing needed energy for other parts of Florida. (The factory would bring an expected 14,000 new residents to Jacksonville and an estimated 420 new businesses.) Opponents warn that a floating reactor accident could cause large-scale and long-lasting contamination of the world's oceans. They object to this massive action when the Atomic Energy Commission is not even expected to act on whether to use such floating plants until late 1977.

Blacks are siding with industry in this confrontation; they feel they must because of the 23% hiring guarantee. Opponents argue that unplanned, sudden growth in Jacksonville's population will cost taxpayers because of the increased needs for services (schools, roads, sewer, police, firemen, etc.).

Step 3. Do research into the problem. You will find information in the school library and the school librarian will help you.

Step 4: Read from at least 6 sources of information about the problem. Make notes for the meeting. After using them at the meeting, turn them into your teacher.

Step 5: Meet to resolve the issue as a group. (You may decide on the procedures before the meeting.) Make the decision based on the information you have gathered and your own sense of the best course of action.

Step 6: You have received a demand for a statement as to why you made the decision you did. Prepare a statement explaining your decision. Give at least three reasons with facts to support these reasons in the statement. Turn this paper in to your teacher.

HINT — Look up the following topics when you go to the library:

Nuclear Power	Water Pollution
Power Plants	Minority Hiring
Fish and Wildlife Conservation	Population Explosion
Nuclear Pollution	Equal Employment

How will I know I've done it correctly? . . . I will turn in my decision statement (step 6) and successfully complete steps one through six above.

Activity 4

Do not write on this form.

Objective: To use imagination, creativity and knowledge to design a park in any locale.

Materials: Art supplies: paper, pencil, magic markers, clay, colored pencils, rulers, etc., books and magazines on environmental design from the library.

ACTIVITY

Have you ever wanted to create something, but money was the BIG drawback. Well, forget expenses or any hindrances to your wishes in this project. Let your mind run wild to create whatever you want. Your project is to design a park. It can be any size (from roadside park to Yellowstone size): any locale from polar regions to the tropics; and any type (cultural, natural, historic, recreational). You decide the size, locale and type of park.

You will successfully complete the activity by submitting the plans for your park to your instructor.

Many resources managers are involved in designing areas which encourage and permit people to enjoy natural beauty and the outdoors. This task will allow you to take an undeveloped piece of ground and develop a park on it. Use your imagination and creativity here.

To help you along in designing your park, here are some steps to follow:

Step 1: Decide where, how big, and what kind of park you want and write this down for further reference. It will be helpful to read about parks in books and magazines available to you in your school library.

Step 2: Decide how to arrange the park. Will you have nature trails, observation decks, picnic tables, provisions for handicapped people, braille and print guides, and information plates along trails, seasonal flowers and shrubs, and cabins or hotels? You decide and write down your decisions.

Step 3: After these decisions, draw a rough design of where you will put things in your park. Where will observation benches, picnic tables, and the like will be placed. This will help you organize your thoughts.

Step 4: Now, you can begin your finished product.

A. Draw or use clay to show the design of your park. Show where the trees, buildings, streams, roads, trails, mountains, hills, might go. Use your imagination!

B. Provide a short explanation of the things your park has to offer. Such as where the Indian Mound is, or where benches for looking at the hot springs are located.

Step 5: When you've finished, give your teacher the notes you've made on steps 1-3 and display your finished product of your park.

Below is an example of a 3-acre natural park in North Georgia.

Symbols

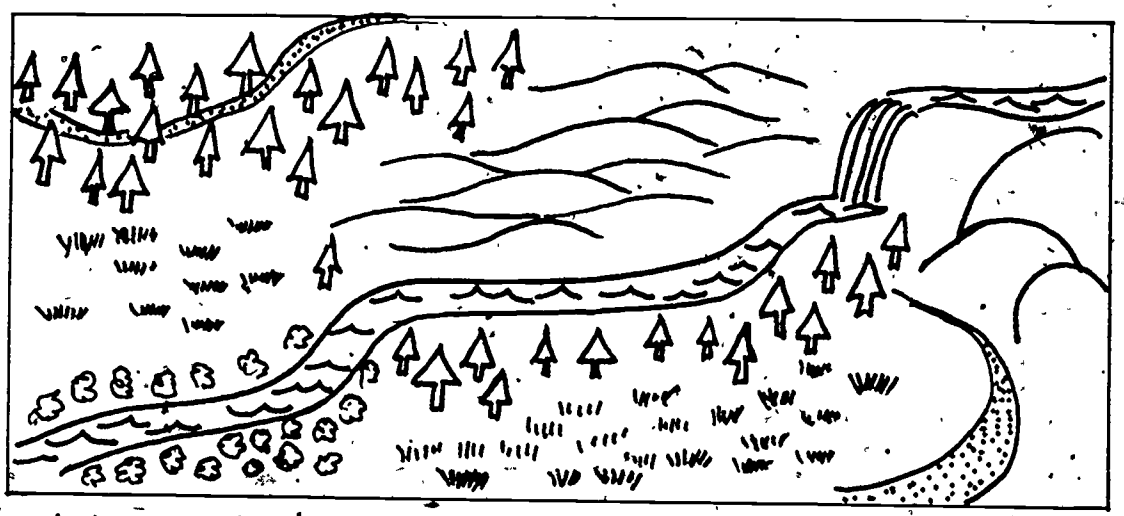
= trees

= shrubs

= waterfall

= grass land

= road



= low rolling hills

= river (Littletau river)

= mountain (Mt. Bigtow)

How will I know I've done it correctly? . . . I will display my completed park and explanation for the park sections.

