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ABSTRACT

Five guides for the implementation of career education elements in the middle school (Grades 6-8) science curriculum are presented. Part 1 opens with a suggested implementation plan and includes unit guides containing suggested learning activities for each grade level, focusing on selected occupational clusters and occupations to provide for in-depth exploration. Part 2 focuses on a career education syllabus for use by middle schools science teachers. Unit guides, with suggested activities and resources, are presented for orientation and exploration in several occupational clusters which can be related to the existing curriculum at each grade level. Part 3 is a career guide for science and Parts 4 and 5 for biology, all at the secondary level. Each career guide is correlated with the text used and contains two parts: (1) teacher's handbook--implementation strategies, objectives, utilization of supplementary activities and resources, student evaluation form, career clusters, and related appendixes; and (2) student's career guide--directions, objectives, activities, career choices, career clusters selected for exploration, careers correlated with text, evaluation of student outcomes, locally available resource materials, and appended material including information about job application. (Author/EC)

FINAL REPORT

VOLUME II

CAREER GUIDES FOR SECONDARY SCIENCES

PROJECT NO. V361007L
GRANT NO. OEG-0-73-3004

A COMPREHENSIVE VOCATIONAL EDUCATION PROGRAM FOR CAREER DEVELOPMENT IN LEON COUNTY

CONDUCTED UNDER
PART C OF PUBLIC LAW 90-576

JUNE 15, 1973 - JUNE 30, 1975

FINAL REPORT

Volume II

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K. M. Eaddy, Chief
Bureau of Research and Evaluation
Division of Vocational, Technical and Adult Education
Department of Education
Tallahassee, Florida 32304

June 15, 1973 - June 30, 1975

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IMPLEMENTATION OF CAREER EDUCATION ELEMENTS IN THE MIDDLE SCHOOL SCIENCE CURRICULUM

UNIT GUIDE FOR GRADES 6-8
COBB MIDDLE SCHOOL

IMPLEMENTATION OF CAREER EDUCATION ELEMENTS IN THE MIDDLE SCHOOL SCIENCE CURRICULUM

UNIT GUIDE FOR GRADES 6-8

DEVELOPED BY

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JULY 19, 1974
LEON DISTRICT CAREER EDUCATION PROJECT
925 MICCOSUKEE ROAD
TALLAHASSEE, FLORIDA

JAMES C. TALLEY, DIRECTOR

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I. INTRODUCTION

As one aspect of the development of a new science curriculum for Cobb Middle School, grades 6-8, an on-going program for Career Education was defined and correlated with various topics of the proposed science continuum.

Four occupational clusters and selected occupations were identified for in-depth exploration at each grade level, and the development of unit guides to be utilized in 1974-75 was initiated. The clusters were selected for in-depth exploration on the basis of their appropriate relationship to the topics in the on-going curriculum at each grade level.

It might be mentioned here that, although the unit guides were developed in correlation with a specific science continuum, the topics are of such a general nature that the guides can be utilized with most middle school science curricula.

Since the guides represent the product of a one-week workshop, only preliminary planning was possible. As the following school year progresses and the units are implemented, they will be expanded with additional resources and activities and will be revised by the end of the year. Suggestions for follow-up activities and unit evaluation include the following:

--Provision of one "release" day for teachers, after each unit is implemented, to expand and revise the unit guides.

—Submission of an evaluation report on each unit, as completed;

inclusion of pre- and post-test data in evaluation report.

II. IMPLEMENTATION PLAN

Sixth Grade

The sixth-grade science curriculum will be designed to incorporate career awareness/exploration experiences in all occupational clusters throughout the school year.

In addition, emphasis will be placed on in-depth exploration of two of four identified clusters per semester. They include

—Agri-business and Natural Resources - Jeweler
—Environment - Forestry
—Health - Medical Careers
--Manufacturing — Technology

Each cluster will be explored over a period of three weeks and will be correlated with the topics in the existing science continuum.

Seventh Grade

The seventh grade science curriculum will provide for a general discussion of careers as they pertain to related topics in the existing continuum.

As in the sixth grade program, an emphasis will be placed on in-depth exploration of four selected occupational clusters. They include

—Transportation - Aviation
--Marine Science - Marine Science (general)
—Communications and Media - Radio and Television
—Environment - Environment (general)

The cluster explorations will be implemented as they relate to their corresponding topics in the on-going continuum rather than as separate units. The students who take science for one semester will explore two of the clusters and those who take science for the full year will explore all four selected clusters.

Eighth Grade

The eighth grade will implement two in-depth cluster exploration per semester, since there are semester and year-long courses offered in 7th and 8th grades. Tentative scheduling provides for the following presentation of units:

1st Semester - Agri-business and Natural Resources - Zoology
Environment - Historical Geology

2nd Semester - Communication and Media - Telephone Industry
Environment - Space Industry

Each unit will be of approximately three weeks duration, as it will be interspaced with related subject matter.

III. SCIENCE/CAREER EDUCATION UNIT GUIDES

Objectives of Unit Guides

The general objectives emphasized in the unit guides are, as follows:

A. To provide orientation to the world of work

B. To provide career exploration experiences for all science students in grades 6-8, in selected occupational clusters, at each grade level

C. To provide self awareness, educational awareness, economic awareness and "hands-on" experiences as they relate to career exploration

D. To provide opportunities for practical application of the following process skills in all activities:

--observing
--classifying
--inferring
--predicting
--measuring
--interpreting
--formulating
--experimenting
--model building

The following pages include the unit guides developed for the selected occupational clusters and related careers to be explored in grades 6-8. Although the guides are directed to the general objectives stated above, time did not allow for the definition of specific objectives. Rather, an initial effort was made to review available resource materials and identify possible activities for the implementation of general objectives.

As the units are expanded and revised, student objectives and expected outcomes will be stated.

SCIENCE/CAREER EDUCATION UNIT GUIDES

GRADE SIX

CAREER CLUSTER Health Occupations

AREA OF OCCUPATION Medical Careers

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. Research and report Job Personnel Requirements for some Health Occupations. 2. Read books and use filmstrip/cassette on Hospital Workers. 3. Share experiences of students who have been in the hospital. 4. Identify pieces of medical equipment; classify each according to hospital area in which it is most commonly used. 5. Invite health nurse to visit class. 6. Invite veterinarian to visit class. 7. Learn different types and parts of teeth. 8. Research types of drugs used in dental practice. 9. Collect and file all materials on use of fluoride to help prevent tooth decay. 10. Report on anaesthetics used in dentistry.	A. Units LOOM X-Ray Technician Dentist Dental Assistant Periodontist Orthodontist Public Health Nurse Hospital Attendant Veterinarian Orange County Career Development Program Careers in Veterinary Medicine - Grade 4 The Veterinarian - Grade 1 B. A/V Materials Filmstrip/Cassette SVE "Job Opportunities in the Hospital" Film - "The Kingdom that Could Be You - Health", (Media Center) Westinghouse LPS. Career Education Cluster - "Health Occupations", Filmstrip/Cassette (Cobb Media Center)

CAREER CLUSTER Health Occupations (continued)

Description of Activities	Resources
11. Make scrapbook of collected materials relating to periodontology.	C. Others Books (Cobb Media Center) Your Career in Nursing Find a Career In Medicine Animal Doctor Health Care Careers Your Future in Optometry Magazines Vol. 2, No. 9, Mid May, 1974 "Physician's Assistant" p. 13, "CAREER WORLD" Vol. 2, No. 4, "Medical Technologist", "CAREER WORLD" Vol. 2, No. 2, Mid Oct., 1973 "Animal Care Jobs" p. 17, "CARLER WORLD"

CAREER CLUSTER Environment Occupations

AREA OF OCCUPATIONS Floristry

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. Identify and label the basic parts of a flower. 2. Grow plants from seeds; discuss stages of development such as germination. 3. Take field trip to nursery and/or around school grounds. 4. Discuss duties of workers in the field of floral industry. 5. Invite horticulturist or florist to visit the class. 6. Construct a terrarium and discuss how plants relate to environment.	A. Units LOOM Florist Gardener/Groundskeeper Horticulturist Citrus Fruit Pickers Citrus Grove Protection Worker Citrus Farmer Landscape/Nurseryman Orange County Career Development Program Greenhouse Workers - Elementary Unit Career in Floral Industry - Elementary Unit The Floral Designer - Grade 3 B. A/V Materials C. Others Books (Cobb Media Center) Job That Save Our Environment

CAREER CLUSTER Environment Occupations (continued)

Description of Activities	Resources
	Periodicals "Flower Business Blooms and Blooms" Florida Grower and Rancher, January 1973 "Mini Gardens", Better Homes and Gardens, January 1973

CAREER CLUSTER Manufacturing Occupations

AREA OF OCCUPATIONS Technology

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. Prepare bulletin board of past and present technological devices found in the home. Draw pictures of devices that might replace these devices in the future. 2. Draw and identify at least 15 hand tools required to repair small appliances. (Use tools in class project) 3. Demonstrate knowledge of five safety rules which apply to use of hand tools. 4. Build a parallel circuit for Question/ Answer-Quiz Board. 5. Research school library for technological careers.	A. Units FAIS - Technology in The Home-Learning Sequence D, Lesson 5 Orange County Career Development Program - Electricity - Electrical Appliance Serviceman (Small Resistive Type)

CAREER CLUSTER Natural Resources

AREA OF OCCUPATIONS Jeweler

OBJECTIVES Refer to GENERAL OBJECTIVES A→D, page 6

Description of Activities	Resources
1. Make shell and rock jewelry. Determine the kinds of rocks and shells and where they came from. 2. Show slides and discuss the jeweler and his work. 3. Invite a gemologist to class to discuss cost and production of jewelry. 4. Take a field trip to the jewelry store.	A. Units LOOM The Jeweler The Rock Miner B. A/V Materials Media Center and School Library will be utilized for filmstrips and films. C. Others Magazines National Geographic Local Gemologist

GRADE 7

CAREER CLUSTER Transportation

AREA OF OCCUPATIONS Aviation

OBJECTIVES Refer to General Objectives A-D, page 6

Description of Activities	Resources
1. Present mini-lecture on careers in transportation. 2. Present films on careers in transportation. 3. Invite guest speaker. 4. Read related pamphlets and handouts in classroom. 5. Design an airplane and have flying contest. 6. Make bulletin board on careers in aviation. 7. Make up a dictionary on aviation and related careers. 8. Work in LAP pack. 9. Work in booklet "People Who Help Us Fly".	A. Units LOOM Air Traffic Controller Orange County Careers in Marine Transportation What Can I Do At An Airport? Careers in Land Transportation Dade County Careers in Water Transportation People Who Help Us Fly B. A/V Materials "The Kingdom of Could Be You - Transportation", (Leon County Films) "Airplanes Work For Us", (Leon County Films)

CAREER CLUSTER Transportation (continued)

Description of Activities	Resources
10. Write letters to airlines and request qualifications needed for jobs in aviation.	Free Films
11. Visit an airport.	Department of Air Force, Lockhead, Georgia
12. Role-play jobs connected with an airplane trip.	Westinghouse filmstrip/cassette, "Transportation" cluster, (Cobb Media Center)
13. Construct a model airport.	Scott Education Division, filmstrip/cassette, "Jet Flight 923", (Career Education Center)
14. Play games related to air traffic controller. (Found in LOOM unit on Air Traffic Controller.)	C. Books (Cobb Library) Airline Stewardess Your Career in Transportation Find a Career in Aviation

CAREER CLUSTER Communication and Media

AREA OF OCCUPATION Radio and T.V.

OBJECTIVES Refer to General Objectives A-D, page 6

Description of Activities	Resources
1. Present mini-lecture on careers in radio and T.V. 2. See films and filmstrips on careers in radio and T.V. 3. Invite guest speakers on careers in radio and T.V. 4. Read pamphlets and handouts in classroom. 5. Work in booklet "Careers in Radio and T.V." 6. Build a crystal radio. 7. Visit a radio and/or T.V. station. 8. Do research on careers in radio and T.V. and give an oral report. 9. Construct a T.V. control panel. 10. Discuss the use of sound and light waves in T.V. 11. Set up model radio station. 12. Construct experiments with sound and light.	A. Units LOOM Radio Announcer T.V. Cameraman T.V. Announcer Orange County Careers in Television Careers in Radio and T.V.

CAREER CLUSTER Marine Science

AREA OF OCCUPATIONS Marine Science

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6.

Description of Activities	Resources
1. Present a mini-lecture on Marine Science. 2. Present films related to Marine Science. 3. Invite a guest speaker. 4. Read related pamphlets and handouts in the classroom. 5. Make a scrapbook of pictures relating to Marine Science. 6. Write letters to universities that offer courses in Marine Science and ask for catalogues. 7. Take a field trip to a university lab. 8. Take a field trip to St. Marks. 9. Role-play employer looking for workers in the field of oceanography. Write a newspaper ad giving qualifications, salary, and living conditions for various related careers. 10. Design an underwater sea lab.	A. Units LOOM Fish Market Manager Shrimp Farmer Fish Farmer Oceanographer Marine Biologist Orange County Career in Marine Transportation Careers in Marine Research Careers in Oceanography FAIS - Learning Sequence C, Marine Science B. A/V Materials "The Kingdom of Could be You - Marine Science" "Oceanography"

CAREER CLUSTER Marine Science (continued)

Description of Activities	Resources
11. Make a bulletin board of career possibilities in Marine Science.	
12. Design and equip an undersea vehicle of the future.	
13. Set up an organization for deep-sea research. Name it, decide on its headquarters, and outline its activities.	

CAREER CLUSTER Environmental Occupations

AREA OF OCCUPATIONS Environment

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. Present mini-lecture on environmental occupations. 2. Present films on environmental occupation. 3. Read related pamphlets and handouts in classroom. 4. Invite guest speaker. 5. Do the activities in "FAIS" Learning Sequence C, Parts I and II. 6. Do "model cities" simulation exercise. 7. Make up an environmental dictionary. 8. Construct a terrarium. (See 6th grade activity on this). 9. Make a class scrapbook with articles about environmental occupations.	A. Units. LOOM Gardener-Groundskeeper Forestry Aid Citrus Fruit Picker Wildlife Manager Pepper Farmer Landscaper Orange County Careers in Conservation & Ecology Careers in Conservation of Wildlife Careers in Pollution Control and Abatement Pollution Control Specialist B. A/V Materials "The Kingdom of Could Be You - Environment" (Leon County Media Center) "How to Study Ecology", (Leon County Media Center) C. Others Books (Cobb Media Center) Jobs That Save Our Environment Careers for the 70's - Conservation Forest Fire Fighters and What They Do

CAREER CLUSTER Environmental Occupations (continued)

Description of Activities	Resources
	Magazines "Environmental Careers", Vol. 2, No. 3, November 1973, "Career World"

[illegible] CAREER EDUCATION UNIT GUIDES

GRADE 8

CAREER CLUSTER: Communications & Media

AREA OF OCCUPATIONS: Telephone Industry

OBJECTIVES: Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. LAP package - Orange County (upper grade unit) 2. Trip to telephone company. 3. Speaker(s) from telephone company. 4. Use Teletrainer from phone company. 5. Bulletin board on job opportunities. 6. Draw and explain the workings of a telephone. (Others listed in Orange County unit)	A. Units Orange County Telephone Industry (Upper) B. A/V Materials Films "The Phone Man", (Bell Telephone Co.) "Operator", (Bell Telephone Co.) "Impact of Communication", (Bell Telephone Co.) "Concept of Communication", (Bell Telephone Co.) "If an Elephant Answers", (Bell Telephone Co.) C. Others Books (Cobb Media Center) Careers and Opportunities in Science Your Careers in Electronics Encyclopedia of Careers Kits Occupational Guidance Kit Career Exploratory Kit; Finding Your Job Kit

CAREER CLUSTER Communications & Media (continued)

Description of Activities	Resources
	Pamphlets "Careers in Communication" (Bell Telephone Co.) "Cardiac" aid to computation (Bell Telephone Co.)

CAREER CLUSTER Environment

AREA OF OCCUPATION Historical Geology (Related & Specialists)

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. Speaker from Geology Department FSU or FAMU. 2. Amateur spelunker. 3. Visit to nearby Indian mounds or Geology Bldg., FSU or FAMU. 4. Play Dino-Bingo (LOOM Unit) 5. Bulletin board on job opportunities in geology. 6. Make fossil or foot print castings (Plaster of Paris)	A. Units LOOM Paleontologists (adapted) B. A/V Materials Films "Horizons Deep, Horizons Wide" (American Petroleum Institute) "John Wesley Powell, Canyon Geologist" (U.S. Geological Survey) C. Others Books (Cobb Media Center) Careers and Opportunity in Science Encyclopedia of Careers Archeologists and What They Do Kits Occupational Guidance Kit Career Exploratory Kit Finding Your Job Kit

CAREER CLUSTER Environment (continued)

Description of Activities	Resources
	Pamphlets "Archeology as a Career" (Archeological Institute of America) "Geology: Science and Profession" (American Association of Petroleum Geologists)

CAREER CLUSTER Agri-Business and Natural Resources

AREA OF OCCUPATION Zoology (Related and Specialists)

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. Visit Junior Museum 2. Speaker: Game and Fresh Water - Fish Commissioner Junior Museum Florida Department of Commerce Veterinarian 3. LAP package (teacher prepared) 4. Visit biological (zoological) labs at FSU or FAMU (view animals in research) 5. Bulletin board on careers in zoology.	A. Units LOOM Herpetology Worm Farmer Veterinarian Orange County Zoo Work Poultry Farmer Pet Care Veterinary Medicine Fish Hatchery Cattle Rancher B. A/V Materials Film "My Four Sons", Florida Department of Commerce C. Others Books (Cobb Media Center) Zoo Careers Animal Doctor Encyclopedia of Careers Careers and Opportunities in Science So You Want to be a Scientist Careers in Biological Science

CAREER CLUSTER Agri-Business and Natural Resources (continued)

Description of Activities	Resources
	Kits Occupational Guidance Kit Career Exploratory Kit Finding Your Job Kit Pamphlets "Animals in Atomic Research", U.S. Atomic Energy Commission

CAREER CLUSTER Environment

AREA OF OCCUPATION Space Industry

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 6

Description of Activities	Resources
1. LAP package (adapted from Orange County unit) 2. Make models of space complex. 3. Make models of rockets launched. 4. Hold model rocket launching. 5. Have speaker form NASA (or retired serviceman) 6. Bulletin board on job opportunities in space industry.	A. Units Orange County Travel Related Services Related unit- Astronaut (Ele.) LOOM Astronaut B. A/V Materials N.A.S.A. "Assembling Apollo" "Testing Apollo" "Mission Control" "Apollo Recovery" "Research in the Atmosphere" C. Others Books (Cobb Media Center) Your Career in the Aerospace Industry Careers and Opportunities in Science Your Career in Transportation Find a Career in Aviation Encyclopedia of Careers

CAREER CLUSTER Environment (continued)

Description of Activities	Resources
	Kits Occupational Guidance Kit Career Exploratory Kit Finding Your Job Kit Pamphlets "Space Primer" (Aerospace Corporation)

APPENDIX A

RESOURCE MATERIALS

RESOURCE MATERIALS

BOOKS

R371.42 H	Encyclopedia of Careers and Vocational Guidance
371.42 Ber	Jobs That Save Our Environment
371.42 B	Your Career in the Aerospace Industry
371.42 B	Archeologists & What They Do
371.42 Brl	Zoo Careers
371.42 D	Your Future in Computer Programming
371.42 Dodd	Careers for the 70's - Conservation
371.42 E	Airline Stewardess
371.42 Fen	MS = MD
371.42 F	Careers in Biological Sciences
371.42 G	Your Future in Optometry
371.42 H	Forest Fire Fighters & What They Do
371.1 D	Your Career in Teaching
371.42 Kay	Health Care Careers
371.42 L	Your Career in Transportation
371.42 N	Engineers Unlimited

371.42 N	Your Career in Electronics
371.42 N	So you Want to Be A Scientist
371.42 Pol	Careers & Opportunities in Science
371.42 S	Your Career in Nursing
371.42 S	Find A Career in Nursing
371.42 S	Find A Career in Aviation
371.42 S	Find A Career in Medicine
371.42 Whi	Animal Doctor

* May Be Found In Cobb Media Center

FILMS*

1. "The Kingdom of Could Be You - Agri-Business"
2. "The Kingdom of Could Be You - Environment"
3. "The Kingdom of Could Be You - Health"
4. "The Kingdom of Could Be You - Marine Science"
5. "The Kingdom of Could Be You - Transportation"
6. "Airplanes Work For Us"
7. "Community Helpers - Sanitation Department"
8. The Weather Man - A Community Helper"
9. "Weather Map"
10. "How to Study Ecology" - 1st Film
11. "Oceanography"

TRANSPARENCIES*

1. "Brofessional Health Specialists" (20 Trans.) 610T

*May be found in Leon District Media Center.

FILM STRIPS

*Westinghouse; Film Strips & Cassettes, "Fifteen Occupational Clusters"

**"Commitment to What?"

"Discovering What Life's All About"

"Learning to Make Decisions"

"Success - What Is It?"

"The Newspaper Reporter"

"What Is A Job?

"What Good Is School"

"Why Study?"

"Who Are You"

*May be found in Cobb Media Center.
**May be found in Career Education Center.