Activity 5a

Do not write on this form.

OPTIONAL EXTRA CREDIT ACTIVITY

Objective: I will use available resources to research job titles.

Materials: Job Card Box – NOTE: If there is no job card for you job title, do the next activity.

ACTIVITY

Before you begin this activity, read through the entire activity so you will know all the things you will be expected to do.

1. Select 2 job titles from your MOG to research.
2. Go to the job card box located on the resource table.
3. Locate the job card for the job you are studying.

Museum Aide

I. Dictionary of Occupational Titles
Pages _____

II. Occupational Outlook Handbook
Pages _____

III. Encyclopedia of Careers
Pages _____

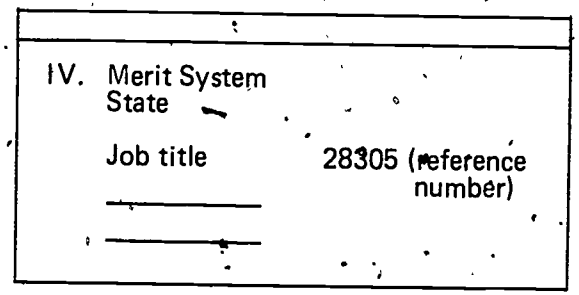
Look up and read the material listed under each of the three large reference books located on the reference table. They will be listed on the card like this:

I. Dictionary of Occupational Titles
II. Occupational Outlook Handbook
III. Encyclopedia of Careers

If there is no listing for a particular reference book, that means that there was no reference made to the job in that book.

Now look in the Merit System reference books and locate the job title(s) you are studying.

The Merit System references are listed like this:

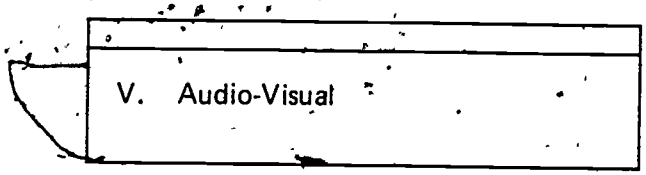


There may not be a job title listing in each merit system directory (State and County) only the Merit systems listed on the job card are relevant to your job title.

When using the state of Georgia Merit System reference:

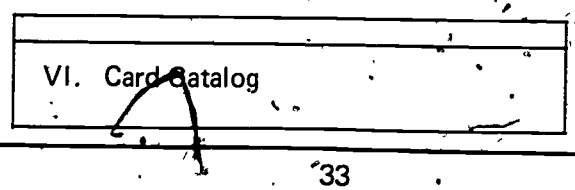
1. Look up the job title and note the number code for that job. Example: Museum aide 30712
2. Look up the number code in the number code notebook. This will give you the job description.

Locate the Audio-Visual material listed on the job card. View one film/cassette program and answer the questions (see activity No.). Review the other material.



EXTRA CREDIT

Go to the library and find the books listed for your job title. Look over the books and select one to the checked out for further study (activity No.).



Activity 5b

Do not write on this form.

Objective: To prepare job cards for the study of an occupation.

Materials: Blank job cards, the attached instruction sheet.

ACTIVITY

This activity is to be done when there is no job card for your job title. Read through the entire activity so you will know all the things you are expected to do.

Separate Instructions:

1. If there is no job card for the job you are looking for you will need to make a job card.
2. Get some note cards from your teacher.
3. Look up your job title in the following books: 1. Dictionary of Occupational Titles 2. Occupational Outlook Handbook 3. Encyclopedia of Careers
4. Write on the note cards the job title and the pages the job title appears on in each book.

Job title

Teacher		
Book I	DOT	137
II		
III		

page number

5. Look up your job title in the Merit System notebooks (Gwinnett County and DeKalb County are in folders).
6. List the title and the code number for the five (5) Merit Sources (all may not be listed).

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IV Merit System

GA 11362
Atlanta
Fulton
Gwinnett
DeKalb

7. Go to the APPS index file or Audio Visual material. List the material (if any) relevant to your job family. Include films, filmstrips, cassettes, and tape recordings.

V AV Material

1. _____
2. _____
3. _____

8. Check the library card catalog and the APPS library. List the books and there library number on the card.

Working ED. 742

Activity 5c

Do not write on this form.

Objective: To answer questions relating to the job card research.

Materials: Questions

ACTIVITY

Now that you have investigated some job titles, you should be able to answer some questions. Use the information you acquired from the job cards to help you answer the questions. Answer one set of questions for each job title investigated.

Job Card Questions

1. Job title _____
2. Briefly describe what a worker with this job title does.
3. What are the educational requirements or training for this job?
4. What sorts of experience and skill would a worker with this job title require?
5. What is the general salary range for this job title.
6. Is this job title in a growing field, one that will provide many job opportunities? Yes ____ No ____. Briefly explain your answer.
7. What high school courses (if any) would help you meet the requirements of this job title?
8. Do you think this job will be here ten years from now? Twenty years? What about in the year 2076? Briefly explain.
9. Would you like to have this job? Yes ____ No ____. Briefly explain your answer.

How will I know I've done it correctly? . . . I will have my teacher review my answers.

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RESOURCES MANAGEMENT

Nature and Conditions

The resources management careers involve managing and protecting our natural resources. That is the nature of the tasks resources managers perform. The conditions under which they work vary with the specific job; however, you can reasonably expect to have a good working environment which will allow you to work both in and out of doors. This packet attempts to provide you with specific information about the nature and conditions in resources management careers.

WHERE AM I GOING?

By the time I finish this activity packet, I will know the basic nature and conditions of work in any of the careers in resources management.

HOW WILL I GET THERE?

1. Read the enclosed reading.
2. Compare the career of Resources Management with my personal preferences.
3. View a filmstrip on Careers in Resources Management.

HOW WILL I KNOW . . .

I will complete the Self Check Activity.

I will complete the Career Comparison Activity.

I will answer a set of questions on the film.

NATURE AND CONDITIONS

Protection and wise use of natural resources is what resources management is all about. The Resources Manager can work in and out of doors and in environments ranging from cities to the wilderness. The salary and extras or fringe benefits are good too.

Forests Management

The work of the forest manager centers around planning, decision-making, implementing and evaluating actions to use and protect the forest resources. The forest manager works both behind the desk and in-the-field. That person is the administrator or supervisor of the operation. The forest manager does not generally do the manual labor, but sees that it is done.

The forest manager must use knowledge and skill acquired through college education and training as well as experiences had while in lower forestry positions to plan and coordinate the necessary work. The forest manager must have knowledge and skills in forestry, and also know how to get people to do the necessary jobs and how to plan those jobs.

The forest manager is an upper-echelon position, meaning that salary, prestige, and responsibility are relatively higher than other positions. The beginning salary for foresters is about $10,000 per year. Generally U. S. Forestry Managers salary is from $15,000-$20,000 per year. The highest salary for anyone on the national level is about $40,000 per year. Salary in U. S. Forest Service depends on degree, experience, promotions. The same is true in private industry.

The forestry manager must combine in-the-field and in-the-office skills and knowledge. That person may gather information by going to forests for observation and inspection to determine the effectiveness of actions taken. That person must plan the actions taken, and provide the people and material needed to carry them out. The area of responsibility depends upon the level of management. In the U. S. Forest Service, the national office makes decisions for regional and district offices. The regional and district rangers, then, decide how to implement the orders coming from the national office.

Agriculture Management

The agriculture manager works both inside and out-of-doors. The agricultural manager must gather firsthand information about farm production, offer assistance, or conduct research. In order to plan what to grow, the farm manager must stay abreast of current prices of food, government supports and regulations, and costs of supplies necessary for farm operation.

Because everyone is in some way dependent upon the farmer, everyone is concerned. Increases in food costs bring howls from the public (remember high beef prices); however, the farm cannot lose money, or it will go out of business. The agriculture manager must consider both consumer and farmer interests, when making decisions.

The salary for agriculture managers is dependent on many conditions. Farmers range from bankrupt to multi-millionaires. Governmental agriculture managers salary ranges from $10,000 - $40,000 per year. The beginning agriculture manager who is low in the civil service ladder makes $10,000. The national agriculture leaders make $40,000. A county agent generally makes from $15,000 - $20,000 per year with some experience. In addition, with a civil service position, retirement, hospitalization and other fringe benefits are fantastic.

Pollution Control Management

The leader in pollution control works to protect our environment particularly from man-made sources, of pollution. This leader is responsible for finding ways to stop or curb pollution. In order to curb pollution, information from pollution research must be gathered and coupled with what is known about ecology, sciences, and human relations to find workable solutions to pollution problems.

The pollution control leader may work in or out-of-doors depending upon the job. High-level pollution control leaders may guide passage of laws, meaning they work behind a desk and work with lawmakers. Others may be in charge of research stations based in wilderness or highly populated areas. This requires working behind a desk and in the field, too.

The pollution control leader in a governmental job is a civil service employee. Salary is determined by rank, promotion level, college degree, and experience. Generally, if you work in pollution control you can expect from $15,000 - $20,000 per year, but it can go much higher. The fringe benefits are attractive, too. In the private agencies you would have salary and benefits according to the agency's wealth.

Parks Management

Recreation and conservation are the keys to the parks manager's job. The parks manager is concerned with providing clean recreational facilities to the public; therefore, knowledge about public relations and recreation is important.