CAREER EXPLORATORY KIT*

Job Titles Available

-A-

1. Aerospace Engineer
2. Aerospace Engineering Technician
3. Agriculture Agent
4. Agriculture Engineer
5. Agricultural Jobs
6. Agricultural Research Careers
7. Agronomist
8. Air Traffic Controller
9. Anesthetist
10. Anthropologist
11. Archaeologist
12. Astronomer
13. Atomic Energy Engineers & Scientists
14. Atomic Energy Technicians
15. Audiologist

-B-

1. Bacteriologist
2. Biochemist
3. Biologist
4. Biophysicist
5. Botanist
6. Butcher-Meat Cutter

-C-

1. Chemical Engineer
2. Chemical Laboratory Technician
3. Chemist
4. Chiropodist
5. Chiropractor
6. Clinical Pathologist
7. Clinical Psychologist
8. Coal Miner
9. Conservationist

-D-

1. Dairy Farmer
2. Dental Assistant
3. Dental Hygienist
4. Dental Laboratory Technician
5. Dentist
6. Diesel Mechanic

7. Dietitian
8. Drug Inspector
9. Drug Store Salesperson

-E-

1. Electrical Engineer
2. Electrical Technician
3. Electrical Repairman
4. Electrical Transmission Occupations
5. Electricians
6. Electric Power Plant Occupations
7. Electronic Computer Personnel
8. Electronic Technicians
9. Entomologist

-F-

1. Farmer, Cattle
2. Farmer, Dairy
3. Farmer, Fruit
4. Farmer, Poultry
5. Farmers
6. Farmer, Truck
7. Farm Manager
8. Fisherman, Commercial
9. Floral Designer
10. Food & Drug Inspector
11. Food Scientist
12. Food Service Supervisor
13. Forester Technician
14. Forester

-G-

1. Geneticist
2. Geologist
3. Geophysicists

-H-

1. Health Careers
2. Health Physicist
3. Horticulturist
4. Hospital Administrator
5. Hospital Jobs
6. Hygienist

-I-

1. Ichthyologist
2. Industrial Electronics Technician
3. Industrial Engineer

-J-

-K-

-L-

1. Landscape Maintenance Superintendent

-M-

1. Machine Tender, Production
2. Machine Tool Operator
3. Machinist
4. Marine Architect
5. Marine Engineer
6. Meat Cutter, Retail
7. Medical Technologist
8. Metallurgical Engineer
9. Meteorologist
10. Microbiologist
11. Mycologist

-N-

1. Nurse Anesthestist
2. Nurseryman
3. Nutritionist

-O-

1. Oceanographer
2. Ophthalmologist
3. Optician
4. Optometrist
5. Orthodontist
6. Orthoptist
7. Orthotist
8. Osteopathic Physician

-P-

1. Paleontologist
2. Pathologist, Clinical
3. Pathologist, Plant
4. Petroleum Engineer
5. Petroleum Production Occupations
6. Petroleum Refining Occupation
7. Pharmacist
8. Pharmacologist
9. Physicist

-P- con't

10. Podiatrist
11. Poultry Farmer

-Q-

-R-

1. Radiographer
2. Radiologic Technologist
3. Radiation Monitor

-S-

1. Sanitarian
2. Science & Engineering Technicians
3. Scientists, Biological
4. Scientists, Earth
5. Scientists, Physical
6. Space Careers
7. Speech Pathologist

-T-

1. Technicians
2. Technicians, Science & Engineering
3. Therapists
4. Tree Surgeon

-U-

-V-

1. Veterinarian

-W-

1. Wildlife Specialists
2. Wood Scientist

-X-Z-

1. X-Ray Technician
2. Zoologist

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*Career Exploratory Kit
Careers, Inc.
P. O. Box 135
Largo, Florida 33540

*May Be Found In Cobb Middle School Media Center

OCCUPATIONAL GUIDANCE KIT*

Job Titles Available

Aerial Crop Duster
Aerial Photographer
Aerodynamic Engineer
Aeronautical Engineer
Air Traffic Controller
Astronaut
Space Communications Scientist
Flight Instructor
Agricultural Economist
Agricultural Engineer
Agricultural Research Worker
Agronomist
Beekeeper (Apiarist)
Botanist
Cannery Fieldman
County Ag. Agent
Dairy Herd Improvement Supervisor
Grain Buyer
Grain Inspector
Horse Breeder
Horticulturist
Irrigation Engineer
Landscape Nurseryman
Livestock Buyer (Farmer)
Soil Scientist
Tree Expert
Veterinarian
Vocational Agricultural Teacher
Air Conditioner & Refrigeration Engineer
Air Pollution Control Engineer
Anesthesiologist
Anesthetist
Computer Design Engineer
Computer Operator
Computer Programmer
Computer Serviceman
Criminology
Cryptographer
Dairy Technologist
Dam Construction Engineer
Darkroom Technician
Dental Assistant
Dental Hygientist
Dental Technician
Dentist
Dermatologist
Designer, Floral
Animal Trainer, Wild
Anthropologist
Archeologist
Archeologist, Underwater
Architect, Landscape
Astronomer
Atomic Scientist
Audio Engineer
Bacteriologist
Bacteriologist Fishery
Biochemist
Biologist
Botanist
Ceramics Engineer
Chemical Engineer
Chemical Lab Technician
Chemist, Analytical
Chemist, Consulting
Chemist, Food
Chemist, Hi Temp
Chemist, Paint
Chemist, Paper
Chemist, Petroleum
Chemist, Physical
Chemist, Plastics
Chemist, Research
Chemist, Rubber
Chiropodist (Podiatrist)
Chiropractor
Civil Engineering Tech
Clinical Audiologist
Fire Inspector
Fire Investigator
Fish & Wildlife Conservationist
Food Technologist
Furniture Refinisher
Game Warden
Geographer
Geologist
Geologist, Petroleum
Glassblower
Glazier
Greenskeeper
Artificial Limb Maker
Blood Bank Technologist
Health Information Writer

(continued)

Designer, Textile
Designer, T. V.
Diamond Cutter
Mechanic-Auto, Diesel, Plane
Dietitian
Osteopathic Surgeon
Specialist (Dr.) Ear, Nose, Throat
Electrical Engineer
Electrolysis Expert
Electronic Engineer
Electronic Draftsman
Electronic Technician
Electroplater
Electrotyper
Endocrinologist
Entomologist
Experimental Psychologist
Extractive Metallurgist
Extruder Operator (Plastics)
Federal Food & Drug Inspector
Fingerprint Identification Expert
Orthopedic Surgeon
Parasitologist
Pathologist
Pediatrician
Periodontist
Pharmaceutical Representative
Pharmacist
Pharmacologist
Physical Therapist
Physician & Surgeon
Plastic Surgeon
Psychiatric Aide
Psychiatric Nurse
Psychiatrist
Public Health Nurse
Radiologist
Scalp Treatment Specialist
School Psychologist
Sociologist
Toxicologist
X-Ray Technician
Herpetologist
Horticulturist
Hydrologist
Ichthyologist
Illuminating Engineer
Jeweler
Key Punch Operator

Health Physicist
Industrial Nurse
Industrial Phychologist
Inhalation Therapist
Institution Psychologist
Nurse-LPN, RN, Male, Surgical, School
Medical Technician
Medical Illustrator
Medical Librarian (Record)
Medical Photographer
Medical Clerk
Medical Social Worker
Health Officer
Music Therapist
Occupational Therapist
Opthalmologist
Optician
Optometrist
Oral Surgeon
Orthodontist
Mineralogist
Mining Engineer
Mortician
Oceanographer
Pasteurizer
Pathologist
Physicist
Photoengraver
Photographer, Aerial
Photographer, Fashion
Photographer, Commercial
Photographer, Medical
Photographer, Under Water
Psychometrist
Safety Engineer
Orinthologist
Silversmith
Taxidermist
Teacher
Time & Motion Study Man
Zookeeper
Zoologist

(continued)

Marine Surveyor
Meat Cutter
Metallurgist, Physical
Meteorologist

*Occupational Guidance
Finney Company
3350 Gorham Avenue
Minneapolis, Minnesota 55426

*May Be Found In Cobb Middle School Media Center

FINDING YOUR JOB KIT*

Job Titles Available

Apple Picker
Beekeeper's Helper
Bicycle Repairman
Citrus Grower's Helper
Commercial Fisherman
Commercial Fisherman's Helper
Cotton Picker
Dairy Farm Helper
Dog Groomer
Farmhand
Fish Cutter
Fish Hatchery Worker
Florist's Helper
Laboratory Glassware Washer
Landscape Gardener
Mink Ranch Worker
Nurse's Aide
Research Farm Worker
Tree Trimmer

TOOL KITS**

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*Finding Your Job
Finney Company
3350 Gordon Avenue
Minneapolis, Minnesota 55426

*May Be Found In Cobb Media Center

**May Be Found In Cobb Occupational Specialist Center

PART 2

CAREER EDUCATION SYLLABUS

FOR

RAA MIDDLE SCHOOL SCIENCE TEACHERS

CAREER EDUCATION SYLLABUS

FOR

RAA MIDDLE SCHOOL SCIENCE TEACHERS

DEVELOPED BY

MARY J. HARVEY
MARY C. MILLS
LYNETTE B. RAY
GUSSIE L. MALLORY

RAA MIDDLE SCHOOL SCIENCE DEPARTMENT

EDITED BY

ELIZABETH CUNNINGHAM,
ACADEMIC CURRICULUM SPECIALIST
LEON DISTRICT CAREER EDUCATION PROJECT

AUGUST 16, 1974
LEON DISTRICT CAREER EDUCATION PROJECT
925 MICCOSUKEE ROAD
TALLAHASSEE, FLORIDA

JAMES C. TALLEY, DIRECTOR

TABLE OF CONTENTS

I. INTRODUCTION

To further incorporate Career Education into the science program at Raa Middle School, several occupational clusters have been identified as the point of departure for orientation and exploration activities. These clusters have been selected on the basis of their relationship to the existing curriculum at each grade level.

Unit guides for each selected cluster have been compiled for use during the '74-'75 school year. Since the guides represent a product of a one-week workshop, only preliminary planning was possible. As the school year progresses and units are implemented, unit guides will be expanded through the addition of resources and activities. Unit revisions, based on teacher evaluations and recommendations, will then be made.

Periodically, evaluation reports and resulting revisions will be submitted. In view of the time involved in accomplishing these tasks, it is recommended that teacher release time be provided to insure adequate planning and revision.

II. IMPLEMENTATION PLAN

The Raa science program will provide for orientation and exploration of various occupational clusters as they pertain to related topics in the existing science curriculum. However, an emphasis will be placed on selected occupational clusters and careers at each grade level.

Sixth Grade

The sixth grade program will include orientation to the following clusters:

--Marine Science Occupations
--Agri-Business and Natural Resources Occupations
--Health Occupations
--Environmental Science Occupations

Within these clusters various activities will be provided for orientation to one or more careers.

Seventh Grade

Seventh grade students will explore the following occupational clusters through discussions and activities:

--Communications and Media Occupations
--Environmental Science Occupations
--Manufacturing Occupations

Eighth Grade

In the eighth grade emphasis will be placed on exploration of specific careers within occupational clusters listed below:

--Marine Science Occupations
--Transportation Occupations
--Health Occupations

There will be flexibility, both in the scheduling and the duration of Career Education activities, depending on student interest and the amount of emphasis placed on individual clusters and/or careers.

III. SCIENCE/CAREER EDUCATION UNIT GUIDES

Objectives of Unit Guides

The general objectives emphasized in the unit guides are, as follows:

A. To provide orientation to the world of work.

B. To provide career exploration experiences for science students.

C. To correlate career orientation and exploration with the existing science program.

D. To provide self awareness and educational awareness as they relate to the world of work.

The following pages include unit guides developed for the selected occupational clusters and related careers. Although the guides are directed to the general objectives stated above, time did not allow for the development of specific objectives. Rather, an initial effort was made to review available resource materials and identify possible activities for the implementation of the general objectives. Specific objectives will be stated as units are expanded and revised.

RAA SCIENCE/CAREER EDUCATION UNIT GUIDES

GRADE 6

CAREER CLUSTER: Environmental Occupations

AREA OF OCCUPATIONS: Careers in Conservation
Careers in Pollution Control
Careers in Paleontology

OBJECTIVES: Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
A. Conservation 1. Invite resource persons to speak to class about their jobs. (Fish and Game Commission) 2. Discuss careers in conservation. 3. Role-play or pantomime various workers performing their jobs. 4. Construct a wildlife scene depicting animals in their natural habitat. (Shadow boxes or papier mache'). 5. Construct a bird feeder or bird house and then identify the birds that come to feed or nest. B. Pollution Control 1. Research at least one pollution-related problem and one career in pollution control and abatement.	A. Units LOOM Wildlife Manager (Grade 4) Paleontologist (Grades 3-5) Orange County Career Development Program Careers in the Conservation of Wildlife (Grade 6) Careers in Pollution Control and Abatement (Grade 6) The Game Warden (Grade 3) B. A/V Materials "The Kingdom of Could Be You-Environment" film, Leon District Media Center "How to Study Ecology" film, Leon District Media Center C. Others Books (Raa Library) 371.42H Careers in Natural Resource Conservation

CAREER CLUSTER Environmental Occupations (continued)

Description of Activities	Resources
2. Discuss careers in pollution control. 3. Match workers with the duties they perform. 4. Plan and decorate a bulletin board or individual collage poster of careers or related information. 5. Create an interest center (books, films, and pictures about this career). C. Paleontology 1. Discuss careers in paleontology. 2. Play Dino-Bingo. 3. Construct a small dinosaur (papier mache' or tubes and paper) 4. Play Dinosaur-Land. 5. Make a modern fossil. 6. Draw a dinosaur mural.	371.42J Careers Outdoors 371.42H Your Future in Forestry 643.9H Forest Fire Fighters and What They Do 371.42N Natures Guardian, Your Career in Conservation Magazines "What You Should Know About Environmental Careers," "Career World," Vol. 2, No. 3, Mid-Nov. 1973 pp. 4-17 Pamphlets "Information on Careers in Water Pollution Control," Environmental Protection Agency "The Air We Breathe," National Environmental Health Association.

CAREER CLUSTER Marine Science Occupations

AREA OF OCCUPATIONS Careers in Marine Research

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
1. Discuss careers in Marine Science. 2. Students go on a scavenger hunt to the library to identify the different careers in marine science and the tools necessary in the work of a marine scientist. 3. Discuss careers in marine research. 4. Pupils design and equip their own undersea vehicle of the future. 5. Many scientists urge the U. N. to set up an organization for deep-sea research. The class will plan such a body, give it a name, decide on its headquarters, and outline its activities---observe its outcome through direct observation and participation. 6. Pupils become the Off-Shore Divers Company looking for mineral deposits on the ocean bottom. They want to hire divers to work for them and live on the ocean bottom. Pupils will write a newspaper ad, extolling the advantages such as scenery, unusual living conditions, and so on.	A. Units LOOM Oceanographer (Grades 6-8) Shrimp Farmer (Grades 3-5) Orange County Career Development Program Careers in Marine Research (Grade 4) B. A/V Materials "The Kingdom of Could Be You-Marine Science," film, Leon District Media Center

CAREER CLUSTER Marine Science Occupations (continued)

Description of Activities	Resources
7. Take a field trip to the FSU Marine Science Lab at Turkey Point.	
8. Invite a resource person to speak to the class about marine research.	
9. Raise brine shrimp as an example of aqua-farming.	

CAREER CLUSTER Agri-Business and Natural Resources Occupations

AREA OF OCCUPATIONS Careers in Horticulture

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
1. Discuss occupations in Agri-Business and Natural Resources. 2. Discuss the four branches of horticulture giving examples of careers within each branch. 3. Plan a field trip to Town 'n' Country Nursery. 4. Grow plants from seeds (learning that growing their own plants can be rewarding). 5. Record effect of variables on plant growth. 6. Students work with landscaping using construction paper (shrubs, trees, and flowers) and/or just drawing. (Correlate with Math teacher-floor plan of house activity) 7. Plant flower seeds; when large enough, transplant at home. 8. List situations in wh ich a florist's services are needed. 9. Construct a terrarium. 10. Invite a florist or a garden club member to speak to class about flower arranging.	A. Units LOOM Horticulturist (Grades 3-5) Landscaper/Nurseryman (Grades 6-8) Florist (Grades 3-8) Citrus Fruit Picker (Grades 3-5) Citrus Grove Worker (Grades 3-5) Orange County Career Development Program Careers in Vegetable Farming (Grade 4) Careers in the Floral Industry (Grade 6) Careers in the Citrus Industry (Grade 4) Dade County People Who Help Grow Our Food (Primary) Careers in Agriculture (Intermediate) B. Others Magazines "Agri-Business: More Than Corn" "Career World; Mid May 1974, vol. 2, no. 9, pp. 4-15

CAREER CLUSTER Health Occupations

AREA OF OCCUPATION Careers in Public Health

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
1. Discuss careers in health. 2. Discuss careers in public health. 3. Invite resource person. 4. Set up an interest center (books & pamphlets). 5. Write a paragraph on the public health services we receive in our school. 6. Bring examples of public health ads. If on radio or T. V., write a brief description of the ad. 7. Check want-ads for openings in public health careers and bring in examples (or check want-ads in the classroom). 8. Make a collage. 9. Determine why only doctors are allowed to prescribe or issue certain drugs. 10. Discuss why special clothing is worn by hospital workers.	A. Units LOOM X-Ray Technician (Grades 6-8) Public Health Nurse (Grades 3-5) Dentist (Junior high/high school) Orthodontist (Grades 6-8) Periodontist (Grades 6-8) Orange County Career Development Program Careers in Public Health (Grades 7-9) Careers in a Hospital (Grade 5) Physical Therapy as a Career (Grades 7-9) Dade County Careers in Health (Grades 3-5) B. A/V Materials "Careers in Health" filmstrips from Raa "Careers, Nursing" filmstrip and record from Raa C. Others Books (Raa Library) 610.73D Careers for Nurses 371.42C Your Future in Dentistry 371.42F Your Future in Dental Assisting

CAREER CLUSTER Health Occupations (continued)

Description of Activities	Resources
11. Match public health careers with their duties 12. Take a field trip to the Public Health Dept.	371.42F Your Future in Dental Assisting 371.42G Your Future in Optometry 371.42N So You Want to Be A Doctor 371.42R Hospital Health Services 371.42S Your Future in Radiologic Technology 616W Hospital With a Heart Pamphlets "Careers in Dental Hygiene" "Pharmacy Serves Everyone" "Broadening Horizons in Dental Health" "What Does A Nurse Do?" "Dentistry - A changing Profession"

RAA SCIENCE/CAREER EDUCATION UNIT GUIDES

GRADE 7

CAREER CLUSTER Manufacturing Occupations

AREA OF OCCUPATION Technology

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
Correlate class activities involving simple machines and electricity to careers in technology. 1. Read about practical uses of simple machines in technology and everyday life. 2. Discuss, formally and informally, the uses of simple machines in technology and everyday life. 3. Make, display, and/or demonstrate technological devices (simple machines). 4. Visit work sites where simple machines are being used. 5. Research the development of simple machines from early cave men to present. 6. Identify occupations in which each of the simple machines can be used. 7. Evaluate technology in terms of contribution to society and its prestige.	A. Units Orange County Career Development Center "Electrical Appliance Serviceman (Small Resistive Type)," Electricity "Electrical Appliance Serviceman (Large Resistive Type)," Electricity FAIS "Technology in the Home," Set I, Sequence D, Lesson 5 "Tools-Objects That Extend Man's Reach," Set II, Sequence E, Lesson 8 "What Happened When the Lights Went Out?" Set III, Sequence C, Lesson 11 "Man or Machine," Set I, Sequence C, Lesson 5 "Work Can Be Fun." Set I, Sequence L, Lesson 10 "Tools Crazy Box," Set III, Sequence E, Lesson 7 Raa Science Curriculum "Simple Machines" unit from Raa 7th Grade Science Curriculum

CAREER CLUSTER Manufacturing Occupations (continued)

Description of Activities	Resources
	"Electricity Unit" from Raa 7th Grade Science Curriculum LOOM "Bicycle Shop Owner/Operator" Dade County "Careers in Manufacturing" B. Others Books "It Moves. It Works." Career Education Guide Career Programs General Learning Corp., 1972, pages 108-109 Your Future in Electronic Engineering Find a Career in Electronics Electronics Technician" VIEW Scripts Data Processing Technician Electrician's Technician Electrical Repairman Plumber Electrician's Mate Auto Mechanic, General Magazines "Hands-On Jobs in Manufacturing," "Career World," Curriculum Innovation, Inc. Vol 2 No. 2, Oct., 1973 "Computer Careers and Other White Collar Jobs" "Career World," Vol. 2 #5, Jan. 1974

CAREER CLUSTER Communications and Media

AREA OF OCCUPATIONS Photography

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
Correlate class activities involving light to careers in photography. 1. Discuss, formally and informally, uses of light and color in photography. 2. Read about photography and photographers. 3. Trace development of cameras and accessories. 4. Explore photography as a hobby and/or profession. 5. Outline areas and uses of photography. 6. Evaluate the contributions to society and the prestige of photographers.	A. Units FAIS "Work Can Be Fun," Set I, Sequence C, Lesson 10 "Leisure and Work," Set II, Sequence A, Lesson 7 Raa Science Curriculum "Light Unit" from Raa 7th Grade Science Curriculum Orange County "Careers in Photography" (Grades 9-12) B. Others Books Career for Jennifer Find a Career in Photography VIEW Scripts Photographic Intelligenceman Darkroom Technician Lithographic Cameraman Photographer Photographer's Mate

CAREER CLUSTER Communicationa and Media (continued)

Description of Activities	Resources
	Magazines and Pamphlets "You and Kodak in Perspective" "Biological Photography" "Lithography"

CAREER CLUSTER Communication and Mass Media

AREA OF OCCUPATION Radio and T. V.

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
Correlate class activities involving light, sound, and electricity to careers in communications. 1. Read about uses of light, sound, and electricity in communications. 2. Discuss, formally and informally, uses of light, sound and electricity in communications. 3. Visit communication centers such as radio, and/or TV stations, telephone company. 4. View films on careers in radio and television. 5. Discuss influence of communication in lives. 6. Make a crystal radio. 7. Evaluate the contributions to society and the prestige of communications employees.	A. Units Orange County "Careers in the Telephone Industry (Grades 10-12, Grade 5) "Careers in Radio and Television" (Grades 7- 12) "Careers in Television" (Grade 5) Raa Science Curriculum "Sound Unit" "Electricity Unit" LOOM "Radio Announcer" Broward County "The Telephone Company" Transportation and Communication (Grade 4-5) B. Others Books Electronics Technician Radio-TV Service Technician Communications Technician Magazines and Pamphlets "Lithography" "Answers and Some Questions About Careers in Graphic Communications" "Opportunities in Educational Broadcasting"

CAREER CLUSTER Environmental Sciences

AREA OF OCCUPATION Weather

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 3

Description of Activities	Resources
Correlate class activities involving weather to careers. 1. Read about weather effects on various aspects of society and life. 2. Discuss, formally and informally, how weather effects various aspects of life and society. 3. Make, display, and/or demonstrate weather instruments and forecasts. 4. Visit U. S. Weather Bureau. 5. Encourage hobby of collecting and interpreting weather data. 6. Evaluate the contributions to society and the prestige of weathermen.	A. Units Raa Science Curriculum "Weather Unit" FAIS "Work Can Be Fun," Set I, Sequence C, Lesson 10 "Leisure and Work," Set II, Sequence A, Lesson 7 "Environment...," Set II, Sequence C, Lesson 5 Orange County "Meteorologist" (Grade 3) LOOM "Meteorologist" B. Others Books "Snow Storm," Career Education Guide, Career Programs, General Learning Corp., 1972, p. 126-127 Magazines and Pamphlets "Environmental Careers," "Career World," Curriculum Innovations, Inc., Vol 2 #3, Nov., 1973 Publications of the World Meteorological Organization

GRADE 8

CAREER CLUSTER Marine Science

AREA OF OCCUPATION Oceanographers

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
1. Examine plankton under a microscope 2. Bring in samples of polluted water for class observation under a microscope. 3. Invite marine researcher to demonstrate how to analyze polluted water. 4. Set up an aquarium. 5. Plan a navigation route. 6. Find pictures, make a bulletin board showing the different undersea vehicles. 7. Demonstrate how to convert salt water to fresh. 8. Demonstrate the effect of temperature, balance, and pollution on the salt water community.	A. Units Orange County "Careers in Marine Research" "Careers in Oceanography" LOOM "Oceanographer" B. A/V Materials "Oceanography," filmstrip C. Others Supplement 1 - List of Careers in Marine Research

CAREER CLUSTER Transportation

AREA OF OCCUPATION The Astronaut

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
General Activities: 1. Make a bulletin board display of astronauts at their job. 2. Show related films. 3. Describe an orbit. 4. Discuss gravity and how it effects students in class and astronauts on the moon. Motivational Activities--Discuss With Class: 1. Personal qualifications for an astronaut 2. Educational requirements 3. Necessary training for an astronaut 4. Duties of an astronaut 5. Space Vocabulary	A. Units Orange County Career Development Program "The Astronaut" B. Others Supplement 2 - Career Information on the Astronaut

CAREER CLUSTER Health

AREA OF OCCUPATION Pharmacist

OBJECTIVES Refer to GENERAL OBJECTIVES A-D, page 5

Description of Activities	Resources
A. Conduct experiments related to any of the following: 1. thermometer scale 2. evaporation 3. boiling point 4. melting point 5. freezing point 6. measurement of heat 7. gravity 8. litmus paper 9. vaporization 10. sterilization 11. 3 allotropic forms of sulphur - rhombic, prismatic, amorphic - (grind sulphur with mortar and pestle) B. Take a field trip to a pharmacy. C. During National Pharmacy Week (in October) prepare bulletin board in the classroom. D. Look through magazines or newspapers for photographs and information about the pharmacist.	A. Unit LOOM "Pharmacist" B. Others Supplement 3 - Careers Related to Pharmacy

Supplement 1.- List of Careers in Marine Research

1. Marine Biologist
2. Oceanographer
3. Physical Oceanographer
4. Chemical Oceanographer
5. Marine Meteorologist
6. Ocean Engineer
7. Ocean Technician
8. Marine Amusement Center Worker
9. Mathematician
10. Medical Specialist

Supplement 2. - Career Information on the Astronaut

A. Personal Qualifications

1. Intelligent
2. Brave
3. Able to make decisions
4. Emotionally stable
5. Physically strong
6. Healthy
7. Can work alone for long periods of time
8. Can work under noisy conditions
9. Must be a U. S. citizen
10. No more than 6 feet tall
11. No older than 35

B. Education Requirements

1. Pilot Astronaut
   a. Degree in engineering or science
   b. 1,000 hours of jet pilot training or graduated from military test pilot school
2. Scientist Astronaut
   a. Doctors degree in science, medicine, or engineering or experience equal to that