The parks manager's job is part of the civil service. Salary is determined by education, rank, promotion, and experience. The general salary is from $15,000 - $20,000 per year, but may be higher with a higher position. The person who enjoys the out-of-doors will enjoy parks management.

Fish and Game Management

The fish and game manager is employed by the state or federal government under the civil service. This person is expected to coordinate efforts to protect fish and wildlife and to provide sport fishing and hunting. The fish and wildlife manager works in and out-of-doors.

Depending, of course, on the level of management, the manager makes decisions and develops plans in these areas. A national manager coordinates and makes decisions of nation-wide importance. A local manager will receive directions from higher officials and decide how these should be implemented in that locale. Any manager is a decision maker and problem solver who directs people into action.

The fish and wildlife manager's salary depends on civil service rank, education, promotion, and experience. The local manager usually earns from $15,000 to $20,000 per year. A national manager may make $40,000 and above. The salary depends on the importance and responsibility of the job. The fringe benefits are good, too.

Conservation Management

The conservation manager is employed by the state or federal governments, though he may be employed by a private agency like the Georgia Conservancy. This person is responsible for protecting and managing natural resources not taken care of by other agencies. These people work both in the field and behind desks.

The salary range is tied to civil service grade for government managers, but is usually from $15,000 - $20,000 per year and will increase with promotions and experience. The extra benefits are good in government positions.

Activity 1

Do not write on this form.

Objective: I will demonstrate my understanding of the nature and conditions of resources management work by listing similar conditions of work.

ACTIVITY

SELF CHECK

Steps or Procedures:

1. Choose three resource management positons.
2. Write three or four sentences describing the nature (what kind of work) and conditions (where, or how is the work done) for each position.
3. List 3 similar conditions for any of the resource managers work just described.

How will I know I've done it correctly? . . . I will take my work to my teacher for review.

Activity 2

Do not write on this form.

Objective: I will compare the career of resources management with personal preferences for a job.

Materials: This activity sheet.

ACTIVITY

You have read about resources management jobs. Now, compare what you want from a job with the type of conditions you can expect from a resources management job. Follow the steps outlined in the following activity, and turn the paper in to your teacher.

Follow these steps:

1. List five or more things you want from your career.
2. List five or more things you like about a career in resources management.
3. List five or more things you would not like about a career in resources management.
4. Compare the two lists and write two (2) paragraphs about what you would and/or would not like about a career in resources management.

How will I know I've done it correctly? . . . I will show my completed work to my teacher.

RESOURCES MANAGEMENT

Employment Opportunities

The federal government is the major employer of resources managers in all fields. The purpose of this packet is to present the many agencies in which one may find employment in resources management.

WHERE AM I GOING?

By the time I finish this activity, I will be able to identify at least two (2) governmental agencies which provide employment opportunities in each of the six (6) Resources Management job families.

HOW WILL I GET THERE?

1. Read the packet of materials.
2. Investigate and be able to describe jobs in the MOG being studied.
3. Participate in a field trip to visit job sites in this MOG.

HOW WILL I KNOW . . .

I will complete the self check activity.

I will complete the job description form.

I will complete two field trip forms to prepare for and evaluate the trip.

EMPLOYMENT OPPORTUNITIES

Federal Agencies. Numerous federal agencies are involved in the management of our natural resources: the Departments of Interior, Agriculture, Commerce, Housing and Urban Development, and Defense. Each of these departments includes various agencies concerned with specific aspects of natural resources management, only some of the more important are covered in this unit.

Department of the Interior. The Department of the Interior is almost entirely devoted to the management of natural resources. Some of its more important Bureaus are listed below:

The Bureau of Land Management, established in 1946, is custodian for over 60% of the Nation's public lands, and administers over 470 million acres of federally-owned lands, mostly in the West, including approximately 149 million acres of forest and woodlands. This administration is conducted on the basis of multiple-use principles for such uses as grazing, fish and wildlife, recreation, timber, water, range, wilderness protection, and mineral production.

The Bureau is also responsible for the development, conservation, and utilization of the natural resources and the mineral resources of certain acquired islands, and the submerged lands of the Outer Continental Shelf.

Public domain lands may be made available for lease or purchase for such environmental improvement purposes as public parks, sanitary land-fills, and rights-of-way for highways with extra width for scenic purposes. Technical and financial assistance (confined to agency-administered lands) may be applied to regional environmental problems in cooperation with local governments.

The National Park Service plans, develops, and administers the natural, historic, and recreation areas comprising the National Park System, and provides for the preservation and enjoyment of other properties of scenic, natural, historic and archeological significance. Its Registry of Natural Landmarks and Registry of National Historic Landmarks provides for evaluation and recording of unique properties. Through a Park Practice Program, the National Park Service provides technical assistance to state and local

agencies and citizen groups for planning, acquisition, development, and other technical services relating to park and recreation matters. The Service publishes periodicals on park practice and allied subjects.

The Bureau of Reclamation, a powerful force in the West since 1903, plans, constructs, and operates water storage, diversion, and development projects in Western States for domestic and industrial use. Its Reclamation Projects Program provides cost-sharing loans to reclamation districts and other public agencies for agricultural irrigation, hydro-electric power, municipal and industrial water supply, flood control, and recreation facilities. Financial assistance may also be provided to states, counties, or municipalities to develop recreation facilities in conjunction with Bureau projects.

The Bureau consults with state and local agencies on natural beauty aspects of project location and construction such as location of roads near sites; standards of water quality; tools and techniques available to test for and control pollution; and protection of fish and wildlife.

The U.S. Geological Survey (USGS) was established in 1879, and is the largest earth science research agency of the government. It conducts research to determine and appraise the mineral and mineral-fuel resources and geologic structure of the United States; enforces regulations concerning leasing, permits, and licensing of the same; conducts investigations to provide technical information required for economic development and best use of water resources; surveys flow and sediment discharge, reservoir contents, and location and safe yields of underground waters. The agency carries out surveys, mapping, and water resources investigations in cooperation with state and local governments, financed on a 50-50 basis.

The Bureau of Mines is responsible for conservation, research, and development of mineral resources, and for promotion of safety standards in mineral industries. It studies air and water pollution related to mineral development and use, and develops model control regulations in cooperation with industry. Its personnel also serve as advisors to local and state air groups. The Bureau also makes grants for research in solid waste disposal.

Some subjects of recent Bureau study include: sulfur compounds in fuel, (coal and oil); control of dusts and fumes from metallurgical and chemical processes; acid mine drainage; control of pollution from back-filling strip mined areas; and disposal of solid wastes from open pit and underground mining operations.

The Bureau of Commercial Fisheries conducts research and other programs for conservation and management of commercially important fishing resources on the high seas, coastal and estuary areas, the Great Lakes and other interestate waters, and at water projects of federal agencies. It also provides grants, loans, and technical assistance.

The Bureau of Sport Fisheries and Wildlife manages fish and wildlife resources in conjunction with state agencies. It operates national wildlife refuges and national fish hatcheries, and has special responsibilities for migratory birds, and rare and endangered species. The Bureau administers grant programs (Federal Aid in Wildlife Restoration and Federal Aid in Fish Restoration) providing funds for states to increase wildlife and fish populations.

The Federal Water Pollution Control Administration reviews water quality standards proposed by the states for interstate waters; carries out interstate enforcement actions; makes grants for construction of municipal waste treatment systems; carries out research and development programs; provides assistance for training fellowships and research; and makes river basin planning grants and program grants to state and interstate pollution control agencies.

The Bureau of Outdoor Recreation promotes coordination among federal plans and programs in this field, and identifies and plans actions needed to protect, develop, and improve the Nation's outdoor environment and recreation resources. The Bureau offers technical assistance to state and local governments and private interests in planning, acquisition, and development of outdoor recreation resources.

The Land and Water Conservation Fund Grant Program provides financial assistance for planning, acquisition, and development of state and local public outdoor recreation areas in accord with state outdoor recreation plans. The fund also finances acquisition of recreation lands and waters by the Bureau of Sport Fisheries and Wildlife, the Forest Service, and the National Park Service.

Bureau publications include a periodical, Outdoor Recreation Action, and reports on such subjects as recreation trends, land price escalation, available trails, and private and federal aids to recreation.

Department of Agriculture

The Forest Service manages the National Forests and Grasslands to ensure multiple use and sustained yield of renewable natural resources. It conducts research in forest and other wild land management, forest fire prevention and control, forest insect and disease control, forest products utilization, forest land recreation, and forest economics.

Through its Cooperative Forestry Programs, the Forest Service provides technical and financial aid to state, local, and private forest landowners in cooperation with state agencies to encourage better fire, insect, and disease protection; better multiple-use management practices; increased tree planting for windbreaks, shelter-belts, and forests; and improved practices in harvesting, processing, and marketing forest products.

Department of Commerce

The Environmental Science Services Administration serves public agencies and the public in efforts to protect woodlands, ranges, waterways, and coastal areas against fire, flood, and storm. ESSA provides six categories of services: fire, agricultural weather and data, forecasts concerning rivers and floods, the Continental Shelf, the environment, and air pollution.

The Air Pollution Service is developing methods to forecast those atmospheric conditions which favor hazardous pollution concentrations as a basis for control of industrial and other sources of pollution.

Department of Housing and Urban Development

The Land and Facilities Development Administration administers a number of public facility grant and loan programs in accord with local comprehensive plans of public agencies in urban areas.

The Program for Advance Acquisition of Land provides financial assistance to reserve land for future public works and facilities.

The Open Space Land Program shares costs of acquiring, developing, and preserving open space land for permanent public uses, including recreation, conservation, and natural beauty; it may also cover costs of buying developed land to be cleared and used for open space, and some costs of demolition and development of land acquired under the program.

The Public Works Planning Program offers interest free financial advances for surveys and studies necessary to public works projects such as sanitation and water facilities, roads and streets, parks and recreation facilities, and non-federal river and harbor improvements. The Sewer and Water Facilities Program shares costs of construction of these facilities.

The Renewal Assistance Administration administers and coordinates urban improvement programs in developed areas.