C. Training

1. Before a man goes into space he is sent to school for astronauts
2. Most of the training takes place at Manned Spacecraft Center (MSC) near Houston, Texas
3. Learns how to use a space suit
4. Learns how to stand G-Forces
5. Learns how to dive and work when weightless
6. Learns to "fly" his space craft

D. Duties

1. Flies spacecraft
2. Analyzes and solves inflight problems
3. Observes and photographs the earth, moon, planets and stars from space
4. Gathers information about how man can live in space

E. Related Terms

1. Astronaut - person who occupies a space vehicle
2. Atmosphere - blanket of air around the earth
3. Countdown - backward count during which final preparations are made for space flight
4. Gantry - the tall metal tower which supports a rocket ship during countdown
5. G-Force - unit showing pull of gravity on a body

6. Gravity - the pull of the earth on any celestial body and upon objects near or on it
7. Jet propelled - state of being pushed forward by strong backward rush of jets
8. LM-Lunar Module - that part of space craft which lands on the moon
9. Launching Pad - fire-proof concrete platform from which a rocket is launched
10. Lunar-rover Car - used by astronauts on the moon.
11. MOL (Manned Orbiting Lab) - See space station
12. Mock-up - full sized model used in training of an astronaut
13. NASA - National Aeronautics Space Administration
14. Orbit - path of one object circling around another
15. Pressure Suit - protective suit worn by astronauts
16. Re-Entry - return of space craft or other object from space
17. Rendezvous - meeting of space crafts in space
18. Satellite - an object in orbit around a larger body
19. Space - region beyond atmosphere of earth
20. Space Station - (MOL) manned artificial satellite used for scientific work and a base for future space exploration
21. Splash Down - Space Capsule returning to earth by landing in the ocean
22. Weightless - seemingly unaffected by gravity

Supplement 3. - Careers Related to Pharmacy

1. Bacteriology
2. Pathology
3. Chemistry
4. Medical or scientific research
5. Teaching
6. Physics
7. Medicine
8. Pharmaceutical Selling
9. Wholesale and retail drug manufacturing
10. Food and drug inspection
11. Pharmaceutical advertising

APPENDIX A

RESOURCE MATERIALS

BOOKS*

F-D	Career for Jennifer (photography)
371.42 H	Careers and Occupations
371.42 P	Careers and Opportunities in Engineering
371.42 P	Careers and Opportunities in Science
371.32 N	Careers in Airline Operations
371.42 H	Careers in Natural Resource Conservation
371.42 J	Careers Outdoors
	Encyclopedia of Careers and Vocational Guidance
371.42 K	Vocations for Boys
371.42 L	Teenage Jobs
371.42 A	American Dietetic Association (Vocational Guidance)
371.42 C	Your Future in Dentistry
371.42 F	Your Future in Chemical Engineering
371.42 F	Your Future in Dental Assisting
371.42 G	Your Future in Optometry
371.42 H	Your Future in Forestry
371.42 H	Find a Career in Photography
371.42 L	Your Future in Electronic Engineering

371.42 M	Successfully Finding Yourself and Your Job
371.42 M	Executive Careers for Women
371.42 N	So You Want to Be a Doctor
371.42 R	Hospital Health Services
371.42 S	Cues for Careers
371.42 S	Your Future in Radiologic Technology
371.42 S	Your Career If You're Not Going to College
371.42 T	Your Future in the Automotive Industry
371.42 W	Find a Career in Electronics
371.42 H	Professions (encyclopedia)
371.42 F	Professions - Bibliography
371.42 N	Nature's Guardians, Your Career in Conservation
610.73	Careers for Nurses
610.75 E	Student Nurse, Her Life in Pictures
616 W	Hospital with a Heart
634.9 H	Forest Fire Fighters and What They Do
655.1 P	Careers and Occupations for You

*May be found in Raa Media Center

FILMS*

1. "The Kingdom of Could Be You - Agri-Business"
2. "The Kingdom of Could Be You - Environment"
3. "The Kingdom of Could Be You - Health"
4. "The Kingdom of Could Be You - Marine Science"
5. "The Kingdom of Could Be You - Transportation"
6. "Airplanes Work For Us"
7. "Community Helpers - Sanitation Department"
8. "The Weather Man - A Community Helper"
9. "Weather Map"
10. "How to Study Ecology" - 1st film
11. "Oceanography"

TRANSPARENCIES*

1. "Professional Health Specialists" (20 trans.) 610T

*May be found in Leon District Media Center

FILM STRIPS*

1. "Careers in the Computer Field" (filmstrip)
2. "Careers in Health" (filmstrip)
3. "Careers, Nursing" (filmstrip, records)
4. "Careers in Science" (filmstrip)
5. "Careers in World of Tomorrow" (filmstrip)
6. "Careers - Your Job Outlook," Popular Science - 40 fr. (filmstrip)
7. "Getting and Keeping Your First Job" (filmstrip)
8. "Keys - Career Exploration" - 10 F.S./5 Cassettes
9. "Learning On Your Own" (filmstrip)
10. "Preparing for the World of Work" (filmstrip)
11. "Your Job Outlook" (filmstrip)

*May be found in Raa Media Center

A-V MATERIALS IN CAREER EDUCATION OFFICE - RAA MIDDLE SCHOOL

BOOKS

Career Opportunities
Encyclopedia of Careers and Vocational Guidance Vol. 1

KITS

Cross Reference Desk-Top Career Kit (Largo, Florida)
FAIS Program
Hand Tools Kits

Filmstrips

Life Guard
Meteorologist
Artist
Architect
Oceanographer
Isle Clerk
Shipfitter
Taxi-Cab Driver
Bookbinder

Sound Filmstrips

"The People Profession: Careers in Home Economics"
"Job Attitudes: Trouble At Work" (Guidance Associates)

"Lack of Ambition"
"Absenteeism"
"Communication"
"Hazing"
"First Week on the Job"
"Jobs and Gender"

Westinghouse, Filmstrips/Cassettes "Fifteen Occupational Clusters"

INDEX TO VIEW SCRIPTS, ARRANGED BY CLUSTERS

CIVILIAN OCCUPATIONS

1. Agri-Business & Natural Resources

- Account Clerk
- Floral Designer
- Forestry Aide
- Pest Control Worker
- Purchasing Agent

2. Business & Office

- Bank Clerk
- Bookkeeper
- Bookkeeper Mach. Oper.
- Calculating Mach. Oper.
- Cashier
- Computer Programmer
- Court Reporter
- Credit Manager
- Data Pro. Mach. Oper.
- Executive Secretary
- File Clerk
- General Secretary
- Insurance Agent
- Junior Accountant
- Key Punch Operator
- Office Clerk
- Office Mach. Serviceman
- Personal Clerk
- Receptionist
- Stenographer
- Tabulating Mach. Oper.
- Theater Manager

3. Communications & Media

- Control Room Technician
- Electronics Technician
- News Reporter
- PBX Operator
- Radio -TV Service Tech.
- Teletype Operator
- Telephone Operator

4. Construction

- Bricklayer
- Building Inspector
- Carpenter
- Cement Mason

NAVY OCCUPATIONS

1. Agri-Business & Natural Resources

- Engineering Aid
- Engineman

2. Business & Office

- Aerographer's Mate
- Aviation Fire Control Tech.
- Aviation Maintenance Administration Man
- Aviation Ordnanceman
- Aviation Storekeeper
- Commissaryman
- Communications Technician
- Data-Processing Tech
- Instrumentman
- Journalist
- Personnelman
- Postal Clerk
- Radioman
- Ship's Serviceman
- Store-Keeper
- Tradesman
- Yeoman

3. Communications & Media

- Air Control Man
- Aviation Antisubmarine War Tech.
- Aviation Electronics Tech.
- Aviation Ordnanceman
- Electrician's Mate
- Electrician's Tech.
- Fire Control Tech.
- Interior Communications Elect
- Mineman
- Photographic Intelligenceman
- Quartermaster
- Radarman
- Radioman
- Signalman
- Sonar Tech.
- Torpedoman's Mate
- Tradesman

4. Construction (con't.)

Draftsman
Draftsman, Arch
Draftsman, Mechanical
Electrical Repairman
Electronic Tech.
Electrical Contractor
Engineering Aide
Locksmith
Maintenance Mechanic
Painter, Contractor
Plasterer
Plumber
Plumbing Inspector
Rod-Chainman
Roofer
Technical Illustrator
Tile Setter
Upholsterer
Welder
Welder Repairman
X-Ray Technician

5. Consumer & Homemaking

Child Care Worker
Interior Design Decorator
Retail Meat Cutter
Sewing Machine Operator
Upholsterer
Waiter-Waitress

6. Environment

Park Ranger

7. Fine Arts & Humanities

Commercial Artist
Darkroom Technician
Lithographic Cameraman
Lith Offset Pressman
Photographer
Technical Illustrator

8. Health

Dental Assistant
Dental Hygienist
Dental Lab Tech.
Inhalation Therapist
Medical Lab. Assistant

4. Construction

Aerographer's Mate
Aviation Antisubmarine War. Oper.
Aviation Antisubmarine War. Tech.
Aviation Electronic Tech.
Aviation Ordnanceman
Aviation Structural Mechanic
Boilermaker
Boilerman
Builder
Construction Electrician
Construction Mechanic
Damage Controlman
Electrician's Mate
Engineering Aid
Engineman
Equipment Operator
Fire Control Tech.
Gunner's Mate
Illustration-Draftsman
Machinist's Mate
Photographic Intelligenceman
Quartermaster
Shipfitter
Steelworker
Torpedoman's Mate
Tradesman
Utilitiesman

5. Consumer & Homemaking

Steward

6. Environment

Aerographer's Mate

7. Fine Arts & Humanities

Illustration-Draftsman
Lithographer
Musician
Photographer's Mate

8. Health

Dental Technician
Opticalman

8. Health (con't.)

Medical Office Assistant
Medical Technician
Nurse's Aide
Operating Room Tech.
Practical Nurse
Registered Nurse
Veterinary Assistant
Ward Clerk Hospital
X-Ray Technician

9. Hospitality & Recreation

Animal Keeper
Air Line Stewardess
Air Ticket Rs. Clerk
Beach Lifeguard
Ride Attendant
Restaurant Manager

10. Manufacturing

Air Con-Ref. Mech
Assembler-Electronic
Instrumentman
Lens Grinder
Locksmith
Machinist
Maintenance Mechanic
Millwright
Sewing Machine Operator
Tailor
Tire Recapper
Tool Die Maker
Lens Grinder Operator
Welder
Welder Repairman
X-Ray Technician

11. Marine Science

Oceanographic Tech.
X-Ray Technician

12. Marketing & Distribution

Air Con-Ref. Mech.
Baker Routeman
Dairy Routeman
Retail Meat Cutter
Sales Clerk Variety
Salesman, Auto
Salesperson

9. Hospitality & Recreation

Commissaryman
Quartermaster

10. Manufacturing

Aviation Fire Control Tech.
Aviation Ordnanceman
Engineering Aid
Engineerman
Gunner's Mate
Instrument Man
Machinery Repairman
Machinist's Mate
Mineman
Molder
Patternmaker
Torpedoman's Mate
Tradesman
Aviation Structural Mechanic
Construction Mechanic

11. Marine Science

Sonar Tech.

12. Marketing & Distribution

Commissaryman
Storekeeper
Ship's Serviceman

12. Marketing & Distribution (con't.)

Upholsterer
Variety Store Manager
Vending Machine Routeman

13. Personal Services

Baker
Barber
Beauty Operator
Bellman
Bus Boy
Child Care Worker
Cook/Chef
Copywriter
Countergirl
Dishwasher
Funeral Director
Hotel Front Desk Clerk
Kitchen Helper
Motel Clerk
Restaurant Manager
Retail Meat Cutter
Waiter, Waitress

13. Personal Services

Commissaryman
Steward

14. Public Services

Court Reporter
Customs Inspector
Fireman
Guard
Instrumentman
Mail Carrier
Peace Corps
Plumbing Inspector
Policeman
Policewoman
Post Office Clerk
State Policeman
Teacher Aide

14. Public Services

Photographer's Mate
Photographic Intelligenceman
Tradesman

15. Transportation

Aircraft Loftman
Airframe-Powerplant Mech.
Air Pilot and Co-Pilot
Auto Body Repairman
Auto Brakeman
Auto Mech. General
Auto New Car Get Redy
Auto Painter

15. Transportation

Aerographer's Mate
Aviation Structural Mech.
Boilerman
Construction Mech.
Instrumentman
Machinery Repairman
Photographer's Intelligenceman
Photographer's Mate

15. Transportation (con't)

Auto Radiator Mech.
Auto Upholsterer
Small Engine Repairman
Station Attendant, Gas
Taxi-Cab Driver
Travel Rate Clerk
Travel Agent
Welder
Welder-Repairman
Wheel Alignment Man

15. Transportation

Quartermaster
Radioman

CATALOGS OF FREE MATERIALS*

Educators Index of Free Materials - 77th Ed. - 1968

Applied Arts: Agriculture (12)
- Animal Husbandry (13)
- Crops and Soils (14-15)
- Farm Management (16)

Science (60): Biology (61)
- Chemistry (62)
- Conservation
  - Forestry (63-64)
  - General (65-66)
- General Science (67-77)

Educators Guide to Free Films - 1973

Varied Catalogs of Free Films

For Example: Assoc. Films
- General Motors
- State--Department of Education
  - Fish and Game Commission
  - Health and Rehabilitative Services

Educators Grade Guide to Free Teaching Aids - 1973

Environmental Education
- Cons. Education (39)
- Forestry (98)

Science
- General Science (120)
- Nature Study (154)

*May be found in Raa Media Center

PART 3

CAREER GUIDE FOR SCIENCE

SECONDARY LEVEL

COURSE CORRELATION

INTERMEDIATE SCIENCE CURRICULUM STUDY
(ISCS SCIENCE)

CAREER GUIDE FOR SCIENCE

SECONDARY LEVEL

COURSE CORRELATION

INTERMEDIATE SCIENCE CURRICULUM STUDY
(ISCS SCIENCE)

DEVELOPED BY

HARRY NEEL
LEON HIGH SCHOOL SCIENCE DEPARTMENT

EDITED BY

ELIZABETH CUNNINGHAM
PROJECT ACADEMIC CURRICULUM SPECIALIST

LEON DISTRICT CAREER EDUCATION PROJECT
925 MICCOSUKEE ROAD
TALLAHASSEE, FLORIDA

MR. JAMES C. TALLEY, DIRECTOR

TABLE OF CONTENTS

INTRODUCTION

As described in the Leon District Career Education Model, Career Education at the ninth grade level is directed toward career exploration and is to be fused with the existing curriculum, when possible. Accordingly, this career guide has been developed to explore careers in correlation with the adopted ISCS text and materials and encompasses the general objectives below:

--Provision of career exploration activities for all ninth grade ISCS science students, in selected occupational clusters
--Provision of self-awareness, educational awareness, economic awareness, decision-making, valuing and employability skills experiences relative to their career choice
--Incorporation of the above Career Education elements into the on-going curriculum

Even though ISCS is not designed to provide students with particular occupational career skills, the course does emphasize behaviors, both physical and mental, which characterize science as a human process. It allows the student to become familiar with principles and concepts which will have lasting relevance to intellectual encounters with problems requiring investigation.

By performing simulated investigations, the student experiences, to some degree, the activities of scientists who attempt to solve real problems and at the same time develops his skills and abilities.

The student will have a total of six units for study during the year. These are, as follows:

--"Winds and Weather" - Meteorology, the study of the atmosphere and its phenomena
--"What's Up?" - Space Science, including rocketry, lunar geology, and the earth-moon-sun system
--"Crusty Problems" - Geology, the study of the earth
--"Environmental Science" - Ecology, the science of the interrelationships of organisms and their environment
--"Why You're You" - Genetics, the study of heredity
--"Well Being" - Health

Throughout the units, innumerable occupations and careers can be identified, and although no attempt was made to list all possible related careers, many are identified in the guides as suggestions for student exploration. The list of student objectives in the guide has been developed to enable the student to investigate any career of his choice, utilizing a variety of activities.

It should be noted here that although this career guide is correlated with a specific curriculum and text book, the objectives and format are of such a nature that the guide can be utilized with most secondary general science courses.

The career guide consists of two parts--the "Student's Career Guide," and the "Teacher's Handbook" which serves as an annotated edition to the student guide.

T E A C H E R ' S H A N D B O O K

FOR USE WITH

STUDENT'S CAREER GUIDE -- SCIENCE

COURSE CORRELATION

INTERMEDIATE SCIENCE CURRICULUM STUDY
(ISCS SCIENCE)

TABLE OF CONTENTS

TEACHER'S HANDBOOK
FOR USE WITH
STUDENT'S CAREER GUIDE--SCIENCE

I. IMPLEMENTATION STRATEGIES

The information, suggestions and directions included in this section are basically general in nature and are intended to serve as a guide to teacher planning. Detailed directions appear in the "Student's Career Guide" and are sufficient for teacher use. However, some important information is contained in this section, only (i.e., directions for use of class evaluation sheet). Thus, the teacher should read both sections carefully.

The teacher may select to follow a format other than is set forth in this unit, and it is flexible enough to allow for individualized adaptations. In the event of making changes, care should be taken to make corresponding changes in the student guide and to inform the students of the changes. For example, the required student activities may be changed in kind and number, from one semester to another, rather than followed as described below. Briefly, the activities and implementation plan prescribed in this guide are as follow:
One career investigation is required for each semester and each activity with the exception of the role play is to be completed for each career investigation. The investigation will have a total weight of one-third of the semester exam grade. The activities are listed below:

Role Play
Resume'

Job Application
Letter of Application
Career Card

The "role play" activity is required only once during the year and is graded on a satisfactory/unsatisfactory basis, since it, too, is evaluated subjectively. However, if the student does not complete the activity, it can adversely affect his citizenship grade in the area of cooperation. Conversely, if the student undertakes the activity with a cooperative spirit, it can enhance the citizenship grade.

Since the career exploration activities are part of each semester's exam grade, it is important to begin the activities at the beginning of the semester instead of crowding up in the last six-weeks term of the semester.

II. OBJECTIVES

The following student objectives provide the basis of the career exploration segment of this program. They are defined, in detail, in the student guide, page 6, along with correlated activities:

Objective 1

Given a list of suggested science-related careers to explore, the student will select a career and, in writing

--state the importance of the occupation and its relation to society.

--define the occupation in depth

--state the nature of the work

--list the job qualifications, limitations, etc. (physical, mental)

--state the job preparation required

--list the entrance qualifications

--state the time needed to attain skill and advancement

--list and briefly define related occupations

--Identify earnings and rewards

--identify places of possible employment

--identify future job opportunities or obsolescence in career area

--determine if it is possible to pursue his choice on a volunteer "non-salaried" basis or if it is only a "salaried" career

--compare his educational plans to the requirements of his career choice and determine if they are compatible. If not, the student will explore an alternative, compatible educational plan.

Objective 2

Utilizing the above information, the student will complete a 5" x 8" index card, giving a brief outlined report of his career exploration.

Objective 3 - (Optional)

Using a newspaper, magazine, etc., the student will locate at least two "help wanted" advertisements relating to his career exploration.

Objective 4

The student will compose a simulated resume, (related to his career exploration) containing the following information: Address, personal qualifications, educational qualifications, work experience, personal and work references, leisure time activities, professional and civic organization memberships.

Objective 5

The student will write a simulated letter of application for a position in the area of his career exploration.

Objective 6

Given a job application form, the student will complete the form accurately and neatly.

Objective 7

The student will participate in a simulated job interview with a classmate acting as the employer.

III. UTILIZATION OF SUPPLEMENTARY ACTIVITIES AND RESOURCES

PROPOSED FIELD TRIPS

Field Trip 1 - National Weather Service

Meteorology station located at Tallahassee Municipal Airport, ground floor of building complex next to flight services. Phone: 576-6318.

The personnel conduct tours on Monday, Tuesday, Thursday and Friday. At least one week's notice is requested for planning tours. Groups of 12-18 are preferred as larger groups will be crowded.

Functions, duties and experiments performed are discussed and career information is given. Teachers are invited to go to the station prior to

the field trip.

It is suggested that the field trip be scheduled after students have completed the unit "Winds and Weather" and have a better background for observation. However, some may prefer to go half-way through the four-week "weather watch."

Field Trip 2 - Water Pollution Control Facility

The local facility is housed at Spring Hill Road and Capitol Circle. Phone: 576-2224

It is suggested that the trip be planned after January 1, 1975. At least one to two weeks notice is requested for planning tours. Twenty to twenty-five students per group are preferred.

A tour of the physical plant is conducted, operations and functions are explained and career opportunities are discussed. Teachers are invited to go to the facility before the trip and are requested to call before visiting.

It is suggested that the field trip be scheduled during study of the "Environmental Science" unit and after the "milk/yeast" activities have been completed.

Field Trip 3 - A. B. Hopkins Generating Plant

The plant is located on Geddie Road. Phone: 576-2525

At least one week's notice is requested. Groups of 40 students can be accommodated, as the large group is broken down into smaller groups.

The plant is toured, operations and functions explained and career opportunities discussed. Teachers may visit the plant prior to field

trip and are requested to call before visiting.

Unlike the preceding field trips, there is no specific unit this trip can be related to. Possibly, the most appropriate times would be during the study of "Environmental Science" or "Geology" units.

GROUPING FOR DISCUSSIONS

Frequently, students ask the teacher, "Why do we have to study this?" They fail to see the relevance of what they are learning in an academic subject, and at times it is difficult to identify the relationship between subject matter and specific careers without deliberate planning.

One method the teacher might consider for developing such relationships through student involvement is described below:

Toward the end of studying a new unit, group the class into small groups--triads are most effective. Each group would then "brainstorm" in an attempt to relate information, concepts, principles and skills delivered by the subject to occupations and careers that they are exploring. After small group discussions are completed, the leader from each group might be asked to share his/her group's conclusions with the entire class.

Through this type of activity the students become actively involved in identifying relevance and interrelationships of what they are studying, as well as practicing group process skills.

PROVISION AND UTILIZATION OF "FREE AND INEXPENSIVE" MATERIALS

A great variety of free and inexpensive pamphlets and brochures on career opportunities are available and have been placed in the classroom. (Refer to Appendix B, page 20 of this handbook for listing.) Students should be

made aware of these materials and encouraged to utilize them in their career explorations.

It would be helpful if students located and contributed similar materials relating to the subject area, possibly through a class correspondence committee. In this way, class resources would be supplemented and updated with little effort, and students would practice skills of letter writing and become familiar with sources of career information.

UTILIZATION OF SCHOOL GUIDANCE PERSONNEL

The guidance counselor is an integral part of the Career Education "team." The team consists of the student, counselor, occupational specialist and teacher, as well as parents and community resource persons. The student should be encouraged to utilize the services of this team in order to gain maximum career information and preparation.

In addition to the resources provided in the classroom, the guidance center offers testing and counseling services, career information (VIEW, Occupational Guidance Kits, etc.) and placement and follow- up services.

LEON SCHOOL VOLUNTEERS (LSV's)

The LSV's consist of a group of community resource persons interested in assisting in the district schools on a voluntary basis. Their contact person is located in the District Administration Building, Instructional Services Division.

They are very helpful in providing appropriate resource persons and community-based activities related to Career Education. It is urged that these resource people be utilized whenever possible. Their cadre' of

resources draws heavily from the ranks of local business and industry and government agencies, as well as university personnel. They currently up-dated their listing and it should be available at this time.

Because of heavy demand for resource people, they have developed a well-coordinated system for filling requests. Teachers are asked to submit requests two weeks in advance, if possible. (This is usually done through a school contact person, such as the media specialist or occupational specialist.) Further, it is required that all guest speakers be approved by the principal. It is the teacher's responsibility to attend to this before inviting the speaker.

IV. STUDENT EVALUATION FORM

The student evaluation form is designed to reduce the time and paper-work involved in recording student outcomes on career exploration activities. A one-page check list is used for the entire class, and the items are checked off as the students satisfactorily complete them. If the item is not completed satisfactorily, this might be otherwise indicated until the student fulfills the requirements. In addition to the required activities, the students should be encouraged to complete optional activities.

If the student does not fulfill all requirements, he/she has not successfully completed the career explorations. The student should be urged to keep an individual evaluation sheet as a record of which activities have and have not been completed. (One is provided in the Student's Guide.)

An example of the Student Evaluation Form is included in Appendix A, page 17, of this handbook.

APPENDIX A

STUDENT EVALUATION FORM

STUDENT EVALUATION FORM

PERIOD_____

SEMESTER_____

STUDENTS' NAMES	Checklist of Required Objectives*						Opt. Obj.
	1	2	4	5	6	7	3
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							

STUDENT EVALUATION FORM

STUDENTS' NAMES	Checklist of Required Objectives*						Opt. Obj.
	1	2	4	5	6	7	3
21.							
22.							
23.							
24.							
25.							
26.							
27.							
28.							
29.							
30.							
31.							
32.							
33.							
34.							
35.							

*Objectives 1, 2, 4, 5, 6, and 7 are required. Objective 3 is optional.

APPENDIX B

RESOURCE MATERIALS

RESOURCE MATERIALS IN CLASSROOMS

American Anthropological Association
1703 New Hampshire Avenue, NW
Washington, D. C. 20009
"What is Anthropology?"

American Association for Laboratory Animal Science
2317 West Jefferson Street, Suite 208
Joliet, Illinois 60435
"A Career in Laboratory Animal Science and Technology"

American Astronomical Society
211 FitzRandolph Road
Princeton, New Jersey 08540
"A Career in Astronomy" &
"What Astronomy is About."

*American Geological Institute
2201 M. Street, NW
Washington, D. C. 20037
"Geology: Science and Profession"
1-49 copies 35¢ ea.
50+ copies 25¢ ea.
"Publication of Value in Planning an Earth Science Career"

American Geophysical Union
2100 Pennsylvania Avenue, NW
Washington, D. C. 20037
"Geophysics: The Earth in Space"

American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611
"Careers that Count"
"Health Careers Services"

American Institute of Aeronautics and Astronautics
1290 Avenue of the Americas
New York, New York 10-19
"Careers in Aeronautics"

American Institute of Biological Sciences
Bioinstrumentation Advisory Council
3900 Wisconsin Avenue, NW
Washington, D. C. 20016
"Biomedical Engineering (BME)"
"Careers in Biology"

American Institute of Industrial Engineers, Inc.
25 Technology Park
Atlanta, Georgia 30071
"Industrial Engineering: The Profession with a Future"

*Fee required

American Institute of Landscape Architects
6810 North 2nd Place
Phoenix, Arizona 85012
"Environment 70's"

American Institute of Physics
355 East 45th Street
New York, New York 10017
"The Wise Use of Science"

American Society of Animal Sciences
39 Sheridan Avenue
Albany, New York 12210
"A Career In Animal Sciences"

*American Society for Engineering Education
Suite 400
One Dupont Circle
Washington, D. C. 20036
"Nuclear Engineering in Your Future" .50¢

American Society of Safety Engineers
850 Busse Highway
Park Ridge, Illinois 60068
"Scope and Functions of the Professional Safety Position"

*Bellman Publishing Co.
Box 164
Arlington, M. A. 02174
"College--Yes or No? Your Future- with or without college."

Gemological Institute of America
11940 San Vicente Blvd.
Los Angeles, California 90049
"Gemology As A Career"

General Motors Corp.
Public Relations Staff
Room 1-101, General Motors Building
Detroit, Michigan 48202
"Can I Get the Job?"

International Business Machines Corp.
Armonk, New York 10504
"Analytically Minded?"
"The Programmers"
"Science and Engineering"

Manufacturing Chemists Association
1825 Connecticut Avenue, N. W.
Washington, D. C. 20009
"Sources of Career Information in Scientific Fields"

Marine Technology Society
1730 M. Street, N. W.
Washington, D. C. 20036
"The Ocean and You"

The Mathematical Associations of America
1225 Connecticut Avenue, N. W.
Washington, D. C. 20036
"General Information Handout"

The Metallurgical Society of AIME
345 East 47th Street
New York, New York 10017
"Careers in Metallurgy, Materials Science and Metallurgical Engineering"

Metal Powder Industries Federation
(no address listed)
"Seekers of the Unique"

*National Aerospace Education Association
806 - 15th Street, N. W.
Washington, D. C. 20005
"Career Opportunities in Aviation" 24pp., 50¢
"Careers In Aviation" 20pp., 25¢

National Forest Products Industries
1619 Massachusetts Avenue, N. W.
Washington, D. C. 20036
"Opportunities Unlimited in the Forest Products Industries"

National Pest Control Association
(The Buettner Bldg.)
250 West Jersey Street
Elizabeth, New Jersey 07207
"Career Opportunities in the Pest Control Industry"
"Let Me Tell You About the Career Opportunities in the Pest Control Industry"

Scientific Apparatus Makers Association
370 Lexington Avenue
New York, New York 10017
"Make Your Goal Measurement and Control"

Shell Oil Co.
One Shell Plaza
P. O. Box 2463
Houston, Texas 77001
"Opportunities with Shell"

Society of Mining Engineers of AIME
345 East 47th Street
New York, New York 10017
"Penetrating New Frontiers with Minerals Engineers"

Society of Nuclear Medical Technologists
P. O. Box 284
Arlington Heights, Illinois 60006
"Should You Be a Nuclear Medical Technologist?"

Society for Technical Communication
Suite 421
1010 Vermont Avenue, N. W.
Washington, D. C. 20036
"Technical Writing as a Career"
"Is Technical Writing Your Career?"

Society of Wood Science and Technology
P. O. Box 5062
Madison, Wisconsin 53705
"Wood Technology: The Materials Science of the Forest Products Industry"

Technical Education Research Centers
44 Brattle Street
Cambridge Ma. 02138
"Nuclear Medicine Technician/Technologists"

University of Missouri at Rolla
Rolla, Missouri 65401
"Chemistry Guidance Leaflet"
"Engineering Guidance Leaflet"
"Geophysics"
"Geology-Earth Science"

Woods Hole Ocenaographic Institution
Woods Hole, Ma. 02543
"Research in the Sea"

Wildlife Management Institute
709 Wire Building
Washington, D. C. 20005
"Careers in Wildlife Conservation and Management"

The Wildlife Society
3900 Wisconsin Avenue, N. W.
Washington, D. C. 20016
"A Wildlife Conservation Career for You"

U. S. GOVERNMENT AGENCIES

U. S. Civil Service Commission
Washington Area Office
Washington, D. C. 20415
"Civilian Careers with the Corps of Engineers"
"Federal Careers for Technicians in Engineering and Physical Science"

Forest Service
U. S. Dept. of Agriculture
Washington, D. C. 20250
"What the Forest Service Does"

U. S. Dept. of Health, Educ. and Welfare
Bureau of Health Manpower Education
Bethesda, Maryland 20014

U. S. Dept. of Labor
Woment's Bureau
Washington, D. C. 20212
"Why Not Be a Technical Writer?"

U. S. Environmental Protection Agency
Waterside Mall Building
401 M Street, S. W.
Washington, D. C. 20460
"Working Toward a Better Environment--Some Career Choices"
"Career Opportunities in the Environmental Protection Agency"

STUDENT'S CAREER GUIDE

--SCIENCE--

COURSE CORRELATION

INTERMEDIATE SCIENCE CURRICULUM STUDY
ISCS SCIENCE

DEVELOPED BY

HARRY NEEL
LEON HIGH SCHOOL SCIENCE DEPARTMENT

EDITED BY

ELIZABETH CUNNINGHAM
PROJECT ACADEMIC CURRICULUM SPECIALIST

LEON DISTRICT CAREER EDUCATION PROJECT
925 MICCOSUKEE ROAD
TALLAHASSEE, FLORIDA

MR. JAMES C. TALLEY, DIRECTOR

TABLE OF CONTENTS

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--Provision of career exploration activities for all ninth grade ISCS science students, in selected occupational clusters
--Provision of self-awareness, educational awareness, economic awareness, decision-making, valuing and employability skills experiences relative to their career choice
--Incorporation of the above Career Education elements into the on-going curriculum

Even though ISCS is not designed to provide students with particular occupational career skills, the course does emphasize behaviors, both physical and mental, which characterize science as a human process. It allows the student to become familiar with principles and concepts which will have lasting relevance to intellectual encounters with problems requiring investigation.

By performing simulated investigations, the student experiences, to some degree, the activities of scientists who attempt to solve real problems and at the same time develops his skills and abilities.

The student will have a total of six units for study during the year. These are, as follows:

--"Winds and Weather" - Meteorology, the study of the atmosphere and its phenomena
--"What's Up?" - Space Science, including rocketry, lunar geology, and the earth-moon-sun system
--"Crusty Problems" - Geology, the study of the earth

--"Environmental Science" - Ecology, the science of the interrelationships of organisms and their environment
--"Why You're You" - Genetics, the study of heredity
--"Well Being" - Health

Throughout the units, innumerable occupations and careers can be identified, and although no attempt was made to list all possible related careers, many are identified in the guides as suggestions for student exploration. The list of student objectives in the guide has been developed to enable the student to investigate any career of his choice, utilizing a variety of activities.

It should be noted here that although this career guide is correlated with a specific curriculum and text book, the objectives and format are of such a nature that the guide can be utilized with most secondary general science courses.

II. DIRECTIONS

A. Read through the entire guide carefully and become familiar with what you will be required to do. If you have any questions at any time or have trouble locating information, don't hesitate to ask the instructor for assistance.

B. As you complete your objectives, submit them to your instructor for evaluation. He/she will rate your work satisfactory or unsatisfactory

and return it to you. If your work is unsatisfactory, the instructor will make a notation as to what improvements are needed or will schedule a conference time to explain what adjustments are required.

C. Use the "Student Evaluation Form" in your guide to record your objectives as you complete them. In this way you will have your own record of what you have submitted and what you need to complete.

D. If the directions for a specific objective state that the student is to receive the permission of the instructor before continuing, be sure to do so.

III. OBJECTIVES

The general and specific objectives of this career exploration are stated below. You will be required to explore two careers of your choice during the course of the year - one each semester. If you are interested in a career that is not included in the listings, discuss this with your teacher before proceeding with your exploration. Your choice should be related to the ISCS units studied each semester.

If, during the second semester, you realize you are interested in a career that was related to an ISCS unit studied in the first semester, request approval by your instructor before continuing. In some cases, other students might have explored the same career and you might be able to gain the information needed without duplicating effort.

GENERAL OBJECTIVES

This career guide has been developed to explore careers in correlation with the adopted ISCS text and materials and encompasses the general objectives below:

- --Provision of career exploration activities for all ninth grade ISCS science students, in selected occupational clusters
- --Provision of self-awareness, educational awareness, economic awareness, decision-making, valuing and employability skills experiences relative to their career choice
- --Incorporation of the above Career Education elements into the on-going curriculum

SPECIFIC OBJECTIVES

The student objectives listed below provide the basis of the career exploration segment of this program. The abbreviations following each objective indicate which elements of Career Education the objective develops. The key to the abbreviations is included, following the objectives.

Objective 1

Given a list of suggested science-related careers to explore, the student will select a career and

--state the importance of the occupation and its relation to society. (EdA, AA)

--define the occupation in depth. (CA)

--state the nature of the work. (CA)

--list the job qualifications, limitations, etc. (physical, mental). (CA)

--state the job preparation required. (EdA)

--list the entrance qualifications. (SA, EdA, CA)

--state the time needed to attain skill and advancement. (CA)

--list and briefly define related occupations. (CA, EdA)

--identify earnings and rewards. (EdA, AA)

--identify places of possible employment. (CA)

--identify future job opportunities or obsolescence in career area. (CA, EdA, DA)

--determine if it is possible to pursue his choice on a volunteer "non-salaried" basis or if it is only a "salaried" career. (AA, CA, EdA)

Compare his educational plans to the requirements of his career choice and determine if they are compatible. If not, the student will explore an alternative, compatible educational plan. (EA, CA, DM, SA)

Objective 2

Utilizing the above information, the student will complete a 5" x 8" index card, giving a brief outlined report of his career exploration. (CA, ES)

Objective 3 - (Optional)

Using a newspaper, magazine, etc., the student will locate at least two "help-wanted" advertisements relating to his career exploration. (CA, EdA)

Objective 4

The student will compose a simulated resume' (related to his career exploration) containing the following information: Address, personal qualifications, educational qualifications, work experience, personal and work references, leisure time activities, professional and civic organization memberships. (ES, SA)

Objective 5

The student will write a simulated letter of application for a position in the area of his career exploration. (ES)

Objective 6

Given a job application form, the student will complete the form accurately and neatly. (ES)

Objective 7

The student will participate in a simulated job interview with a classmate acting as the employer. (ES, BC)

KEY TO ABBREVIATIONS

Career Education is composed of eight elements. Those elements along with their abbreviations, meanings and outcomes are listed below.

SA - Self-awareness (The knowledge of self that will enable an individual to make career decisions. Outcome: self-identity)

EdA - Educational awareness (The perception of the relationship of education to one's careers and life roles. Outcome: educational identity)

CA - Career awareness (The understanding of the characteristics of the World of Work that determine one's life career decisions. Outcome: career identity)

EcA - Economic awareness (The perception of the relationship of the economic processes in the environment to one's life career decisions. Outcome: economic understanding)

DA - Decision making (The skill of applying one's knowledge to a rational process of career choice. Outcome: career decisions)

BC - Beginning competence and skill awareness (Awareness and acquisition of the skills necessary in the performance of tasks related to one's career. Outcome: employment skills)

ES - Employability skills (The social and communication skills appropriate to career placement. Outcome: career placement)

AA - Attitudes and appreciation (One's feelings towards the social and economic environment in relation to one's life roles. Outcome: self/social fulfillment)

IV. ACTIVITIES

The career exploration activities correlated to the specific objectives are described below. Complete the required objectives and record your progress on your student evaluation form.

Objective #1/Activity #1

Given a list of careers related to ISCS Units, the student will choose a career to explore and collect specified information on the career. (Refer to Specific Objective #1, page 7 for details.)

Select a career to explore, following directions given on page 4 of this guide and record data specified in Specific Objective #1. Keep data readily available. A loose-leaf binder is recommended, since pages can be added or interchanged easily. The information gathered will be required to write the career card, resume', letter of application and application blank and may be of some use in searching for newspaper ads, brochures, etc.

The guidelines for exploring careers are included in Appendix C, page 58. These should be of help to you in researching your career choice.

Objective #2/Activity #2

Using the 5" x 8" cards provided by the instructor, the student will complete the card, giving a brief outlined report on the careers which he explored.

Upon completion the student will present his career card to the instructor for final approval and then orally present this information to the class. The career card will be placed on a bulletin board for a period

of time (approximately one week). After it has been displayed, the career card will be put in a career file located in the classroom for use and investigation by other students. The card will not be accepted unless it is filled in completely and neatly.

On the back of the card the student is to list his name, initials, date and class period.

Example: Smith, J. T.
October 24, 1974
Period 6

Objective #3/Activity #3
(Optional, But Recommended)

Using a newspaper, magazine, etc., the student will locate at least two help wanted advertisements related to his career exploration.

This activity is optional for the student because some careers cannot be found listed in many advertisements. For example--space photographic engineer. For the student who is able to find his career listed, he is to locate and copy two advertisements giving information such as name of source and date.

The advertisements should be presented to the teacher so they can be checked off the student evaluation forms.

Objective #4/Activity #4

The student will compose a simulated resume' containing the following information: Address, personal data, educational data, experience, references, hobbies, interests and organizations based upon information gathered about his career choice.

Directions:

When you feel that you have gathered enough information about your career choice, write a simulated resume' as if you were applying for a position in the career of your choice.

You may use the sample resume' on the following page to help you. You may also "make up" educational background, job experience and anything else to make your resume' fit the occupation.

When you have finished, submit your resume' to your teacher for approval and so it can be checked off on the evaluation sheet.

SAMPLE RESUME

John T. Smith

Address: 624 Ridgeway Drive
Miami, Florida

Telephone: 583-0923

Personal: Date of Birth: January 20, 1956
Place of Birth: Miami, Florida
Marital Status: Single
Height: 6'0" Weight: 175 Lbs.
Health: Good
Selective Service Classification: Class IIA
Social Security Number: 294-21-2898

Education: Miami High School
Miami, Florida
Graduated - June, 1974

Organizations: Active member of Key Club
Member of the Football Squad
Member of the South Florida Outing Club

Interests: Sports, Camping, Public Service

Experience: Construction work for the past two summers with Southside Construction Company. The first summer worked as a general laborer. The second summer tied steel.

References: Art Gilman, Owner of Southside Construction Company
Larry Cooke, Foreman-Southside Construction Company

Southside Construction Company
1239 S. W. 83rd Street
Miami, Florida

Objective #5/Activity #5

The student will write a simulated letter of application.

The next few pages contain suggestions on writing a letter of application for a job and two sample letters which are to be used as guides.

The student will use information gathered from his career exploration to simulate a letter of application.

This simulated letter is to be submitted to the teacher for rating as to content, neatness, form, etc. Ratings will be on a satisfactory/ unsatisfactory basis.

SUGGESTIONS FOR WRITING A LETTER OF APPLICATION

It is important that your letter of application immediately attract the reader's attention and stimulate him to look further, invite you for a personal interview, or send an application form.

Here are some suggestions to help you.

1. Type your letter, unless your handwriting is perfectly legible and particularly attractive.
2. Use good quality, plain white paper. Follow a standard business style. Make sure you "write" your signature.
3. Address your letter to a particular person, if possible, rather than to an official title.
4. Declare yourself as a candidate, making a reference to the specific position and to the name of the employer. If a mutual friend informed you about the job, mention his name. (Be sure you have your friend's consent.)
5. Describe your general qualifications.
6. Mention your availability date.
7. Close with a request that your correspondent make the next move—that he write or call you for an interview appointment. A phone number where you can be reached is especially important.
8. Keep a carbon copy. You may only need to change names and dates to use the important paragraphs for another letter. You may want to follow up your letter with a phone call to let the employer know your intentions are sincere.

SAMPLE LETTER OF APPLICATION

Susan S. Jones
736 West Park Avenue
Detroit, Michigan
April 5, 197_

Mr. George Larson
Personnel Director
Atlas Manufacturing Company
2094 Market Street
Detroit, Michigan

Dear Mr. Larson:

Mr. Clark, who is in charge of placement at Central High School, has told me that there is an opening in your organization for a photographic reproduction aide.

You will notice on the enclosed resume' that I have had two years experience as a photographer and developer on the school newspaper. During the summers I worked for Smith's Photographic Laboratories as an assistant to the picture developers.

I have also listed on the resume' names of references who can speak for my training and experience. I enjoyed my work as a developers aide and I am confident that I can adequately fill your opening.

I can be ready to start work on June 15.

You may reach me at 934-6676 any day after 3:30 P. M. I hope that I may have the privilege of a personal interview at your convenience.

Sincerely yours,

Susan S. Jones

Susan S. Jones

SAMPLE LETTER OF APPLICATION

John Smith
183 Third Avenue
Duluth, Minnesota 12783
March 15, 197_

Mr. Duncan G. Baker
Personnel Director
General Enterprise, Inc.
416 Second Avenue
Minneapolis, Minnesota 12786

Dear Mr. Baker:

At this morning's conference with you in regard to a position with your company as a structural engineer, you asked that I send a written application and submit complete personal and professional information concerning my preparation for supervisor of construction projects. I enclose a data sheet on which is given information concerning my training and work experience. I have also listed the names of four references who have expressed willingness to answer questions concerning me.

If the results of the test I took and the impression made in the interview warrant your offering me a position, I shall be glad to begin work immediately. You will find me eager to take advantage of every opportunity to grow in usefulness to your company.

Sincerely yours,

John Smith

John Smith

Objective #6/Activity #6

The student will complete a given application blank.

The next few pages contain suggestions for completing a job application blank.

Using the information gathered during the career exploration, the student will "apply" for a job by

--making an application blank like the one given in this packet on a separate page and filling it out, or,

--writing a letter requesting an application blank from a company, government agency, etc., to which the career choice is related.

The student should be sure to state in his letter who he is, what he is doing, and why he wants the application. He should state clearly that he is not making application for a job, but that he is using the application to explore a career. If more than one student is involved, state how many applications are needed (one for each student). If it is not possible for the company to send more than one application, ask if you would be permitted to duplicate the application. Be sure to add a statement of appreciation.

NOTE: DO THIS ONLY AFTER A CONFERENCE WITH THE TEACHER.

SUGGESTIONS FOR COMPLETING APPLICATION BLANK

The application blank serves as a messenger between the candidate and the potential employer. The employer who interprets the completed blank may find out more from it than the candidate ever intended. It is an important link in hiring.

Here are some aids for filling out an application blank.

1. Fill out the application blank neatly and accurately.
2. Use ink and print answers unless otherwise specified. Use a typewriter if possible. Write your signature.
3. Answer all questions. Questions left unanswered become conspicuous by their absence.
4. Answer all questions frankly and as honestly as you can. If you are hired, your application form will become part of your permanent personnel record.
5. Follow instructions. Be careful with dates and the order in which you tell about past job experience. If asked to list both jobs and education in reverse order with most recent experience first, do so.
6. Give the required number of references.
7. If requested, state minimum acceptable salary. This question should not be left unanswered.

JOB APPLICATION **
(Please Print in Ink)

Date _____ Social Security No. _____

Name _____
LAST FIRST MIDDLE

Present Address _____
STREET CITY STATE

Permanent Address _____
STREET CITY STATE

Phone No. _____ Date of Birth _____

Height _____ Weight _____ Color of Hair _____ Color of Eyes _____

Married _____ Single _____ Widowed _____ Divorced _____ Separated _____

Number of children _____ Citizen of U. S. A. _____ YES _____ NO

Related to anyone working for this company? _____

Position desired _____ Date you can start _____

Salary desired _____ Are you employed now? _____

If so, may we inquire of your present employer? _____

Ever applied to this company before? _____ Where _____ When _____

Referred by _____

JOB APPLICATION

EDUCATION	NAME AND LOCATION OF SCHOOL	YEARS ATTENDED	DATE GRADUATED	SUBJECTS STUDIED
GRAMMAR SCHOOL				
HIGH SCHOOL				
TRADE, BUSINESS OR CORRESPONDENCE SCHOOL				

Schooling Completed _____

Current School _____

Draft Status _____

REFERENCES: GIVE BELOW THE NAMES OF THREE PERSONS NOT RELATED TO YOU, WHOM YOU HAVE KNOWN AT LEAST ONE YEAR.

	NAME	ADDRESS	BUSINESS	YEARS ACQUAINTED
1				
2				
3				

**Application taken from Student Research Activity Package, Career Exploratory by Patricia Arredondo, Orange County Career Education Project.

Objective #7/Activity #7

The student will role play a job interview. The student will not be required to complete this activity each semester as he does the other activities.

Directions:

Toward the end of the exploration of a career, the student may choose someone to act as an interviewer in his role play of a job interview. The student should put into the hands of the interviewer the information which he has gathered on the career explored. Interviewer may use application form as a guideline for asking questions as well.

The student should inform the teacher that he is ready to perform his role play and allow the teacher to select two students to act as observers. If there is no one available at the time of the request to observe, the teacher should assign a time for the role play.

The observers will rate the student as to whether his performance is satisfactory or unsatisfactory.

For the role play the student should dress acceptably, i.e., no shorts, ragged pants, etc. He should be neat, courteous and follow the guidelines for an interview.

It would be advisable for the student to practice his role play outside of class times with his delegated interviewer.

The two observers will rate the student on the following points:

1. He has a neat appearance.
2. He has good manners.

3. He exhibits confidence.
4. He is attentive.
5. He answers questions directly.
6. He asks relevant questions.
7. He phrases questions well.

If both of the observers rate the same point as unsatisfactory, the interviewee must submit to the teacher a written statement explaining what was wrong with that part of the interview, and what he would have to do to correct it. Bear in mind that the teacher will have the rating sheets.

Please limit the role play time to 10-15 minutes. This should be more than ample time to complete this objective.

GUIDELINES FOR JOB INTERVIEW

There are several things which are done in order to obtain most jobs in any area, especially at technical and professional levels. One of the foremost of these is to project the best image possible for the job, both when applying in person and during the job interview. It goes without saying that one would not walk into a computer room wearing cement covered overalls to ask for a job, or onto a construction site wearing a tuxedo to ask for a laborer position.