Its Code Enforcement Program offers financial assistance for local planning and administration of programs to arrest deterioration and aid restoration of both properties and environments.

The Community Renewal Program provides financial assistance in preparing, completing, or revising renewal programs, including costs of studies.

The Demolition Grant Program helps pay for demolition of legally unsound structures in or out of urban renewal areas.

The Urban Beautification Program makes grants for local beautification and improvement work, such as development of parks; upgrading of public areas, such as malls and waterfronts; and for provisions of "street furniture" and planting.

The Urban Renewal Program helps communities in acquiring and clearing land for redevelopment, rehabilitation of existing structures, enforcement of housing codes, and combinations of these. Grants, planning advances, and temporary loans and guarantees are available.

The Urban Renewal Demonstration Program helps pay costs of projects which demonstrate, develop, or test new or improved methods of preventing or eliminating urban blight.

Department of Defense

The Department's military installations encompass about 27.6 million acres of American territory. Individual installations constitute planned communities equivalent to comparable sized cities and towns. Professionals trained in applicable sciences (such as agronomy, biology, entomology, forestry, landscape architecture, master planning, and sanitary engineering) administer various programs relating to soil and water conservation, dust control, pest control, sound abatment, landscape design, "pride of ownership" programs among housing occupants, forest management, fish and wildlife conservation, recreational uses of land, and air and water pollution control.

Federal Agencies Listed

Department of Agriculture

Agricultural Research Service, Agricultural Stabilization and Conservation Service, Cooperative State Research Service, Economic Research Service, Farmers Home Administration, Forest Service, Soil Conservation Service

Appalachian Regional Commission

Atomic Energy Commission

Department of Commerce

Economic Development Administration, Environmental Science Services Administration, National Bureau of Standards

Delaware River Basin Commission

Department of Defense

Army Corps of Engineers

Environmental Protection Agency

Executive Office of the President

Council on Environmental Quality, Office of Science and Technology

Federal Power Commission

Department of Health, Education, and Welfare

Environmental Health Service, Environmental Control Administration, Food and Drug Administration, National Institutes of Health, Office of Education

Department of Housing and Urban Development

Department of the Interior

Bonneville Power Administration, Office of Coal Research, Bureau of Sport Fisheries and Wildlife, U. S. Geological Survey, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Mines, National Park Service, Bureau of Outdoor Recreation, Bureau of Reclamation, Office of Saline Water, Office of Water Resources Research.

International Boundary and Water Commission, United States and Mexico

International Joint Commission, United States and Canada

Department of Justice

National Aeronautics and Space Administration

National Science Foundation

National Water Commission

Commission on Population Growth and the American Future

Smithsonian Institution

Department of State

Tennessee Valley Authority

Department of Transportation

U. S. Coast Guard, Federal Aviation Administration

Water Resources Council

Activity 1

Do not write on this form.

Objective: I will identify the governmental agencies providing employment opportunities for resouces managers.

Materials: This self check activity.

ACTIVITY

In order to successfully complete this activity, you will need to do the following things:

1. Read the previous material on governmental agencies employing resources managers.
2. Complete the self-check activity.

Self Check

Instructions: Do all of the following.

For each job family listed below, identify two government agencies providing employment opportunities in that job family.

Parks: (1) _____
(2) _____

Forests: (1) _____
(2) _____

Agriculture: (1) _____
(2) _____

Fish and Game: (1) _____
(2) _____

Conservation: (1) _____
(2) _____

Pollution: (1) _____
(2) _____

How will I know I've done it correctly? **I will turn in my completed work to my teacher.**
I will check my answers with the answer sheet.

Activity 2

Do not write on this form.

Objective: To be able to investigate and describe a job in the MOG being studied.

Materials: Job Description Form, information from the following resources: The Dictionary of Occupational Titles, the Job Card Box; the Resources Speaker who comes to your school, and Vocational Biographies.

ACTIVITY

1. Choose 2 job titles from your MOG.
2. Fill out the attached Job Description Form for each job title.

How will I know I've done it correctly? . . . I will complete 2 job description forms and turn them in to my teacher for review.

Job Description Form

1. Job Title _____
2. Major Occupational Group _____
3. Hours that I would work _____
4. Pay _____
5. Duties I would have to perform regularly _____
6. Type of equipment (if any) I would have to use _____
7. Educational Requirements _____

_____

8. People who would be my associates in this job.

_____	_____	_____
_____	_____	_____

9. In this job I would work: with others _____ alone _____
10. Training or Experience I would need _____

_____

11. My chances for advancement (career ladder, mobility) in this job are good _____ poor _____
12. I could advance from this job to the job of _____ by doing the following things: (Education, experience, or further training) _____
13. I like the following things about this job _____

_____

14. I dislike the following things about this job _____
15. What could I do now so that I might get this job? _____

_____

Activity 3

Do not write on this form.

Objective: I will visit sites at which the MOG being studied can be observed.

Materials: Field trip questions, field trip evaluation form.