The following are some points to keep in mind as one goes through an interview:

1. Make an appointment for your interview either by mail or by telephone. You may wish to submit a resume' if you have not already done so.
2. Be prompt for your interview. Tardiness may indicate to the interviewer that you are not dependable.
3. Be neat in appearance.
4. If there is a receptionist, inform her as to who you are and why you are there. Example: "Good morning, I am John Smith, and I have an appointment to see Mr. Blake at 10:00."
5. Greet your interviewer warmly and courteously.
6. Shake hands with the interviewer if he extends his hand to you.
7. Take a seat as directed. Do not "flop down" into the seat, but sit comfortably without draping yourself over the furniture.
8. Answer the questions which are directed to you clearly and honestly.
9. Ask questions which are pertinent to you and your understanding of the job (duties, advancement, etc.) for which you are applying.
10. Upon completion of the interview you may or may not be told if you have the job. You may be asked to make an appointment to see someone else. If so, do so as soon as possible.

11. Before leaving, thank your interviewer for the opportunity to see him.

12. Before your final exit, indicate something which reassures the employer that you "really want the job."

Remember that you are selling your abilities and that the interview is the first personal contact the company has had with you. Courtesy, promptness, neatness and manners may be just as important a part of your landing the job as your educational background. Think about it!

OBSERVERS FOR ROLE PLAY

Students who are to observe a role play interview will be notified either by the teacher, or the teacher may direct the student who is to do the role play to notify the students who are to act as observers. The observers will meet with the student performing the role play at the appointed time. (In case of absence of one or both of the observers, someone else may be appointed, or the interview may be postponed.)

Before the role play starts, the person who is to be rated will give each observer a rating sheet. A rating sheet has been included for this purpose.

After the role play has ended, the observers will give the student a chance to look at his rating and to make notation of any deficiencies. The marked rating forms will then be given to the teacher.

NOTE TO OBSERVERS:

Please note that your ratings should be honest, and without biases. Remember that you will be required to role play an interview and you would want your performance rated honestly.

NOTE TO INTERVIEWEE:

Remember that the people who rate you will do so honestly. If you should receive an unsatisfactory rating from the observers, do not "lose your cool." They will have valid reasons for rating you in the manner which they do, since the purpose of the activity is to give you an opportunity to practice and help you improve where necessary.

RATING SHEET FOR JOB INTERVIEW ROLE PLAY

INTERVIEWEE _____ INTERVIEWER _____

OBSERVER 1 _____ DATE _____

CATEGORY	SATISFACTORY	UNSATISFACTORY
1. Neat appearance		
2. Good manners		
3. Exhibits confidence		
4. Shows attentiveness		
5. Answers questions directly		
6. Asks relevant questions		
7. Phrases questions well		

OBSERVER'S COMMENTS _____

RATING SHEET FOR JOB INTERVIEW ROLE PLAY

INTERVIEWEE _____ INTERVIEWER _____

OBSERVER 2 _____ DATE _____

CATEGORY	SATISFACTORY	UNSATISFACTORY
1. Neat appearance		
2. Good manners		
3. Exhibits confidence		
4. Shows attentiveness		
5. Answers questions directly		
6. Asks relevant questions		
7. Phrases questions well		

OBSERVER'S COMMENTS _____

V. CAREER CHOICES RELATED TO ISCS UNITS

UNIT TITLES

"Winds and Weather" - Meteorology, the study of the atmosphere and its phenomena.
"What's Up?" - Space Science, including rocketry, lunar geology, and the earth-moon-sun system
"Crusty Problems" - Geology, the study of the earth
"Environmental Science" - Ecology, the science of the interrelationships of organisms and their environment
"Why You're You" - Genetics, the study of heredity
"Well Being" - Health

CRITERIA OF DIFFERENT OCCUPATIONAL LEVELS WITHIN A GIVEN CLUSTER

Professional -- Level 1

--important function
--independent
--varied responsibility
--deals with policy making and interpretation
--high level of education where relevant

Semi-Professional and Managerial -- Level 2

--some independence
--varied responsibility
--policy interpretation
--high level of education where relevant

Technical and Skilled -- Level 3

--some variation in responsibility
--some policy interpretation and decision making
--special training, apprenticeship, and/or experience
--knowledge of a particular skill or area

Semi-Skilled -- Level 4

--little or no responsibility
--some special training, apprenticeship, and/or experience

Unskilled -- Level 5

--no special training and/or skill.[1]

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[1]Lincoln County Exemplary Program in Vocational Education, Lincoln County Schools, Hamlin, W. Virginia, p. 75.

SUGGESTED OCCUPATIONS WITHIN CLUSTERS RELATED TO ISCS UNITS

The following pages include several occupations/careers related to the ISCS units of study. There are innumerable other choices that will be identified and added to the listings throughout the year.

The sample career choices are grouped according to the fifteen occupational clusters set forth by the U. S. Office of Education.*

UNIT: "Winds and Weather" (Meteorology)

CLUSTERS AND OCCUPATIONS:

--Agri-Business and Natural Resources Occupations
  Agriculture of all kinds
  Forestry
  Water conservation

--Communication and Media Occupations
  Weather reporter (television, radio)
  Photography (cloud cover via satellite)
  (weather information via satellite)

--Construction Occupations
  Surveyor
  Architect

--Environmental Occupations
  Air and water pollution control and abatement

--Manufacturing Occupations
  Electronics
  Engineering

*For complete listing of fifteen clusters, refer to Appendix B.

--Public Service Occupations
Meteorologist
Weather forecaster
City planning

--Transportation Occupations
Aviation (commercial and general)
Marine piloting

Other occupations which are directly related to meteorology but are not readily placed in clusters:

--Armed Forces
Air Force
Army
Coast Guard
Marines
Navy

--Aerospace programs

--Astronomy

--Rocketry

UNIT: "What's Up?" (Space Science)

The text is divided into 1) rocketry, 2) lunar geology, and 3) earth-moon-sun systems.

CLUSTERS AND OCCUPATIONS:

--Agri-Business and Natural Resources Occupations
Petroleum geologists
Minerologist
Water conservation
Mineral conservation and control

--Communication and Media Occupations
Photography
Television
Radio
Radar
Laser

--Construction Occupations
Architect
Surveyor
Draftsman

--Environmental Occupations
Space and atmospheric monitoring and control
Forest conservation

--Health Occupations
Nutritionist
Medical technician
Physician (dealing with stress and functions of the human body during space travel)
Therapist

--Manufacturing Occupations
Engineer - electrical, industrial, mechanical, aerospace; ceramic, chemical, metallurgical
Technician - all kinds
Computer programmer
Physicist

--Other careers related to space science directly or indirectly:
Astronomer
Geologist
Meteorologist
Physician
Geneticist

UNIT: "Why You're You" (Genetics)

CLUSTERS AND OCCUPATIONS:

--Agri-Business and Natural Resource Occupations
Geneticist
Horticulturist
Forestry
Nurseryman
Biologist
Rancher
Veterinarian
Animal Husbandry

--Communication and Media Occupations
Photography

--Environmental Occupations
Biologist

--Health Occupations
Physician
Medical technician
Embryologist
Radiologist

--Public Service
Probate geneologist

UNIT: "Crusty Problems" (Geology)

CLUSTERS AND OCCUPATIONS:

--Agri-Business and Natural Resource Occupations
Geologist
Oceanography
Petrology
Geography
Paleontology
Stratigraphy
Geophysics
Minerology
Topography
Structural geology
Cartography
Geo-thermal energy
Petroleum

--Communication and Media Occupations
Radio
Radar
Sonar
Photography
Television

--Environmental Occupations
Meteorologist

--Hospitality and Recreation Occupations
Park services (U. S. and state)
Tour guide
Geologist

--Manufacturing Occupations
Metallurgist
Gemologist
Mining engineer
Mining technician
Seismology

--Public Service Occupations
Geo-thermal energy

UNIT: "Environmental Sciences (Ecology)

CLUSTERS AND OCCUPATIONS:

--Agri-Business and Natural Resources Occupations
  Forestry
  Biologist (botanist, zoologist)
  Conservation (air, water, wildlife)
  Meteorologist
  Aquatic Biology
  Land Management
  Soil Conservation

--Communication and Media Occupations
  Photography
  Newspaper Journalist

--Environmental Occupations
  Air pollution abatement and control
  Noise abatement and control
  Wildlife conservation
  Drainage control
  Meteorologist
  Environmental pesticide control
  Environmental protection

--Marine Science Occupations
  Zoological research
  Water pollution
  Hydrologist
  Laboratory tester

--Public Service Occupations
  Customs inspector
  Water treatment
  Atmosphere monitoring
  Solid wastes disposal
  Meteorologist

UNIT: "Well Being" (Health)

CLUSTERS AND OCCUPATIONS:

--Communication and Media Occupations
  Newsman
  Photography

--Environmental Occupations
Air Monitoring
Water Pollution Control

--Health Occupations
Medical librarian
Health maintenance
Physician (obstetrician and general practice)
Pharmacist
Dentistry
Radiologist
Psychologist
Drug manufacturer
Pathologist
Nursing
Lab technician
Dietician
Nuclear medical technology
Medical technician

--Manufacturing Occupations
Medical engineer
Electricial technician and engineer
Drug manufacturer
Machinist
Hearing aid repairman

--Public Service
Meteorologist
Customs inspector
Meat inspector
Building inspector
Fire inspector
Sewage treatment

VI. EVALUATION OF STUDENT OUTCOMES

One career investigation is required for each semester and each activity with the exception of the role play is to be completed for each career investigation. The investigation will have a total weight of one-third of the semester exam grade. The activities are listed below:

Role Play
Resume'
Job Application
Letter of Application
Career Card

The "role play' activity is required only once during the year and is graded on a satisfactory/unsatisfactory basis, since it is evaluated subjectively. However, if the student does not complete the activity, it can adversely affect his citizenship grade in the area of cooperation. Conversely, if the student undertakes the activity with a cooperative spirit, it can enhance the citizenship grade.

Since the career exploration activities are part of each semester's exam grade, it is important to begin the activities at the beginning of the semester instead of crowding up in the last six-weeks term of the semester.

As you complete your objectives, submit them to your instructor for evaluation. He/she will rate your work satisfactory or unsatisfactory and return it to you. If your work is unsatisfactory, the instructor will make a notation as to what improvements are needed or will schedule a conference time to explain what adjustments are required.

Use the "Student Evaluation Form" in your guide (see Appendix D) to record your objectives as you complete them. In this way you will have your own record of what you have submitted and what you need to complete.

VII. RESOURCE MATERIALS

A conscientious effort was made to avoid listing resources published prior to 1960; however, some have been included. The reason for this "draw the line" policy is that many resources may be obsolete, especially in reference to current career opportunities. Those sources published before 1960 may be useful as background information and for creating interest, although opportunities for employment may not be as great today as they were at the time of printing.

A. BOOKS

ASTRONOMY

629.45 Bone, Philip, Frontiers of Space, MacMillan, 1969.

629.4 Chester, Michael, Robots in Space, Putnam, 1965.

523.3 Cooper, Henry S.F., Moon Rocks, Dial, 1970.

629.4 Lapp, Ralph E., Man and Space, The next decade, Harper, 1961.

629.4 Levins, Sol, Your Future in NASA, Richards Rosen, 1968.

523.01 Lovell, Bernard, Discovering the Universe, Harper & Row, 1964.

629.4 Mallan, Lloyd, Satellites as a Hobby, C.S. Hammond, 1962.

551 Newton, Clarke, 1001 Questions Answered About Space, Dodd, Meade & Co., 1971.

520 Rudaux, Lucien, Larousse Encyclopedia of Astronomy, London, Hamlyn, 1962.

629.454 Spards, James C., Moon Landing, Project Apollo, Dodd, Meade & Co., 1969.

523 Moore, Patrick, The Picture History of Astronomy, (2nd rev. ed.) Grosset, 1964.

ENVIRONMENTAL SCIENCES

333.7 Harrison, C. William, Conservationists and What They Do, Watts, 1963.

333.7 Herbert, Fred W., Careers in Natural Resource Conservation, Walck, 1965.

635.9 Pinney, John James, Your Future in the Nursery Industry, New York: R. Rosen Press, 1967.

GEOLOGY

333.9 Bardach, John, Harvest of the Sea, Harper & Row, 1968.

551 Beiser, Arthur, The Earth, Time Life, Inc., 1962.

550 Benson, Allan L., The Story of Geology, New York: Cosmopolitan Book Corporation, 1931.

550 Bertin, Leon, Larousse Encyclopedia of the Earth, Prometheus, 1961.

551 Bloom, Arthur L., The Surface of the Earth, Prentice-Hall, Inc., 1969.

550 Boyer, Robert E., Activities and Demonstrations for Earth Science, Parker Publishing Co., Inc., 1970.

551.4 Carson, Rachel L., The Sea Around Us, Oxford, 1961.

551.4 Cheney, Cora, Underseas! The Challenge of the Deep Frontiers, Coward-McCann, 1961.

551.4 Claiborne, Robert, On Every Side the Sea: Man's Involvement With the Oceans, American Heritage, 1971.

551 Clark, Sydney P., Structure of the Earth, Prentice, 1971.

551.4 Coker, R. E., This Great and Wild Sea, Harper & Row, 1962.

551.2 Coleman, Satir Narrone, (Barton), Volcanoes, New and Old, New York: Day, 1946.

Cousteau, Jacques-Yves, Life and Death in a Coral Sea, Doubleday, 1971.

Cousteau, Jacques-Yves, Octopus and Squid, Doubleday, 1973.

551 Cromie, William J., Why the Mohole, Little, 1964.

GEOLOGY (continued)

550 Del Rey, Lester, Mysterious Earth, Chilton Co., 1960.

551 Fabre, Jean-Henri, This Earth of Ours, New York: Century, 1923.

669.722 Farin, Philip, ed., Aluminum, Profit of an Industry, McGraw Hill, Inc., 1969.

551 Foster, Robert John, Geology, Columbus, Ohio: C. E. Merrill Book Co., 1966.

551.2 Furneaux, Rupert, Krakatoa, Englewood Cliff, N. E.; Prentice Hall, 1964.

551.4 Gaber, Norman H., Your Future in Oceanography, Richard Rosen Press, Inc., 1967.

551.4 Jordan, David Starr, High Light of Geography; North America, New York: World Book Co., 1934.

551.4 Hussain, Farooq, Living Underwater, Praeger, 1970.

339.4 Kreps, Juanita Morris, ed., Our Natural Resources: Their Development and Use, H. W. Wilson, 1955.

551 Lut, L. Don, Physical Geology, Prentice-Hall, 1965

387.5 McLintoch, Gordon, Your Future in the Merchant Marine, Richard Rosen, 1968.

560 Murray, Marian, Hunting for Fossils: A guide to finding and collecting fossils in all fifty states, MacMillan Co., 1967.

551.46 Newmann, Gerhard, Principles of Physical Oceanography, N. J.: Prentice-Hall, Inc., 1966.

910.9 Geographic Projects, Doubleday, 1962.

551.4 Pennington, Howard, The New Ocean Explorers: Into the sea in the space age, Little, Brown & Co., 1972.

551.4 Piccard, Jacques, Seven Miles Down: The Stay of the Bathyscope, Triest, Putnam, 1961.

574 Pimestal, Richard A., Natural History, New York: Rhineholt Publishing Corp., 1963.

551.2 Pough, Fredrick H., All About Volcanoes and Earthquakes, Random House, 1953.

GEOLOGY (continued)

551.4 Riesenberg, Harry E., Lt., The Sea of Treasure, Frederick Fell, Inc., 1966.

551.4 Shimer, John A., Field Guide to Land Forms in the U. S., MacMillan Co., 1972.

551.7 Silverberg, Robert, Clocks for the Ages, MacMillan Co., 1971.

551.4 Taber, Robert W., 1001 Questions Answered About Oceans and Oceanography, Dodd, Mead, & Co., 1972.

Weitz, Joseph L., ph.d., Your Future in Geology, Richard Rosen Press, Inc. 1966.

Williams, Jerome, Oceanography, Watts, 1972.

551 Wolfe, Louis, The Deepest Hole in the World; The Story of Project Mohole, Putnam, 1964.

HEALTH AND GENETICS (biology)

615.82 Belleay, Wilfred Emmanuel, The Osteopathic Physician and Surgeon, Pal Publishing House, 1951.

370.69 Fox, William W., Careers in the Biological Sciences, Walck, 1963.

610.69 Paul, Grace, Your Future in Medical Technology, Richard Rosen Press, 1962.

617.75 Gregg, James R., Your Future in Optometry, New York: Richard Rosen Press, 1966.

610.69 Starrett, Robert S., Find a Career in Medicine, Putnam, 1960.

METEOROLOGY

629.132 Allen, John Elliston, Aerodynamics, A Space-Age Survey, New York: Harper & Row, 1963.

551.5 Berry, F. A., Your Future in Meteorology, Richard Rosen Press, 1962.

551.5 Batten, Louis, J., Cloud Physics and Cloud Seeding.

629.13 Federal Aviation Agency, Pilot Instruction Manual, Hanover House, N. D.

METEOROLOGY (continued)

551.5 Hillman, Hal, Light and Electricity in the Atmosphere, Holiday House, 1968.

629.133 How to Make and Fly Paper Airplanes, Four Winds, 1968.

629.133 Laumer, Keith, How to Design and Build Flying Models, Harper, 1960.

387,7 Rudolph, Patricia, Your Future as an Airline Stewardess, New York: Richard Rosen, 1961.

387.7 Saunders, Keith, So, You Want to be an Airline Stewardess?, Arco, 1967.

371.42 Scrobner, Kimbell J., Your Future as a Pilot, Richard Rosen Press, 1968.

387.7 Smith Johni, How to be a Flight Stewardess, Pan American Navigation Service, 1966.

MISCELLANEOUS

371.42 Arnold, Arnold, Career Choices for the '70's, Crowell-Collier, 1971.

331.7 Brunetti, Cledo, Your Future in a Changing World, Richard Rosen, 1970.

371.42 Cobb, M., The Scientific Approach to Career Planning, Lantern Press, Inc., 1961.

744.4 Delong, Fred J., Aim for a Job in Drafting, New York; Richard Rosen Press, 1968.

331.7 Ducket, Walter, A Guide to Professional Careers, Messner, 1970.

371.42 Gardiner, Glenn, How You Can Get the Job You Want, Harper, 1962.

624 Golze, Alfred R., Your Future in Civil Engineering, Rickard Rosen, 1965.

371.42 Gruber, Edward C., Resumes' That Get Jobs, ARCO, 1963.

331.7 Hopke, William E., The Encyclopedia of Careers and Vocational Guidance, J. G. Ferguson, 1967. (2 volumes)

MISCELLANEOUS (continued)

690.69 Kasper, Sydney H., Careers in the Building Trade, Walck, 1964.

371.42 Munger, North E., Unusual Careers, Alford A. Knoph, 1962.

540.69 Nourse, Alan E., So You Want to be a Chemist, Harper & Row, 1964.

651.8023 Seligsohn, I. J., Your Future in Computer Programming, Messner, 1967.

331.7 Splaver, Sarah, Your Career if You're not going to College, Nessner, 1971.

623.8 Steele, George P., Nuclear Submarine Skippers and What They Do, Watts, F., 1962

371.425 U. S. Department of Labor, Dictionary of Occupational Titles, 2 Vols., U. S. Government Printing Office, 1965.

B. FILMSTRIPS (for student use in media center)

ASTRONOMY

FS 082 The Astronomer at Work.

FS 075 How We Learn About the Sky.

SOUND FILMSTRIP

Man on the Moon.

GENERAL INTEREST

FS 061 Changing Moon.

FS 523.6 Comets.

FS 060 Interesting Things about Plants.

FS 057 Multitude of Suns.

FS 1265 New Portrait of Our Planet.

FS 058 Stories of the Constellations.

FS 059 Suns' Family.

FS 1269 The World We Live In -- Part XIII, The Starry Universe.

GEOLOGY

FS 663 New Portrait of Our Planet: Part III, Mighty Currents of the Sea.

FS 1266 New Portrait of Our Planet: Part VIII, Earth's Magnetism.

FS 550 Powers of Nature.

MISCELLANEOUS

FS 1281 Careers in the World of Tomorrow.

FS 202 Discovering Your Interests.

331.1 The Job Interview.

FS 414 New Career Opportunities.

FS 1109 Requirements in the World of Jobs.

FS 203 What are Your Problems?

331.1 What Can You Do?

FS 201 You and Your Mental Abilities.

FS 1284 Your Job Outlook.

SLIDES

SL 86 Mummies

TOT-ANKN-AMON'S TOMB: Funerary Effects.

12 slides, ALCS, 1962.

C. PAMPHLETS (available in classroom)

"Careers in Conservation"

"Steel Facts"

"Career Opportunities in Oil & Gas"

"Biological Photography"

"Botany as a Profession"

PAMPHLETS (continued)

"Facts About Oil"

"Careers in Photographic Science & Engineering"

"Environmental Science"

"A Career in Ecology"

"Radiology & Health".

"A Career in Dentistry"

"Occupational Therapy Handbook"

"Standards for the Certification of Teachers of the Hearing Impaired"

"Careers in Radiology"

"Careers in Physical Therapy"

"Cast Metals Career Briefs:
Core Making
Engineering
Equipment Maintenance
Metalcasting Molder
Metalcasting Patternmaker"

"Mechanical Engineering
A Career For The Future"

"Naval Architect and Marine Engineer"

"In Productive Harmony"

"What Industry Looks For in the High School Graduate"

"25 Technical Careers You Can Learn in 2 Years or Less"

D. PERIODICALS (available for student use in the library)

Architectural Digest

Chemistry

Civil Engineering

Electronics Illustrated

PERIODICALS (continued)

Environment

Field and Stream

Farm Journal

Florida Wild Life

Industrial Arts Voc. Ed.

Modern Photography

National Geographic

Natural History

Newsweek

Outdoor Life

Popular Electronics

Popular Mechanics

Popular Science

Science

Science Digest

Science News

Scientific American

Skin Diver

Space World

Today's Health

Workbench

E. VIEW DECK (Microfiche - Located in the reference room of the library and available for student use.)

LIST OF OCCUPATIONS

Animal Keeper

Air-Conditioning & Refrigeration Mechanic

VIEW DECK (continued)

Aircraft Loftsman

Aircraft Mechanic

Airframe and Power Plant Mechanic

Airline Pilots & Co-Pilot

Airline Stewardess

Beach Lifeguard

Building Inspector

Computer Programmer

Control Room Technician

Customs Inspector

Darkroom Technician

Data Processing Machine Operator

Dental Assistant

Dental Hygienist

Dental Laboratory Technician

Data Processing Equipment Technician

Draftsman, Mechanical

Electrocardiograph Technician

Electronics Technician

Electrical Contractor

Engineering Aide

Forestry Aide

Inhalation Therapist

Lens Grinder

Licensed Vocational Nurse

Machinist

VIEW DECK (continued)

Medical Laboratory Assistant

Medical Technician

News Reporter

Nurse Aide

Oceanographic Technician

Operating Room Technician

Park Ranger

Peace Corps

Pest Control Worker

Photographer

Plumbing Inspector

Practical Nurse

Radio Announcer

Radio-TV Service Technician

Registered Nurse

Technical Illustrator

Teletype Operator

Telephone Operator

TV Cameraman

Veterinary Assistant

X-Ray Technician

F. VERTICAL FILE (The following titles are a few of the many listings from the Vertical File available in the school media center.)

Aeronautics

Aeronautics Biography

VERTICAL FILE (continued)

Airplanes

Air Pollution

Archeology

Astronomy

Astronauts

Atmosphere

Earth

Ecology

Electronics

Employment

Engineering

Florida Agriculture

Florida Conservation

Florida Employment

Forest and Forestry

Fossils

Gems

Genetics

Genealogy

Inventions

Inventors

Marine Biology

Merchant Marine

Medical Research

Metals

Meteorology

VERTICAL FILE (continued)

Man: Origin and Antiquity

Microscope and Microscopy

Mine and Mineral Resources

Moon

National Resources

Nuclear Physics

Petroleum

Photography

Physics

Science

Space Flight

Steel

Tornadoes

Water

Water Pollution

G. MISCELLANEOUS

CAREER WORLD: The Continuing Guide to Careers

Another resource available to the student is the publication, Career World. Career World is published monthly beginning in mid-September and ending in mid-May. The front cover illustrates the main occupations featured in that issue. In addition, many other occupations are also included.

These publications are to be located in the classroom for student use. PLEASE DO NOT REMOVE THEM FROM THE CLASSROOM. They are for everyone's use.

MISCELLANEOUS (continued)

An excellent way to use these publications is to preview them by reading through the Table of Contents and determining if there is something of interest to you. If there is, feel free to read that issue; if not, leave it for someone else's use.

The Career World publications presently available in the classroom include:

"Agribusiness"

"Computer Careers and other White Collar Jobs"

"Environmental Careers"

"Fine Arts and Humanities"

" "Hands-On" Jobs in Manufacturing"

"Innkeeping and Restaurant Jobs"

"Jobs in Journalism"

"Marketing and Distribution"

APPENDIX A

GLOSSARY

GLOSSARY

Listed below are terms which you may come across while exploring career choices. The definitions are short, general descriptions of the terms. For more detail, you might refer to a dictionary or encyclopedia.

Abatement - Weakening or diminishing

Aeronautics - Science dealing with operation of aircraft

Aerospace - Earth atmosphere and space beyond

Agriculture - Science of cultivation of the soil

Aquatic - Relating to water

Archaeology - Studies of material remains of past human life and activities

Architect - Building designer

Astronomy - Science of celestial bodies (solar system, comets, galaxies, etc.)

Aviation - Airplane manufacturing, development, design and operation.

Biology - Study of plant and animal life

Botany - Study of plant life

Cartography - Map making

Conservation - Careful preservation and protection of something

Dietetics - Science of applying principles of nutrition to feeding

Dietician - Person qualified in dietetics

Draftsman - Person who draws plans and sketches

Embryology - Science of development from fertilized egg into independent being

Engineering - Science by which properties of materials and energy are made useful to man

Gemmology - The science of gems (stones and minerals for jewelry)

Genetics - Study of heredity

Geography - Science of earth and its life (description of land-forms and of life distribution and main industries)

Geology - The study of the earth and life as found in rocks

Geophysics - Study of the earth and its atmosphere

Geo-Thermal - Relating to heat of earth's interior

Horticulture - Science of growing fruit, vegetables, flowers, etc.

Hydrology - Properties, distribution and circulation of water on and in the earth and in the air

Machinist - makes, operates and repairs equipment, etc.

Metallurgy - Science and technology of metals

Meteorology - Study of atmosphere, especially weather

Minerology - The science of minerals

Nuclear Physics - Sciences of atomic matter and energy

Nutritionist - Specialist in the field of using food substances (nutrition)

Obstetrician - Doctor who specializes in pre- and post-natal care of mother and delivery of baby

Oceanography - Science of the ocean and its phenomena

Paleontology - Scientific study of ancient life

Pesticide - An agent to destroy pests (chemical)

Petroleum - Of or relating to oil products

Petrology - The study of rock

Radar - A ultra-high frequency radio wave used to determine distances and direction of an object

Radiology - The science of radioactive substances

Resume' - Short account of ones career and qualifications

Seismology - Science dealing with earthquakes and artificially produced vibrations of the earth

Sonar - Device used to detect submerged object by use of reflecting sonic waves

Stratigraphy - Geology that deals with origin, composition distribution and succession of rock layers

Survey - Measurement of the earth (as a tract of land)

Technology - Practical applications based on scientific principles

Therapist - Person trained in methods of helping people without the use of drugs or surgery

Topography - Drawings on maps used to give elevation, i.e., 3-dimensional form of land expressed on a flat surface

Zoology - Study of animal life

APPENDIX B

FIFTEEN OCCUPATIONAL CLUSTERS
(U. S. OFFICE OF EDUCATION CLASSIFICATION)

FIFTEEN OCCUPATIONAL CLUSTERS
(U. S. OFFICE OF EDUCATION CLASSIFICATION)

Reference: U. S. Department of Health, Education, and Welfare, Vocational Education and Occupations, Washington: U. S. Government Printing Office, 1969.

1. Agri-business and natural resources occupations.
   Examples: Forestry, land and water management, fisheries and wildlife, mining and quarrying, petroleum and related products.

2. Business and office occupations.
   Examples: Secretary, stenographer, general office clerk, office machine operator, office manager and office supervisor.

3. Communications and media occupations.
   Examples: Publishing, photographic reproduction, broadcasting, telephone and telegraph.

4. Consumer and homemaking and related occupations.
   Examples: Food service industry, clothing, apparel and textile industry; child care, guidance and teaching; household maintenance services; family and community services and housing design.

5. Construction occupations.
   Examples: Contracting, interior designing, grounds maintenance, fabrication and installation.

6. Environment occupations.
   Examples: Soil and mineral conservation and control; space and atmospheric monitoring and control; air pollution abatement and control; environmental health services; ornamental horticulture; noise abatement and control and forest range, and wildlife conservation and control.

7. Fine arts and humanities occupations.
   Examples: Performing arts and design, performing arts production and creative writing.

8. Health occupations.
   Examples: Medical library, science, health maintenance, pediatric care and services, mental health maintenance and medical care.

9. Hospitality and recreation occupations.
   Examples: Recreation planning, tourism and recreation promotion, group travel services and leisure consumerism programs.

10. Manufacturing occupations.
    Examples: Model development, foundry operations, machine operations, material handling and recycling operations.

11. Marine science occupations.
Examples: Marine animal (zoological) research, boat and vessel operation and shipboard product sorting.

12. Market and distribution occupations.
Examples: Wholesale trade, direct selling, exporting, retail trade, purchasing and shipping and delivery.

13. Personal service occupations.
Examples: Massage and related services, analyzing and counseling on weight problems, hair styling and mortuary services.

14. Public service occupations.
Examples: Coordinating public housing; handling birth, marriage and death records; customs inspection and law enforcement.

15. Transportation occupations.
Examples: Vehicle operation, freight service, commercial aviator and marine piloting.

APPENDIX C

GUIDELINES: WHAT THE STUDENT NEEDS TO KNOW ABOUT CAREERS

GUIDELINES: WHAT THE STUDENT NEEDS TO KNOW ABOUT CAREERS

I. Importance of the occupation and its relation to society

II. Definition of occupation

III. Nature of the work

IV. Qualifications

- A. Age
- B. Sex
- C. Special physical, mental, social and personal qualifications excluding those obviously necessary for service in all types of work
- D. Special skills essential for performance on the job
- E. Special tools or equipment essential for the performance of the job which must be supplied by the worker
- F. Scores on test for employment or selection
- G. Legislation affecting occupation

V. Preparation

- A. General education
- B. Special training, including probable cost of training
- C. Experience

VI. Entrance qualifications

- A. Public employment
- B. Special employment agencies
- C. Civil Service examinations
- D. Apprenticeship
- E. License, certificate, etc.
- F. Other methods and channels

VII. Time required to attain skill and promotion

- A. Special apprenticeship or union regulations
- B. Length of period of instruction on the job
- C. Length of time before median and maximum rates of pay are reached

VIII. Advancement

A. Lines of promotion: jobs from which and to which workers may be promoted
B. Opportunity for advancement

IX. Related occupations

A. Occupations to which job may lead (list one career)
B. Occupations from which one may transfer (list one career)

X. Earnings

A. Beginning wage range
B. Wage range in which largest number of workers is found
C. Maximum wage received by most highly skilled
D. Median and average salary, if available and difference for sex and age groups
E. Annual versus life earnings
F. Regulations
G. Benefits
H. Rewards and satisfaction other than monetary

XI. Employment

A. Local
B. Transient
C. City
D. County
E. State
F. Federal

XII. Number of workers engaged in occupations (give source, date, and area covered by figures used)

A. Present Number
B. Distribution
C. Trends and outlook

APPENDIX D

STUDENT EVALUATION FORM

STUDENT EVALUATION FORM (FOR STUDENT USE)

NAME _____ CAREER EXPLORED _____

GRADE _____

PERIOD _____

1ST SEMESTER	EVALUATION	
NAME OF ACTIVITY	S*	U**
CAREER BRIEF (WRITTEN INDEX CARD)		
NEWSPAPER AD (OPTIONAL, BUT RECOMMENDED)		
SIMULATED RESUME' (WRITTEN)		
SIMULATED LETTER OF APPLICATION (WRITTEN)		
APPLICATION FORM (1) SAMPLE IN GUIDE		
(2) ORIGINAL		
JOB INTERVIEW ROLE PLAY (ORAL)		
OBSERVER #1		
OBSERVER #2		

NAME _____ CAREER EXPLORED _____

GRADE _____

PERIOD _____

2ND SEMESTER	EVALUATION	
NAME OF ACTIVITY	S*	U**
CAREER BRIEF (WRITTEN INDEX CARD)		
NEWSPAPER AD (OPTIONAL, BUT RECOMMENDED)		
SIMULATED RESUME' (WRITTEN)		
SIMULATED LETTER OF APPLICATION (WRITTEN)		
APPLICATION FORM (1) SAMPLE IN GUIDE		
(2) ORIGINAL		
JOB INTERVIEW ROLE PLAY (ORAL)		
OBSERVER #1		
OBSERVER #2		

*SATISFACTORY
**UNSATISFACTORY

BIBLIOGRAPHY

A Guide for Developmental Vocational Guidance, Grades K-12, Oklahoma State Department of Education.

"An Analysis of Fifteen Occupational Clusters Identified by the U. S. Office of Education," Grayson County College, Sherman/Dennison, Texas.

Arredondo, Patricia, "Student Research Activity Package," Career Exploratory.

Career Education: An Introduction, Tallahassee: Florida Department of Education, 1974.

Career Education Planning Model, Leon County Career Education Project, 1973.

Grimm, Sandra, Keys to Careers in Science and Technology, Washington, D. C.; National Science Teachers Association, 1973.

ISCS Level 3 Series, New Jersey: Silver Burdett, 1972.

Rationale for Individualization: Individualized Teacher Preparation, New Jersey: Silver Burdett, 1972.

"25 Technical Careers You Can Learn in 2 Years or Less," U. S. Office of Education, the Conference Board, and the Manpower Institute.

View Deck (Microfiche) 1972-73

PART 4

CAREER GUIDE FOR BIOLOGY

SECONDARY LEVEL

TEXTBOOK CORRELATION

THE EARTH: IT'S LIVING THINGS

CAREER GUIDE FOR BIOLOGY

SECONDARY LEVEL

TEXTBOOK CORRELATION

THE EARTH: ITS LIVING THINGS

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INTRODUCTION

Educators throughout the country have recognized the need for Career Education in the public schools. Implementation, however, has been somewhat difficult because of existing curriculum designs and the lack of required curriculum materials. For these reasons, this career guide was developed as an initial attempt to provide curriculum materials and implementation strategies correlating biology - related careers with the on-going curriculum and the Florida state adopted textbook, THE EARTH: ITS LIVING THINGS, published by Harcourt, Brace, Jovanovich, Inc., Atlanta, Georgia.

It should be noted here that although this career guide is correlated with a specific curriculum and text book, the objectives and format are of such a general nature that the guide can be utilized with most secondary biology courses.

The career guide consists of two parts--the "Student's Career Guide," and the "Teacher's Handbook," which serves as an annotated edition to the student guide.

TEACHER'S HANDBOOK

FOR USE WITH

STUDENT'S CAREER GUIDE -- BIOLOGY

TEXTBOOK CORRELATION

THE EARTH: ITS LIVING THINGS

TABLE OF CONTENTS

TEACHER'S HANDBOOK
FOR USE WITH
STUDENT'S CAREER GUIDE--BIOLOGY

I. IMPLEMENTATION STRATEGIES

It is recommended that this program be implemented throughout the school year, with each student reporting to the class on information concerning his selected career exploration, periodically. The manner of his reporting will vary according to his particular student activities.

Because of the extent of research required to complete the activities, it is felt that the program will be most successful if each student is required to investigate only one career during the school year. The student may choose any one of the grading periods in which to present his research to the class. The presentation should be in the form of class discussion. In this way the entire class will benefit from the research of each individual student.

Especially for those who are not familiar with teaching students with low reading levels, it is necessary to emphasize, at this time, that these materials have been designed for this purpose and to describe the qualifications of the students who will use the materials.

In the 1973-74 school year, the average reading level of four tenth-grade basic biology classes was Grade 5.3. They ranged from non-readers to, in isolated cases, ninth or tenth-grade levels--a fact that is always considered when grading the students.

The basic student will require much guidance in fulfilling his objectives; however, if assisted with patience and encouragement, the experience can be invaluable to the student in his future.

II. UTILIZATION OF MATERIALS

The teacher should read all directions in the "Student's Career Guide" to each class, paying special attention to explaining what is meant by the "optional" and "required" objectives. Before proceeding further, it should be affirmed that each student knows exactly which objectives he will be expected to fulfill.

The teacher should explain that each student will present his career research during any selected grading period. It is suggested that class discussion periods for this purpose be scheduled near the end of each grading period. The following are suggestions that may be given to each student a few days before his presentation:

A. Remind him to bring in any visual materials he has acquired.

B. Ask him to have available all materials he used in fulfilling his objectives.

C. Mention to him the benefit of following "Tips for the Employment Interview". (Re: Appendix D.)

D. Caution him to put considerable effort into the class discussion, in that it makes up one-fourth of his total grade.

E. Inform the student that he may make an informal presentation--standing or sitting—as he feels most at ease.

III. OBJECTIVES

The following broad objectives provide the basis of this program. They are re-defined as specific objectives in the "Student's Career Guide," page 4.

The student will -

--Demonstrate self-awareness by identifying his major abilities, interests, values, and achievements.

—Relate his abilities, interests, achievements, personal values, and influence of other's values to career choices.

—Explore occupational cluster areas, noting key occupations and the educational requirements, economic implications, required skills, and job opportunities related to occupations.

—Develop specific employability skills needed to obtain and maintain employment.

IV. ACTIVITIES

It should be called to the student's attention that the numbers of the activities do not correspond to the numbers of the objectives; however, as the wording is similar, it should not be difficult for the student to locate those activities which will enable him to fulfill his objectives. Once he is acquainted with the activities on which he will be working, he should be allowed to decide for himself the order in which they will be completed. All should be completed within one grading period. A sample evaluation/check list for recording student progress is included in Appendix A of this handbook.

The teacher might also encourage the student to keep a folder of the information he acquires during the exploration of his career choice. This folder would be for the student's personal reference in the future.

The following are terms found in the activities which might be unfamiliar to the student and need explanation:

1. Supply and Demand
2. Benefits and Earnings
3. Role-play Technique

V. CAREER CLUSTERS

In the section of the "Student's Career Guide" entitled CAREER CLUSTERS, the student will find a list of careers for exploration. If he is interested in a biology-related career which is not mentioned, he is free to explore it and may add it to the list.

The careers have been classified under five of the fifteen cluster titles which are widely accepted throughout the country as a method for grouping careers.[1]

The levels of difficulty were determined by the parameters and recommendations outlined in the Lincoln County Exemplary Program in Vocational Education.[2] (Refer to p. 6 of "Student's Career Guide" for definition of levels.)

The majority of the careers listed are Levels 3, 4, or 5 (see page 6 of "Student's Career Guide".) However, some students may have the potential and interest to investigate careers classified as Levels 1 or 2. After the teacher has determined that the student is capable of handling this assignment, he should be allowed to proceed. Each student should be assisted in choosing a career within his identified capabilities and interests. The guidance department and occupational specialist can be of help, here.

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[1] Project PROCESS Staff, Florida State University, Career Education: An Introduction, 1974, p. 74-79.

[2] Lincoln County Exemplary Program in Vocational Education, Lincoln County Schools, Hamlin, West Virginia, p. 75.

The student should be told that the definitions given in this section are not intended to serve as those required in the activities. The definitions are, in most cases, oversimplified--their purpose being merely to add some description of a career of which the student has no knowledge. For example, a student might eliminate the ecologist as a career choice because he has no idea what the term means. The simplified definition should give him enough information so that he can determine if that particular career corresponds closely enough to his interests and abilities to merit investigation.

VI. EVALUATION

The evaluation of the career exploration portion of the student's final grade is determined by the following three criteria:

--Performance; one-fourth.

--Written activities; one-half.

--Oral presentation; one-fourth.

Each of these is explained fully in the student's guide.

APPENDIX A

STUDENT EVALUATION FORM

STUDENT EVALUATION FORM

Students' Names	Grades on Required Objectives										Opt. Obj.
	1	2	3	4	6	8	10	11			
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											
21.											
22.											

STUDENT EVALUATION FORM

Students' Names	Grades on Required Objectives								Opt. Obj.		
	1	2	3	4	6	8	10	11			
23.											
24.											
25.											
26.											
27.											
28.											
29.											
30.											
31.											
32.											

STUDENT'S CAREER GUIDE

--BIOLOGY--

TEXTBOOK CORRELATION

THE EARTH: ITS LIVING THINGS

DEVELOPED BY

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STUDENT'S CAREER GUIDE

--BIOLOGY--

I. INTRODUCTION

Broadly, biology is the science that deals with living things. Think of the many things this includes. It would be impossible for any one person to know all the facts about all living things. For this reason there are many biology-related careers which are found at all levels--professional, semi-professional and managerial, technical and skilled, semi-skilled, and unskilled. If you have a sincere interest in biology, you may be sure you can find the right career, and as a high school student, you should find out what kind of training is required and begin preparing yourself for your future.

Our goal is to help you develop self-awareness, identify your interests and abilities, and explore your career choices. This student guide is designed to aid you in accomplishing these things.

II. DIRECTIONS

A. Carefully read the entire booklet. Ask the teacher any questions you may have.

B. Choose a biology-related career which is of interest to you. Suggestions may be found in Section V., CAREER CLUSTERS.

C. You should meet Objectives 1, 2, 3, 4, 6, 8, 10, 11, and at least one from Objectives 5, 7, and 9.

D. Complete the learning activities from Section IV that go with your objectives.

E. Prepare to tell the class about your career choice during your scheduled class discussion period.

III. OBJECTIVES

Listed below are four broad, general objectives which are broken down into specific objectives. The asterisks (*) to the left designate those which are optional. The others are required objectives.

The student will -

A. Demonstrate self-awareness by identifying his major abilities, interests, values, and achievements, by

1. listing major abilities, interests, values, and achievements.

B. Relate his abilities, interests, achievements, personal values, and influence of other's values to career areas, by

2. writing a paragraph expressing the importance of career choice to self and to society.

C. Explore occupational cluster areas, noting key occupations and the educational requirements, economic implications, required skills and job opportunities related to occupations, by

3. writing a definition of his career/occupational choice.

4. making a list of the duties performed in his career choice during a normal work day.

* 5. finding out and writing information about supply and demand in his career area.

6. making a chart listing the following qualifications of his career choice--age, sex, physical qualifications, personal qualifications, special skills, special tools, preparation and time required, experience, and scores on tests.

* 7. making an actual observation in his field, and writing a brief report on the observation.

8. sharing with his classmates during class discussion all of the information he acquired on his career choice.

D. Develop specific employability skills needed to obtain and maintain employment, by

* 9. using the career index, and writing a business letter asking for information on his career.

10. completing a job application form.

listing in chart form, benefits and earnings of his career.

11. interviewing for a job, using the role-play technique with a classmate acting as the employer.

IV. ACTIVITIES

Select and complete the correlated activities for the career objectives you have chosen. The asterisk (*) to the left designates optional activities.

A. Make a list of your major abilities, interests, values, and achievements related to possible career opportunities in a chosen field.

B. Write a paragraph expressing the importance of your occupational choice to yourself and to society.

C. Write a definition of your career/occupational choice.

D. Make a list of the duties performed in your career choice during a normal work day.

* E. Find out and record information about supply and demand related to your career.

F. Make a chart listing the following qualifications of your chosen career--age, sex, physical qualifications, personal qualifications, special skills, special tools, preparation and time required, and scores on tests.

* G. Make an actual observation in your field, and write a brief report telling about it.

H. Complete a job application form.

* I. Using the career index, write a business letter asking for information on your career.

J. List, in chart form, benefits and earnings of your career.

K. Interview for a job using the role-play technique, with a classmate acting as the employer.

L. Share with your classmates during class discussion all of the information you acquired concerning your career choice.

V. CAREER CLUSTERS SELECTED FOR EXPLORATION

A. CLUSTER TITLES

Health Occupations
Environmental Occupations
Agri- business and Natural Resources Occupations
Marine Science Occupations
Public Service Occupations

B. CRITERIA OF DIFFERENT OCCUPATIONAL LEVELS WITHIN A GIVEN CLUSTER:

Professional -- Level 1

--important function
--independent
--varied responsibility
--deals with policy making and interpretation
--high level of education where relevant

Semi-Professional and Managerial -- Level 2

--some independence
--varied responsibility
- policy interpretation
--high level of education where relevant

Technical and Skilled -- Level 3

--some variation in responsibility
--some policy interpretation and decision making
--special training, apprenticeship, and/or experience
--knowledge of a particular skill or area

Semi-Skilled -- Level 4

--little or no responsibility
--some special training, apprenticeship, and/or experience

Unskilled -- Level 5

--no special training and/or skill.[1]

C. SUGGESTED OCCUPATIONS FOR EXPLORATION WITHIN CLUSTERS

HEALTH OCCUPATIONS

1. Ambulance Attendant - administers emergency treatment to patients transported by ambulance.

2. Ambulance Driver - drives the ambulance; sometimes assists ambulance attendant.

3. Dental Assistant - assists dentist in preparing fillings and injections, and having instruments clean and ready for use.

4. Dental Hygienist - cleans and polishes teeth, takes and processes X-rays, instructs patients in oral hygiene and assists dentist.

5. Dental Laboratory Technician - makes dentures, bridges, orthodontic appliances, by following specific orders from the dentist.

6. Early Childcare Attendant - works in a child care center helping with small children.

7. Electrocardiograph Technician - operates electrocardiograph and interprets electrocardiogram.

8. First Aid Attendant - trained in the administering of first aid.

9. Hospital Nursery Attendant - helps in feeding and caring for newborn babies.

10. Hospital Ward Clerk - updates records and controls visitation wards.

11. Inhalation Therapist - (respiratory therapist) monitors respiratory equipment

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[1] Lincoln County Exemplary Program in Vocational Education, Lincoln County Schools, Hamlin, W. Virginia, p. 75.

12. Janitor (hospital) - helps maintain sanitary conditions to prevent infection and aid in recovery.

13. Licensed Practical Nurse - provides nursing care which requires technical knowledge but not professional training.

14. Lunch Room Manager - supervises preparation of meals planned by dietitian.

15. Medical Artist - prepares visual aids for classroom use, publication, and educational programs.

16. Medical Laboratory Assistant - assists medical technologist by performing simple routine tests and related work learned in short time.

17. Medical Librarian - orders, circulates, and binds books and journals, makes literature searches and compiles reports and bibliography in medical fields.

18. Medical Secretary - secretary who must have knowledge of medical terms.

19. Medical Technician - less formal training than technologist, conducts laboratory procedures, and operates complex instruments.