ACTIVITY

This activity is in two parts. Part 1 – The "Field Trip Questions" form is to be completed before you go on the field trip planned for this MOG. Part 2 – The "Field Trip Evaluation" form is to be completed after you return from the trip.

1. Fill out the "Field Trip Questions" form.
2. Your teacher will check your form. This will help in planning the trip so that all of the students can see some things of interest.
3. After the trip, fill out the "Field Trip Evaluation" form.

How will I know I've done it correctly? . . . I will turn in the field trip forms to my teacher.

FIELD TRIP QUESTIONS

1. Place to be visited _____

2. I would like to see the following jobs

_____ _____

_____ _____

_____ _____

3. I would like to talk to the following types of workers

_____ _____

4. I would like to know the following about:

Salary _____

Working Conditions (where workers work) _____

Hours _____

Educational Requirements _____

Skills needed _____

Equipment used (if any) _____

Job mobility (advancement) _____

Things I can do now to prepare for this job _____

What the workers actually do _____

FIELD TRIP EVALUATION

Name _____

Date of Trip _____ Place _____

Special job observed _____

MOG being studied _____

1. In general, did you enjoy the visit? Yes ____ No ____
   If no, explain briefly _____

2. Did the trip help you better understand the Major Occupational Group which you are studying? Yes ___ No___
   Why _____

3. a. What jobs in the Major Occupational Group did you see being performed?

   b. Which of these jobs, if any, would you like to have?

   c. What did you find out about the requirements for jobs in the MOG?

   d. What did you find out about the kind of work (duties and type of work) done by people in this MOG?

4. Additional comments about this trip. _____

5. Write a two paragraph description of a typical day of a worker.

RESOURCES MANAGEMENT

Future Careers

The future of careers in Resources Management is bright for those who meet the necessary requirements. This activity packet will give you a chance to know what the experts think the future holds for careers in Resources Management.

WHERE AM I GOING?

By the time I finish this activity packet, I will know what the future is likely to be in any of the resources management careers.

HOW WILL I GET THERE?

1. Read the enclosed reading.
2. Conduct an experiment.

HOW WILL I KNOW . . .

I will complete the Brainstorming Activity.

I will record the results of the experiment.

FUTURE CAREERS

The future of Resources Management promises to be rewarding and action filled. The role and tasks of the Resources Manager will change as conditions change. Jobs in this area will continue to increase in number and variety.

Forests Management

Industry and government will always need foresters. The U. S. Forest Service alone hires from 250-300 new foresters every year. The demand for foresters in private industry and other governmental agencies is increasing every year. The likelihood is that this trend will continue because of the public concern for the environment and its wise use and protection.

The area of research in forestry promises to be most important in the future. Knowing how to combat natural enemies of forests such as insects and disease will gain greater emphasis as the need for forest products increases. In Georgia, the answer to control of the pine beetle will be found in research. Having this information will protect a valuable crop of the state and the nation.

Related to research is the concern for proper harvesting and reforestation of forests. Of course, harvesting and reforestation occur now; however, many problems confront the forest manager in this area. Examples of these problems are: cost and scarcity of aerial seeding, cost of hand labor in planting, danger of animals eating the tree seeds. In sum, the skills, knowledge and art of forest management will be continually refined in order to do a better job of forest management.

Agricultural Management

At the present time, farms in the United States are increasing in size and decreasing in number. As a result, fewer farmers are needed each year. Farms are increasingly becoming enormously large and expensive to operate. With so much national dependence on farm products for food and, thus, survival, the farmer will need to become more and more expert in all phases of the operations of farming. In the February 1970 issue of the National Geographic (Vol. 137, No. 2), you can read about how some experts feel farming will be in the future.

Pollution Control Management

The future of pollution control careers in public and private organizations is extremely good. Jobs ranging from research to in-the-field positions are being developed constantly as private and public citizens become concerned about our environment.

There is a great probability that research requiring in-the-field observations and tests will gain prominence. The Alaska Pipeline is a controversial issue because of possible harmful effects on the fragile tundra and wildlife habits. At present, no one is really sure of the environmental impact the pipeline will have. Scientists are now monitoring and will continue to monitor the impact of this pipeline. Imagine living and working in the vastness of the Alaskan wilderness!

Knowledge of how to curb pollution in populated areas will be even more important in the future. Cities in particular must find ways to curb air, water, waste (garbage), noise and other types of pollution. Steps are now being taken in these areas; however, the problem will continue in the future. A resource leader must know how to solve these problems and to get these solutions carried out. The future for a pollution control leader is very good. This area will provide career opportunities to those who are interested in the area.

Parks Management

The future of parks management is good. More and more people are having more leisure time with shortened work weeks and longer vacation periods. The demand for park management personnel will continue.

The parks managers will be confronted with problems already beginning now. Greater influx of people into parks during vacation periods has meant tremendous congestion in almost all parks. The parks managers must provide more recreational facilities as well as maintain the old ones. More personnel for tours, law enforcement, and maintenance will be necessary. All of this means a larger, more complex job for people in parks management. Another future issue is how big should a park become or how many parks should be provided? Will there be vast changes in the use and amount of man's leisure time? The parks manager working to provide recreation and to protect the park environment will have many career opportunities in many locations. That person will have many problems to solve and decisions to make in the future, too.