20. Nurse's Aide- assists nurse in performing non-professional tasks.

21. Orderly - performs non-professional tasks especially for male patients.

22. Personnel Worker (medical) - admits and releases patients, handles insurance forms, etc.

23. Physical Therapy Attendant - assists therapist in patient treatment and exercises.

24. Prosthetist - makes and fits artificial limbs.

25. Surgical Technician - monitors operating room instruments during surgery.

26. Veterinarian Assistant - assist the vecerinarian in care and treatment of animals.

ENVIRONMENTAL OCCUPATIONS

1. Ecologist - one concerned with the total interrelationship of organisms and their environments.

2. Fisherman (commercial) - a person who catches and sells fish.

3. Forest Fire Fighter - person trained in fighting forest fires.

4. Forestry Aide - gives assistance in developing, caring for, and cultivating a forest.

5. Logger - cuts trees and clears land of trees.

6. Lumberman - saws logs into lumber for the market.

7. Pest Control Operator - sprays places of business and residences to provide protection against pests.

AGRI-BUSINESS AND NATURAL RESOURCES OCCUPATIONS

1. Animal Keeper - feeds and cares for animals in kennels, sea shows, zoos, circuses, etc.

2. Animal Trainer - trains animals for showing, for performing responsibility tasks, or for research.

3. Butcher - kills, dresses, and sells animals for meat.

4. Farmer - deals with the problems related to production and marketing of farm products.

5. Game Manager - concerned with management of wild game resources and insures that game laws are obeyed.

6. Gardener - grooms and cares for lawns, plants, and shrubs.

7. Meat Packer - cuts and packages meat for selling.

8. Nurseryman - owns, operates, or works in a nursery for growing plants, trees, etc.

9. Range Manager - responsible for the management, development and protection of rangelands and their resources.

10. Wildlife Manager - responsible for the management and protection of wild mammals, water fowl, and upland game birds.

MARINE SCIENCE OCCUPATIONS

1. Diver - person trained to go underwater for recovery, investigation, etc.

2. Fish-hatcher and Raiser - one who incubates and cares for fish (from the egg stage).

3. Marina Attendant - sells items necessary for various salt water activities; sometimes in charge of docking.

4. Ocean Fisherman - catches salt water fish for selling or studying.

PUBLIC SERVICE OCCUPATIONS

1. Lifeguard - swimmer trained to rescue persons in distress and perform life saving techniques.

2. Teacher's Aide - assist teacher with clerical duties.

VI. CAREERS CORRELATED WITH TEXT, THE EARTH: ITS LIVING THINGS

The following is an outline of the units in your textbook and the specific careers that relate to each unit. Numbers to the side of the career indicate the related chapters in your text.

UNIT I. LIFE AND ENVIRONMENT

Chapter 1 - Matter, Energy, and Life

Chapter 2 - Living Things in Their Environment

Careers:

1. Ecologist - 1, 2
2. Farmer - 1

UNIT II. THE EARTH'S PLANT LIFE

Chapter 3 - Interchange of Matter and Energy

Chapter 4 - Plants Without Chlorophyll

Chapter 5 - Green Plants With Simple Structures

Chapter 6 - Vascular Green Plants

Careers:

1. Ecologist - 3
2. Farmer - 3, 6
3. Nurseryman - 3, 5
4. Gardener - 3, 6
5. Forestry Aides - 3, 6

6) Greens keeper - 3, 6

7) Forest fire fighters - 6

8) Medical Lab Assistant - 4

9) Medical Technician - 4

10) Lunchroom Manager - 4

11) Tree Trimmer - 6

12) Lumberman - 6

13) Logger - 6

UNIT III.. ANIMAL LIFE

Chapter 7 - Animals and Their Activities

Chapter 8 - Soft Bodied Animals

Chapter 9 - Animals With Jointed Legs

Chapter 10 - Vertebrates - Animals With Backbones

Careers:

1) Inhalation Therapist - 7

2) Commercial Fisherman - 7

3) Wildlife Manager - 7

4) Life Guard - 7

5) Fish Hatcher & Raiser - 7

6) Ocean Fisherman - 7, 8

7) Marina Attendant - 7, 8

8) Diver - 8

9) Pest Control Operator - 9

10) Meat Packer - 10

11) Animal Keeper - 10

12) Animal Trainer - 10

13) Butcher - 10

14) Veterinarian Assistant - 10

UNIT IV. LIVING THINGS AND THEIR ENVIRONMENT

Chapter 11 - Communities of Plants and Animals

Chapter 12 - Interdependence in Communities

Careers:

1) Game Manager - 11

2) Range Manager - 11

3) Wildlife Manager - 11

4) Ecologist - 11, 12

UNIT V. ADAPTATION OF MAN TO HIS ENVIRONMENT

Chapter 13 - Man's Body Framework

Chapter 14 - Energy For the Body's Work

Chapter 15 - Matter and Energy For the Cell's Work

Chapter 16 - Sensing the Environment

Careers:

1) Medical Laboratory Assistant - 13, 14, 15, 16

2) Licensed Practical Nurse - 13, 14, 15, 16

3) Nurses Aid - 13, 14, 15, 16

4) Orderly - 13, 14, 15, 16

5) Surgical Technician - 13, 14, 15, 16

6) Physical Therapy Attendant - 13

7) Prosthetist - 13

8) Lunchroom Manager - 14

9) Inhalation Therapist - 15

10) Electrocardiograph Technician - 15

11) Dental Assistant - 13, 14, 15, 16

12) Dental Hygienist - 13, 14, 15, 16

13) Dental Lab Technician - 13, 14, 15, 16

14) Medical Technician - 13, 14, 15, 16

15) Medical Secretary - 13, 14, 15, 16

16) Medical Artist - 13, 14, 15, 16

17) Medical Librarian - 13, 14, 15, 16

18) Hospital Ward Clerk - 13, 14, 15, 16

19) First Aid Attendant - 13, 14, 15, 16

20) Ambulance Attendant - 13, 14, 15, 16

21) Medical Personnel Worker - 13, 14, 15, 16

UNIT VI. FITNESS TO THE ENVIRONMENT

Chapter 17 - Interaction of Heredity and Environment

Chapter 18 - Adaptations of Organisms Through Learning

Careers:

1) Hospital Nursery Attendant - 17

2) Animal Trainer - 18

3) Early Child Care Attendant - 18

UNIT VII. THE CHANGING CODE

Chapter 19 - Apaptation Over The Ages

Chapter 20 - Man's Adaptations

Careers:

1) Ecologist - 19, 20

2) Game Manager - 20

3) Range Manager - 20

4) Wildlife Manager - 20

5) Logger - 20

6) Lumberman - 20

7) Forestry Aides - 20

UNIT VIII. MAN IN HOSTILE ENVIRONMENTS

Chapter 21 - Hostile Land and Water Environments

Chapter 22 - Adaptation to Space

Careers:

1. Diver - 21
2. Life Guard - 21
3. Marina Attendent - 21
4. Ocean Fisherman - 21
5. Astronomer - 22
6. Space Jobs - 22

VII. EVALUATION OF STUDENT OUTCOMES

The student evaluation will be based on three criteria--performance, written activities, and oral presentation.

1. Performance - This portion of the evaluation will be the teacher's observations of the student's role-play activity. This will account for one-fourth of your grade on the career exploration activities.

2. Written Activities - The evaluation of written material will be composed of individual grades for all of the student's written activities. These will make up one-half of your total grade on the career exploration activities.

3. Oral Presentation - The evaluation of oral presentation will include the student's participation in class discussion of various careers. This will make up one-fourth of your total grade on the career exploration activities.

VIII. RESOURCE MATERIALS

The resource materials are divided in six categories - books, films, filmstrips, occupational guidance kits, VIEW scripts, and pamphlets.

A. BOOKS - All the following books are found in the Leon High School Library or the Guidance Office.

170.0 B	Your School and You, A Textbook of Guidance by Bliss, Walter B.
331.7 Bru	Your Future in a Changing World - Brunetti, Cledo
331.7 Bru	Occupations - Brunetti, Cledo
331.7 D	Occupations - Duckal, Walter
331.7 D	A Guide to Professional Careers - Duckal, Walter
331.7 H	Encyclopedia of Careers & Vocational Guidance - Hopke, Wm. E.
331.7 H	Occupations - Hopke, Wm. E.
331.86 K	Apprenticeships in America - Kursh, Harry
333.7 H	Careers in Natural Resources Conservation - Herbert, Fred W.
333.7 H	Conservationists and What They Do - Harrison
362.11 Kir	Aim For a Job in a Hospital - Kirk, Weir Robert
371.1 G	So you Want to be a Teacher - Gelinas
371.42	An Outline of Careers - Bernay, E. L.
371.42	Career Opportunities - Career Information Service, N.Y.
371.42	How You Can Get the Job You Want - Gardiner, Glenn L.
371.42 A	Career Choices For the 70's - Arnold
371.42 Cob	The Scientific Approach to Career Planning - Cobb, M.
371.42 D	Your Plans For the Future - Detzen, M. F. & E. W.
371.42 Em	Employability: Discovering, Developing, and Using Personal Abilities
371.42 Fer	Careers For You - Ferrain, E. P.
371.42 F	Careers For Women - Filene, C.

371.42 Gru	Resumés That Get Jobs - Gruber, Edward C.
371.42 Moo	Career Guide For Young People - Moore, Mary F.
371.42 Moo	Occupations - Moore, Mary F.
371.42 P	Occupations - Puchaski, Ben S.
371.42 Par.	Job Opportunities For Young Negroes - Paradis, Adrian A.
371.42 Spl	Occupations - Splaver, Sarah
371.42 Spl	Your Career if Your Not Going to College - Splaver, Sarah
540.69 Nou	So You Want to Be a Chemist - Nourse, Alan E.
551 W	Your Future in Geology - Weitz, Joseph L.
551.4023 G	Your Future in Oceanography - Gaber, Norman H.
551.5 Ber	Your Future in Meteorology - Berry, Fred A.
570.69 Fox	Careers in Biological Sciences - Fox, William
610.69 Nou	So You Want to be a Doctor - Nourse, Alan E.
610.69 Paul	Your Future in Medical Technology - Paul, Grace
610.69 Sta	Find a Career in Medicine - Starrell, Robert S.
610.6953 Che	Your Future in Medical Assisting - Chernok, Norman B.
610.7 D	Careers For Nurses - Deming, Dorothy
610.7 E	Nurse, The Story of Great Professions - Ebrele, Irmengarde
610.9	Medicine In Action - Hyde, Margaret
615.4 Kra	Your Future in Pharmacy - Kraemer, James
615.85 Shu	Your Future in Occupational Therapy - Shuff, Frances L.
621.38 Wes	Find a Career in Electronics - West, Wallace
623.8 Ste	Nuclear Submarine Skippers and What They Do - Steele, George P.
629.1 Dau	Aviation as a Career - Daughtery, Charles M.
629.4 L	Your Future in NASA - Levine, Sol
630.0 P	Agriculture and Farm Life - Phillips, Harry A.

635.9 Pin — Horticulture; Your Future in The Nursery Industry - Pinney, John James

636.089 Ris — Your Future in Veterninary Medicine - Riser, Wayne H.

641 H — The Story of Meat - Hinman, Robert B.

651.02 Cof — The Medical Secretary - Coffin, K. B.

F D — Pam Weston, Registered Nurse - Deming, Dorothy

F D — Penny Marsh, Public Health Nurse - Deming, Dorothy

F D — Trudy Wells, R. N., Pediatric Nurse - Deming, Dorothy

F Rob — Holly Andrews, Nurse in Alaska - Roberts, Suzanne

Lovejoy's Career and Vocational School Guide - Clarence E. Lovejoy (Occupational Specialist)

Career Index - Chronicle Guidance Publishers (Guidance Office)

Handbook of Job Facts - Thremann, Norman L. (Guidance Office)

Occupational Outlook Handbook - U.S. Dept. of Labor (Occupational Specialist)

B. FILMS - The following films have been ordered, and will be shown as they become available, (only postage fee required):

1) Day of Judgement - Pharmacy Recruitment - Lilly & Co.

2) American Doctor - American Osteopathic Association

3) New Life For Lisa (Nursing) - Ethicon, Inc.

4) Light in Shadow: Story of X-Ray (Radiologist) - Dupont deNemours & Co., Inc.

5) Laser & Living Cells (Cytologist) Merck, Sharp & Dohme Films

6) Careers in Oceanography - Dept. of the Navy

7) Animals of the Sea - Dept. of the Navy

8) Laboratory of the Body - (Dental research) American Dental Asso.

9) Challenge of Dentistry - American Dental Asso.

10) The Grass is Greener - Gardeners, etc - Chevron Chemical Co.

11) The Making of a Plague - Entomologist, Pest Control Operator Chevron Chemical Co.
12) A Green Thumb for Macauley - Gardeners, Horticulturist - Union Fork & Hoe Co.
13) Goodbye, Mrs. Ant - Entomologist, Pest Control Operator Velsicol Chemical Co.
14) Trek to the Tetons - Wildlife Scientist - Eastman Kodak Co.
15) Man Behind the Gun - Pest Control Operators Chemagro, Division of Baychem Corp.
16) Web of Life, Endless Chain - Ecologist USAEC
17) Atomic Greenhouses - USAEC
18) Building Blocks of Life - USAEC
19) Controlled Photosynthesis - USAEC
20) Radiation & the Population - USAEC
21) Radiation in Biology - USAEC
22) Understanding the Atom: Radioisotopes in Biology & Agriculture - USAEC
23) The River Must Live - Pollution Control - Florida Dept. of Natural Resources
24) Air is for Breathing - Shell Oil
25) The Rival World - Entomologist, Pest Control - Shell Oil
26) Odd Occupations - Florida Dept. of Commerce
27) Career in Bacteriology - Becton, Dickinson & Co.
28) The Air Force Nurse - U.S.A.F.
29) The Army Nurse - Dept. of Army
30) To Touch the Sky - Forestry - Modern Talking Picture Service
31) The Career Game - Modern Talking Picture Service
32) Code Blue - Minority Groups - Careers in Health - Modern Talking Picture Service
33) The Covenant - Veterinarians - Modern Talking Picture Service
34) Horizons Unlimited - Over 200 Careers in Medicine - Modern Talking Picture Service
35) Matter of Opportunity - Minority Careers in Medicine - Modern Talking Picture Service
36) The Surgeon - Modern Talking Picture Service
37) Creatures of the Sea (Marine) - Miami Seaquarium
38) Marine Life Preview - Marineland of Florida

39. The Hidden World - (Entomologist) Aetna Life & Casualty
40. Cracking the Code of Life - (Geneticist, Embryologist) American Cancer Society
41. From One Cell - (Embryologist) American Cancer Society American Cancer Society
42. In a Medical Laboratory - (Medical Technicians, Pathologists, Lab. Assistants, Etc.) American Cancer Society

C. FILMSTRIPS - These filmstrips are in the Leon High School Library and can be checked out through your teacher.

FS082	The Astronomer at Work
FS201	You and Your Mental Abilities
FS202	Discovering Your Interests
FS331.1	Finding Your Career
FS331.1	Getting a Better Job
FS331.1	Job Shopping
FS331.1	The Job Interview
FS331.1	What Can You Do?
FS409	Science Opens New Doors
FS414	New Career Opportunities
FS640	New Frontiers in Space
FS644	Development of Embryos
FS740	The Fruit Fly, Key to Heredity
FS746	New Exploration in Science
FS781	Bacteriological Techniques
FS1033	Animal Care in the Laboratory
FS1052D	Getting a Job and Keeping It
FS1077A-F	Interdependence of Living Things Series - Ecology
FS1109	Requirements in the World of Jobs
FS1110	Achieving Success in the World of Jobs
FS1149	Investigations in Biological Heredity
FS1159	Basic Subjects - Preparation for Work
FS1195	Oceanography: Developing Science
FS1208	Interpreting Biological Data
FS1254	Science Technology and Society
FS1281	Careers in the World of Tomorrow
FS1284	Your Job Outlook
FS1331	Foundations in Occupational Planning Pharmacy: A Health Career
New	People Who Work in Science - Guidance Associates

D. OCCUPATIONAL GUIDANCE KIT - This is a series of booklets giving information on numerous careers. It is available in the Leon High School Library and the Occupational Specialist's office. All careers are listed alphabetically in an index volume.

SCIENCE & ENGINEERING CAREERS KIT - Largo - This kit contains an alphabetized series of scientific career descriptions. It will be kept in the science department or media center.

E. VIEW SCRIPTS - The VIEW scripts can be found in both the library and the Occupational Specialist's office. They list information concerning careers in condensed form. The following are available biology-related careers broken down by clusters:

a. Health Occupations

1) Dental Assistant
2) Dental Hygienist
3) Dental Lab Technician
4) Inhalation Therapist
5) Medical Lab Assistant
6) Medical Office Assistant
7) Medical Technician
8) Nurse's Aide
9) Operating Room Technician
10) Dental Technician
11) Opticalman
12) Practical Nurse
13) Registered Nurse
14) Veterinarian Assistant
15) Hospital Ward Clerk
16) X-ray Technician
17) Funeral Director (Mortician)
18) Technical Illustrator (Artist)
19) Child Care Service

b. Environmental Occupations

1) Park Ranger
2) Forestry Aide
3) Pest Control Worker

c. Agri-business and Natural Resources Occupations

1) Retail Meat Cutter
2) Animal Keeper

d. Marine Science Occupations

1) Oceanographic Technician

e. Public Service Occupations

1) Teacher's Aide

F. PAMPHLETS - The following list of pamphlets and books have been ordered as resource materials for the students. This is not intended to be a complete list, as other materials will soon be ordered. These are broken down into clusters, with the first group of general interest to everyone.

I. GENERAL

Can I Be A Scientist?
General Motors Corporation

Can I Get the Job?
General Motors Corporation

Career In Biology
American Institution of Biological Sciences

Cross Reference: Manpower-Education-Careers
American Hospital Association

Preparing For A Career in Biology
Carolina Biological Supply Co.

A Career in the Biological Sciences
B'nai B'rith Career & Counseling Services

II. HEALTH

A Career in Nursing
B'nai B'rith Career and Counseling Services

Career Materials
American Nurses' Association, Inc.

Career Opportunities - Licensed Practical Nurse
National Association For Practical Nurse
Education and Services, Inc.

Declaration of Functions of the Licensed Practical/Vocational Nurse
National Association For Practical Nurse
Education and Services, Inc.

Do You Want to Be A Nurse?
National League For Nursing, Inc.

Education For Nursing: The Diploma Way
National League For Nursing, Inc.

Husband/Father/Humanitarian/Specialist/Nurse
National League For Nursing, Inc.

A Secure Job, A Lifetime Career, after One Year of Study
National Association For Practical Nurse Education and Service, Inc.

Why Have Male Nurses?
National Association For Practical Nurse Education and Service, Inc.

Careers in Dental Hygiene
American Dental Hygienist Association

Orthodontics; A Challenging Dental Career
American Dental Association

Careers in Pharmacy
B'nai B'rith Career & Counseling Services

Pharmacy Serves Everyone
American Association of Colleges of Pharmacy

Shall I Study Pharmacy
American Association of Colleges of Pharmacy

What is A Pharmacist?
Upjohn Company

Pharmacy: A Synthesis of Sciences (book) by Fay
D.C. Heath Co.

Opportunities in Pharmacy Careers (book) by Gable
Vocational Guidance Manuals

A Career in Pharmacology
American Society for Pharmacology and Experimental Therapeutics, Inc.

Opportunities in Opticianry
Vocational Materials

The Paraoptometrics
American Optometric Association

Career Opportunities For Orthotists and Prosthetists
American Orthotic and Prosthetic Assoc.

The Internist and Your Health
American Society of Internal Medicine

Occupational Therapy...A Communication Process in Psychiatry (book)
American Occupational Therapy Association

Employment Outlook For Physical Therapists and Occupational Therapists
U.S. Government Printing Office

A Career For You
American Physical Therapy Association

Careers In Physical Therapy
American Physical Therapy Association

Because You Like People...Choose A Career in Mental Health
National Association For Mental Health, Inc.

Action For Mental Health (book)
John Wiley and Sons, Inc.

Guidelines For the Training of Group Psychotherapists
American Group Psychotherapy Association, Inc.

The Psychiatric Technician
National Association of Human Services Technologists

Standards in Training in Psychoanalysis
American Psychoanalytic Association

Psychiatric Social Worker
Science Research Associates

Educational Opportunities in Parapsychology
Parapsychology Association

Certification of Respiratory Therapy Technicians
American Association of Respiratory Therapy

Considering A Career in Respiratory Therapy
American Association for Respiratory Therapy

Family Foot Specialist: Doctor of Podiatry Medicine
American Podiatry Association

Podiatry Education
American Podiatry Association

Careers in X-Ray Technology
American Society of Radiologic Technologists

A Career in Veterinary Medicine
U.S. Department of H.E.W.

Career Facts About Today's Veterinarian
American Veterinary Medical Association

Today's Veterinarian
American Veterinary Medical Association

Careers in Health
U.S. Department of H.E.W.

Career Opportunities - Health Technicians (book)
F.G. Ferguson Publishing Co.

Careers in the Health Field (book)
Julian Messner

Health Career Series
American Hospital Association

Join the Life Corps
U.S. Department of H.E.W.

New Careers in Health Service, Research and Administration
U.S. Department of H.E.W.

Health Education as Your Career
American Association For Health, Physical Education, and Recreation

What is a Public Health Educator?
Society For Public Health Education

Horizon Unlimited
American Medical Association

Careers and Opportunities in the Medical Services (book)
E.D. Duttonand Co., Inc.

Careers in the Medical Laboratory
Registry of Medical Technologists

Be a Medical Librarian
Medical Library Association, Inc.

Wanted: Medical Technologists
Public Affairs Pamphlets

What Kind of Career Could I have in a Medical Lab?
Registry of Medical Technologists

Fact Sheet: Medical Record Administrator and Medical Record Technician
American Medical Record Association

Learn Medical Transcription
American Medical Record Association

Medical Library Careers
Medical Library Association, Inc.

Medical Record Administration
American Medical Record Association

Medical Record Librarian
American Medical Record Association

Your Career As A Medical Record Technician
American Medical Record Association

An Educational Opportunity: Correspondence Course For Medical Record Personnel
American Medical Record Association

Careers That Count
American Hospital Association

Today's Hospital: Career Center For America's Youth
American Hospital Association

Your Career Opportunities in Hospitals (book)
Chas Pfizer and Co., Inc.

Find a Career That Counts - In Hospital Financial Management
Hospital Financial Management Assoc.

Hospital Food Service Administrator
American Hospital Association

Hospital Personnel Director
American Hospital Association

Hospital Public Relations Officer
American Hospital Association

Hospital Purchasing Agent
American Hospital Association

Wanted: An Executive Housekeeper
National Executive Housekeepers Association, Inc.

Job Descriptions and Organizational Analysis For Hospitals and Related Health Services
U. S. Department of Labor

American Dietetic Association

A Career in Pediatrics

American Academy of Pediatrics

A Guide to Opportunities in Cell Biology
American Society For Cell Biology

The Human Cell and the Cytotechnologist
Registry of Medical Technologists

Microbiologist
U.S. Food and Drug Administration

Microbiology in Your Future
American Society for Microbiology

Careers in Plant Pathology
American Phytopathological Society

Should You Be A Pathologist?
Intersociety Committee on Pathological Information, Inc.

A Career in Physiology
The American Physiological Society

Careers in Physiology
The American Physiolical Society

III. ENVIRONMENT

Develop a Career as a Professional Landscape Expert
National Landscape Association

Nursery Careers
American Association of Nurserymen, Inc.

Career Opportunities in Tree Care
National Arborist Association

Careers in Horticulture Sciences (book) Julian Messner

Career Opportunities in the Pest Control Industry
National Pest Control Association

A Soil Conservation Career For You in SCS
U.S. Department of Agriculture

A Wildlife Conservation Career For You
Wildlife Society

IV. AGRI-BUSINESS

The Compleat Inspector
U.S. Food and Drug Administration

The Scientist in the Food and Drug Administration
U.S. Food and Drug Administration

A Career in Animal Sciences
American Society of Animal Sciences

A Career in Laboratory Animal Science and Technology
American Association For Laboratory
Animal Sciences

V. MARINE

The Ocean and You
Marine Technology Society

Research in the Sea
Woodshole Oceanographic Institution

IX. APPENDIXES

APPENDIX A: INFORMATION ON LETTER WRITING

APPENDIX B: INFORMATION ON COMPLETING A JOB APPLICATION FORM

APPENDIX C: A SAMPLE APPLICATION BLANK

APPENDIX D: HOW TO PREPARE FOR YOUR INTERVIEW - DO'S AND DON'TS

APPENDIX A.

INFORMATION ON LETTER WRITING

I. Business letters should follow prescribed usage with respect to these six essential parts:

A. Heading - must give the full address of the writer and the date letter was written; should be flush with the right margin.

B. Inside address - (identical with the address on the envelope)- must give the name and the full address of the person to whom the letter is written. It is typed flush with the left margin about four spaces lower than the heading.