Fish and Game Management

The increased amount of leisure time will mean increased demands for sport fishing and hunting. The fish and game manager will be called upon to ensure plenty of fish and game, but at the same time protect wildlife from over hunting or fishing. Care will have to be taken to protect natural breeding grounds and to monitor wildlife population to safeguard their survival. The fish and game manager can expect to have a life long career. However, the tasks and duties will change as new situations arise.

Activity 1

Do not write on this form.

Objective: I will take part in "brainstorming" so that I can think through some ideas about the future of certain jobs.

Materials: The attached brainstorming activities.

ACTIVITY

We can't always know for sure if jobs in this MOG will be around in the future, but we can do some creative, intelligent thinking about the future of jobs. We can take things we know are happening now and imagine how things might change in the future. One way to do this is to have fun with something called Brainstorming.

Get together with at least 2 other people in this MOG and follow the directions on the Brainstorming Activity Sheets. FOLLOW THE STEPS IN ORDER.

How will I know I've done it correctly? . . . I will have a solution to the problem.

FUTURE PROBLEM SOLVING PRACTICE

Name: _____ Date: _____

School: _____ Grade: _____

What will life in the United States be like in 2076? What ideas do you have for making life more fun that it is now?

Brainstorm as many ideas as you can. Write down your ideas and call them out to the rest of your team. Don't copy their ideas but you can hitchhike on their ideas.

Practice Brainstorming Rule 1: CRITICISM IS RULED OUT!

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

If you have any more ideas add them on the back.

2076 Tricentennial 2076 Tricentennial 2076 Tricentennial 2076

Now, let's practice Brainstorming Rule 2: "Free wheeling" is welcomed. Loosen up! The wilder the better! (Don't forget Rule 1.)

This time, try to imagine what will make people laugh in 2076! What will be funny that isn't funny now?

Call your ideas out to the rest of your team and hitchhike on one another's ideas.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

If you have any more ideas, write them on the back of this sheet.

Step 3

2076 Tricentennial 2076 Tricentennial 2076 Tricentennial 2076

Now let all of your ideas come out! Big ones. Little ones. Wild ones. Tame ones. Obvious ones. Strange ones. New ones. Old ones. Brainstorming Rule 3 is: QUANTITY IS WANTED. The more the better! (Don't forget the first two rules!)

What new sports and games will people play in 2076? What new games and sports would you like to see that we do not have now?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

If you have any more ideas about sports and games of the future, write them on the back of this page.

Finally, let's add Brainstorming Rule 4 and practice it along with the first three rules. COMBINATION AND IMPROVEMENT ARE SOUGHT. Think of an idea and then combine it with someone else's idea. Think of an idea and then improve it one way —— and then another —— and then another. ..

What are some of the new kinds of work people will do in 2076? What are some occupations that will be common in 2076 that do not exist today?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

If you have any more ideas about future occupations, write them on the back of this page.

Step 5

2076 Tricentennial 2076 Tricentennial 2076 Tricentennial 2076

Now, we are ready to go beyond brainstorming and use your new skill in solving a future problem.

What measures will the United States have to take to protect the environment? In many areas of the United States, pollution of the air and water has reached dangerous levels. Many forms of wildlife are becoming extinct. Many natural resources such as oil and various minerals are becoming exhausted. Before 2076 something must be done or there will be no Tricentennial! Brainstorm as many possible solutions as you can think of. (Use all four brainstorming rules.)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

If you have some more ideas, write them on the back of this page.

Now you have more ideas than you can use! Which are your best ideas? How can you tell? In the spaces below, list what you think are the best "yardsticks" (criteria) for evaluating your ideas. For this practice, think of at least three and not more than five. (Decide on this as a team.)

1. _____
2. _____
3. _____
4. _____
5. _____

Now you are ready to use your "yardsticks" (criteria) to evaluate your solutions. Pick out some of your most promising ideas and list them in the spaces below. Write your criteria in the spaces at the top. Then take each of your criteria one at a time and rank each of your most promising ideas. (1 for best and 10 for lowest).

	Criteria					
Solutions	1	2	3	4	5	TOTAL
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

What do you think is your best solution? Restate it below.

_____

Can you improve it? Try to make your best solution better. Write your improved solution on the other side of this page.

This material is from some work developed and used by E. Paul Torrance, Professor of Educational Psychology, University of Georgia, Athens, Ga. 1976.

Activity 2

Do not write on this form.

Objective: I will conduct an actual activity like some performed by workers in this MOG.

Materials: Water Test Kit on resource table.

ACTIVITY

This activity will give you a chance to actually conduct a test on water to check its purity. This is like some of the activities done by persons in Resources Management.

Steps or Procedure:

1. Go to the resource table and find the Water Test Kit.
2. Read the instructions carefully.
3. Carry out the water test.
4. Answer the questions on the sheet provided in the Water Test Kit.

How will I know I've done it correctly? . . . I will show my work to my teacher for review.