C. Salutation - (or greeting) - should be consistent with the tone of the letter. the first line of the inside address, and the complimentary close. It is typed flush with the left margin two spaces below the inside address and is followed by a colon.

D. Body - should follow the principles of good writing. Type-written letters are usually single spaced, with double spacing between paragraphs. All paragraphs are flush with the left margin. Double-space between paragraphs. Hand written letters should be written legibly, neatly and attractively in ink. Use good quality white paper.

E. Complimentary close - should be consistent with the tone of the letter and with the salutation. It is two spaces below the last line of the body and directly under the salutation, flush with the left margin.

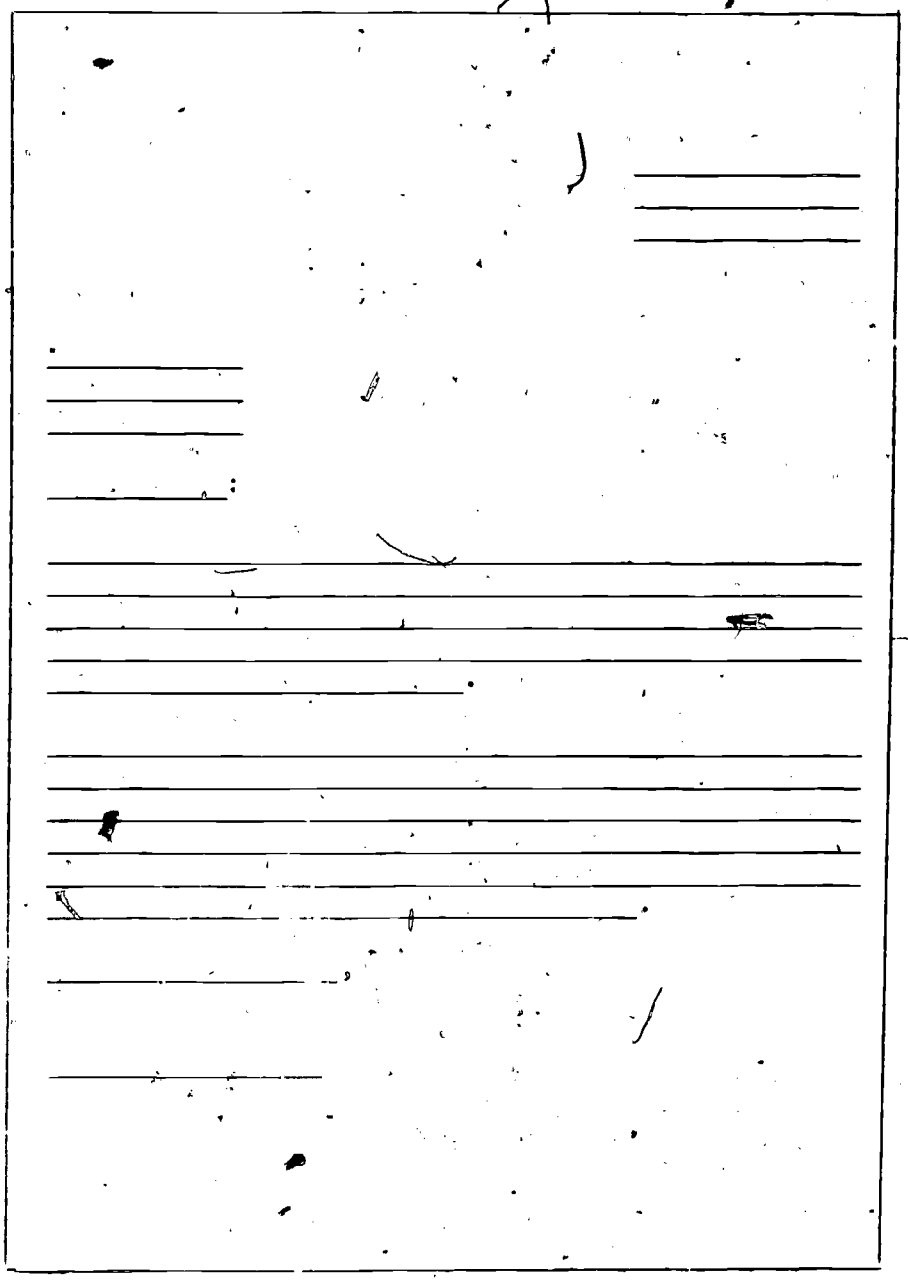
F. Signature - should be written by hand directly below the complimentary close.

II. In the text of the letter describe your general qualifications and your availability date. If you were referred, mention by whom. It is also important to include your phone number.

III. Keep a carbon copy for further reference.

On the following page is a sample form for setting up the letter.

SAMPLE LETTER FORMAT



APPENDIX B.

INFORMATION FOR COMPLETING THE APPLICATION BLANK

I. The application blank should be filled out neatly and accurately.

II. Use ink and print unless directed otherwise.

III. Follow directions exactly.

IV. Be candid and honest in your answers.

V. Write your name where signature is indicated.

VI. Be sure the application is complete; all questions are answered.

APPENDIX C.

SAMPLE APPLICATION BLANK

PLEASE PRINT

I. Personal Information

Date _____, 19__

Name _____
LAST FIRST MIDDLE

Address (present) _____
Street City

_____
State Zip Code

Address (permanent) _____
Street City

_____
State Zip Code

Phone _____
Position Applied For _____
Salary Required _____
Social Security No. _____ Height _____ Weight ____
Place of Birth _____ Date of Birth _____
Age _____ Sex _____

Are You a Citizen of the U.S. _____
Check Your Status: ___ Married, ___ Single, ___ Divorced,
___ Separated, ___ Widowed
Name of Husband (wife) _____
Where Employed _____
Occupation _____
Number of Children _____ Are You an Expectant Mother? _____
Is Your Health? ___ Excellent, ___ Good, ___ Fair, ___ Poor
List, with dates, any chronic or acute illness or operations you have had. _____

II. Education: Check the highest level school you completed:
Elementary (K-6) ___, Junior High (7-9) ___,
High School (10-12) ___, College, 4 yrs. ___, 6 yrs. ___,
Technical or Trade School ___

List High Schools, Colleges, & Technical Schools, dates you attended, and degrees or diploma.

School	Dates Attended From - To	Degree or Diploma

III. Work Experience (Please list last position held first)

A Institution	B Address	C Dates From-To	D Job Title	E Reason Leaving	F Supervisor	G Salary

IV. Military Service

Dates in Service: From _____ to _____

Branch and Corps _____

Type of Discharge _____

Highest Rank Held _____

Draft Status _____

V. Personal References: List 3 people not related to you, who you have known for at least 2 years.

Name	Address	Phone	Occupation	Yrs. Known

VI. Miscellaneous

Have you ever applied here before? _____ When? _____

Are you related to anyone employed here? ___ Whom? _____

Have you ever been fired? ___ (if yes, please explain) _____

Were you ever arrested? _____ If yes, describe. _____

Have You ever been convicted of a crime? ____ If yes, describe. ____

Read Carefully and Sign

I certify that the answers to the above questions are correct and that a mis-statement of fact shall be cause for dismissal.

Signature _____

Date _____

APPENDIX D.

HOW TO PREPARE FOR YOUR INTERVIEW - DO'S AND DON'TS

I. Prior to the interview, investigate fully, facts concerning the company and be prepared to defend your desire for the job. Compile a list of questions that you may want to ask.

II. Dress in an appropriate manner and be punctual for your interview.

III. During the interview, communications should be as follows:

a. Be friendly

b. Maintain eye contact with the interviewer

c. Do not chew gum and smoke only if invited to do so

d. Be enthusiastic

e. Be precise in your answers but avoid excessive and unnecessary detail

f. Ask questions you have concerning the job

g. Upon leaving, re-emphasize your interest in the job

PART 5

CAREER GUIDE FOR BIOLOGY

SECONDARY LEVEL

TEXTBOOK CORRELATION

HIGH SCHOOL BIOLOGY

BSCS, GREEN VERSION, 2ND EDITION

CAREER GUIDE FOR BIOLOGY

SECONDARY LEVEL

TEXTBOOK CORRELATION

HIGH SCHOOL BIOLOGY

BSCS, GREEN VERSION, 2ND EDITION

DEVELOPED BY

BRENDA HENDERSON
JANICE MAINE
LEON HIGH SCHOOL SCIENCE DEPARTMENT

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TALLAHASSEE, FLORIDA

MR. JAMES C. TALLEY, DIRECTOR

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INTRODUCTION

Educators throughout the country have recognized the need for Career Education in the public schools. Implementation, however, has been somewhat difficult because of existing curriculum designs and the lack of required curriculum materials. For these reasons, this career guide was developed as an initial attempt to provide curriculum materials and implementation strategies correlating biology - related careers with the on-going curriculum and the Florida state adopted textbook, the BSCS Green Version, High School Biology, Second Edition, published by Rand McNally and Company, Chicago, Illinois.

It should be noted here that although this career guide is correlated with a specific curriculum and text book, the objectives and format are of such a general nature that the guide can be utilized with most secondary biology courses.

The career guide consists of two parts—the "Student's Career Guide," and the "Teacher's Handbook," which serves as an annotated edition to the student guide.

T E A C H E R 'S H A N D B O O K

FOR USE WITH

STUDENT'S CAREER GUIDE — BIOLOGY

TEXTBOOK CORRELATION

HIGH SCHOOL BIOLOGY

BSCS, GREEN VERSION, 2ND EDITION

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TEACHER'S HANDBOOK
FOR USE WITH
STUDENT'S CAREER GUIDE--BIOLOGY

I. IMPLEMENTATION STRATEGIES

It is recommended that this program be implemented throughout the school year, with each student reporting to the class on information concerning his selected career exploration, periodically. The manner of his reporting will vary according to his particular student activities.

Because of the extent of research required to complete the activities, it is felt that the program will be most successful if each student is required to investigate only one career during the school year. The student may choose any one of the grading periods in which to present his research to the class. The presentation should be in the form of class discussion. In this way the entire class will benefit from the research of each individual student.

This should be a comprehensive, in-depth report in which he may utilize visual aids, tape recordings, slides, or any other resources that he feels will be of value to the class.

II. OBJECTIVES

The following broad objectives provide the basis of this program. They are re-defined as specific objectives in the "Student's Career Guide," page 4.

The student will -

--Demonstrate self-awareness by identifying his major abilities,

interests, values, and achievements.

--Relate his abilities, interests, achievements, personal values, and influence of other's values to career choices.

--Explore occupational cluster areas, noting key occupations and the educational requirements, economic implications, required skills, and job opportunities related to occupations.

--Develop specific employability skills needed to obtain and maintain employment.

--Identify the relationship between academic training (general background and basic skills courses) and career opportunities/preparation.

III. ACTIVITIES

It should be called to the student's attention that the numbers of the activities do not correspond to the numbers of the objectives; however, as the wording is similar, it should not be difficult for the student to locate those activities which will enable him to fulfill his objectives. Once he is acquainted with the activities on which he will be working, he should be allowed to decide for himself the order in which they will be completed. All should be completed within one grading period. A sample evaluation/check list for recording student progress is included in Appendix A of this handbook.

The teacher might also encourage the student to keep a folder of the information he acquires during the exploration of his career choice. This folder would be for the student's personal reference in the future.

The following are terms found in the activities which might be unfamiliar to the student and need explanation:

1. Supply and Demand
2. Benefits and Earnings
3. Role-play Technique

IV. CAREER CLUSTERS

In the section of the "Student's Career Guide" entiltled CAREER CLUSTERS, the student will find a list of careers for exploration. If he is interested in a biology-related career which is not mentioned, he is free to explore it and may add it to the list.

The careers have been classified under five of the fifteen cluster titles which are widely accepted throughout the country as a method for grouping careers.[1]

The levels of difficulty were determined by the parameters and recommendations outlined in the Lincoln County Exemplary Program in Vocational Education.[2] (Refer to p. 8 of Student's Career Guide for definition of levels.)

The student should be told that the definitions given in this section are not intended to serve as those required in the activities. The definitions are, in most cases, oversimplified--their purpose being merely to add some description of a career of which the student has no

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1 Project PROCESS Staff, Florida State University, Career Education: An Introduction, 1974, p. 74-79.

2 Lincoln County Exemplary Program in Vocational Education, Lincoln County Schools, Hamlin, West Virginia, p. 75.

knowledge. For example, a student might eliminate the ecologist as a career choice because he has no idea what the term means. The simplified definition should give him enough information so that he can determine if that particular career corresponds closely enough to his interests and abilities to merit investigation.

V. CORRELATED LAB INVESTIGATIONS

Listed on the following pages are the laboratory investigations found in the BSCS, Green Version, text. Related careers have been identified and stated below each investigation.

One of the student objectives directs the students to select a career and complete the lab investigation related to his career choice. This listing will serve as the basis for his selection. (Refer to p. 4 of "Student's Career Guide" for stated objective.) If a career is listed under more than one lab, the student can choose the related lab he prefers to complete.

CHAPTER 1

Investigation 1.1, "Observing Living Things", p. 7

1. Anatomist
2. Taxonomist
3. Physiologist
4. Botanist
5. Entomologist
6. Herpetologist
7. Paleontologist
8. Zoologist
9. Agriculture Teacher
10. Fisheries Biologist
11. Forester
12. Horticulturist

Investigation 1.2, "The Germination of Seeds", p. 8.

1. Farmer
2. Botanist
3. Horticulturist

4. Nurseryman
5. Forester
6. Agronomist
7. Arborist

Investigation 1.3, "Use of the Microscope: Introduction", p. 11

Investigation 1.4, "Use of the Microscope: Biological Material", p. 16

All careers under health occupations cluster which are designated as levels 1, 2, or 3, and others as follows:

1. Botanist
2. Geneticist
3. Paleontologist
4. Zoologist
5. Soil Scientist

Investigation 1.5, "Interrelationships of Producers and Consumers", p. 26

1. Ecologist

CHAPTER 2

Investigation 2.1, "Population Growth: A Model", p. 43

Investigation 2.2, "Study of a Yeast Population", p. 53

Investigation 2.3, "Population Changes in Open Systems", p. 62

1. Ecologist

CHAPTER 3

Investigation 3.1, "Study of a Biotic Community", p. 76

1. Ecologist
2. Botanist
3. Zoologist

Investigation 3.2, "Abiotic Community: A Comparative Study", p. 98

1. Ecologist
2. Meteorologist

CHAPTER 4

Investigation 4.1, "The Levels of Classification", p. 108

Investigation 4.2, "Structural Characteristics in the Identification of Animals", p. 139

Investigation 4.3, "Diversity in the Animal Kingdom: A Comparative Study", p. 147

1. Taxonomist
2. Anatomist
3. Zoologist
4. Physiologist
5. Embryologist
6. Paleontologist

CHAPTER 5

Investigation 5.1, "Diversity in Angiosperm Leaves", p. 164

Investigation 5.2, "The Concept of Primitive Characteristics", p. 179

1. Taxonomist
2. Botanist
3. Paleontologist
4. Nurseryman
5. Mycologist
6. Horticulturist

CHAPTER 6

Investigation 6.1, "A Garden of Microorganisms", p. 189

Investigation 6.2, "Microbial Techniques: Populations", p. 194

Investigation 6.3, "Microbial Techniques: Microscopic Study of Bacteria", p. 198

1. Microbiologist
2. Bacteriologist
3. Parasitologist
4. Virologist
5. Pathologist

CHAPTER 7

Investigation 7.1, "Microorganisms in School Environments", p. 216

1. Microbiologist
2. Bacteriologist
3. Parasitologist
4. Virologist
5. Pathologist
6. Nutritionist
7. Medical Technician
8. Medical Technologist
9. Medical Laboratory Assistant
10. Cytologist

11. Histologist
12. Health Teacher
13. Home Economics Teacher

Investigation 7.2, "Investigating an Infectious Disease", p. 232

1-13. (See above)
14. General Practitioner
15. Pediatrician
16. Nurse
17. Ecologist
18. Veterinarian
19. Ear, Nose, and Throat Specialist

Investigation 7.3, "A Chemical Characteristic of Soils", p. 238

1. Soil Scientist
2. Agronomist
3. Biochemist
4. Farmer
5. Agriculture Teacher

CHAPTER 8

Investigation 8.1, "Study of Environmental Tolerance", p. 264

1. Farmer
2. Botanist
3. Hoticulturist
4. Nurseryman
5. Forester
6. Agronomist
7. Arborist
8. Ecologist
9. Meteorologist

Investigation 8.2, "Temperature, Rainfall, and Biome Distribution", p. 282

1. Meteorologist
2. Range Manager
3. Forester
4. Geologist
5. Agriculture Teacher

CHAPTER 9

Investigation 9.1, "Succession in Fresh Water Ecosystems", p. 312

1. Ecologist

Investigation 9.2, "Effects of Salinity on Aquatic Organisms, p. 334

1. Oceanographer
2. Marine Biologist

CHAPTER 10

Investigation 10.1, "Paleontological Comparisons", p. 360

1. Paleontologist
2. Anatomist

CHAPTER 11

Investigation 11.1, "Diversity and Cell Structure", p. 385

Investigation 11.2, "Diffusion Through a Membrane", p. 388

1. Anatomist
2. Cytologist
3. Physiologist
4. Histologist
5. Microbiologist

Investigation 11.3, "Mitosis and Cell Division in Plant Cells", p. 397

1. Cytologist
2. Geneticist

CHAPTER 12

Investigation 12.2, "A Study of Biochemical Reactions", p. 411

Investigation 12.3, "Fermentation", p. 420

Investigation 12.4, "Separation of Leaf Pigments", p. 429

Investigation 12.5, "Photosynthetic Rate", p. 438

1. Biochemist
2. Biophysicist

CHAPTER 13

Investigation 13.1, "Transpiration", p. 448

1. Botanist

Investigation 13.2, "Stomata and Photosynthesis", p. 450

1. Botanist
2. Plant Anatomist
3. Plant Physiologist

Investigation 13.3, "Rate of Growth: Leaves", p. 470

1. Nurseryman
2. Horticulturist
3. Farmer

CHAPTER 14

Investigation 14.1, "Animal Structure and Function", p. 477

All careers under health occupations cluster which are designated as levels 1, 2, or 3.

Investigation 14.2, "The Action of A Digestive Enzyme", p. 490

1. Internist
2. General Practitioner
3. Biochemist

Investigation 14.3, "A Heart at Work", p. 502

1. Internist
2. General Practitioner
3. Surgeon
4. Nurse
5. Electrocardiograph Technician

Investigation 14.4, "Chemoreceptors in Man", p. 527

1. Neurologist
2. Chiropractor
3. Biochemist

CHAPTER 15

Investigation 15.1, "Tropic Responses in Plants", p. 543

1. Botanist

Investigation 15.2, "Behavior of an Invertebrate Animal", p. 554

Investigation 15.3, "A Method for Studying Territoriality", p. 561

Investigation 15.4, "Perceptual Worlds", p. 571

1. Zoologist
2. Psychiatrist

CHAPTER 16

Investigation 16.1, "Vegetative Reproduction", p. 582

1. Horticulturist

2. Nurseryman
3. Botanist
4. Farmer

Investigation 16.2, "A Model of Meiosis", p. 589

1. Geneticist

Investigation 16.3, "Chick Embryology", p. 608

1. Embryologist
2. Obstetrician

CHAPTER 17

Investigation 17.1, "Probability", p. 629

Investigation 17.2, "Mendelian Monohybrid Cross in Drosophila", p. 636

Investigation 17.3, "Seedling Phenotypes", p. 651

Investigation 17.4, "Human Inheritance", p. 656

Investigation 17.5, "Genetic Differences in Peas", p. 667

1. Geneticist
2. Horticulturist
3. Animal Husbandryman

CHAPTER 18

Investigation 18.1, "The Hardy-Weinberg Principle", p. 685

Investigation 18.2, "Sickle Cells and Evolution", p. 691

Investigation 18.3, "A Step in Speciation", p. 706

1. Anatomist
2. Physiologist
3. Embryologist

CHAPTER 19

Investigation 19.1, "The Skeletal Basis of Upright Posture", p. 722

1. Anatomist

Investigation 19.2, "Biological Distance", p. 732

Investigation 19.3, "Human Blood Groups", p. 735

1. Geneticist

2. Pathologist
3. Medical Laboratory Assistant
4. Medical Technician
5. Medical Technologist
6. Nurse
7. General Practitioner
8. Obstetrician

ENTIRE BOOK

1. Biology Teacher

VI. EVALUATION OF STUDENT OUTCOMES

The evaluation of the career exploration portion of the student's final grade is determined by the following three criteria:

--Performance; one-fourth.

--Written activities; one-half.

--Oral presentation; one-fourth.

Each of these is explained fully in the student's guide.

APPENDIX A

STUDENT EVALUATION FORM

STUDENT EVALUATION FORM

Students' Names	Grades on Required Objectives														Opt. Obj.
	1	2	3	4	5	6	8	12	13	14	15	16	17	19	
1.															
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															
11.															
12.															
13.															
14.															
15.															
16.															
17.															
18.															
19.															
20.															
21.															
22.															

STUDENT EVALUATION FORM (cont.)

Students' Names	Grades on Required Objectives														Opt. Obj.
	1	2	3	4	5	6	8	12	13	14	15	16	17	19	
23.															
24.															
25.															
26.															
27.															
28.															
29.															
30.															
31.															
32.															

STUDENT'S CAREER GUIDE

--BIOLOGY--

TEXTBOOK CORRELATION

HIGH SCHOOL BIOLOGY

BSCS, GREEN VERSION, 2ND EDITION

DEVELOPED BY

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TABLE OF CONTENTS

I. INTRODUCTION

Broadly, biology is defined as the science that deals with living organisms. Beyond this simple definition lies complexity. The careers that relate to biology are innumerable. They can be found at all levels; professional, semi-professional and managerial, technical and skilled, semi-skilled, and unskilled. If a student's interests are biology related there is an appropriate level occupation or career for him.

Of primary concern to high school and college students today is the type of training they will need in order to pursue a career in biology in the future. The problem they face is a formidable one because of the numerous possibilities. The fact that biology itself, the study of life, is a vast area, encompassing many disciplines, is basic to the problem. It would be impossible for one to be adequately prepared to investigate all its phases.

The big decisions that you as a high school biology student have to make are the following:

1. Do you really want to study biology?
2. If so, what areas of biology are you interested in, and will these areas still interest you in 10 - 12 years.
3. How can you best prepare yourself now to continue in biology in the future?

It is the goal of this program to assist the student in finding answers to these questions. This will be accomplished through a logical progression from the student's pre-conceived ideas

of a particular career to a better understanding and more realistic evaluation of his attitudes, abilities, and interests regarding such a career. The techniques used along this continuum will encompass a series of concrete, manipulative, visual and abstract activities including research, simulated experience, vicarious or actual observation and communication opportunities with occupational personnel.

The outcomes of Career Education activities in the student's chosen field will include increased self-awareness and help in identifying his interests and abilities. This student activity package is designed to aid the student in achieving these outcomes.

II. DIRECTIONS

A. Carefully read the entire booklet. Consult the instructor if you have any questions.

B. Choose a biology-related career which is of interest to you. Suggestions may be found in Section V, CAREER CLUSTERS.

C. You should meet all of the required objectives and at least one of those designated "optional".

D. Complete the learning activities from Section IV for the career you have chosen.

E. Prepare and present Part 3, as stated in Section VII, EVALUATION OF STUDENT OUTCOMES.

III. OBJECTIVES

Listed below are four broad, general objectives which are broken down into specific objectives. The asterisks (*) to the left designate those which are optional. The others are required objectives.

The student will -

A. Demonstrate self-awareness by identifying his major abilities, interests, values, and achievements, by

1. listing his major abilities, interests, values, achievements, and knowledge concerning possible career opportunities in a certain field.

B. Relate his abilities, interests, achievements, personal values, and influence of other's values to occupational areas, by

2. writing a paragraph expressing the importance of his career choice and its relation to society.

3. writing a paragraph explaining the non-monetary rewards and satisfactions which attracted him to this choice.

C. Explore occupational cluster areas, noting key occupations and the educational requirements, economic implications, required skills and job opportunities related to occupations, by

4. writing a definition of his occupational choice.

5. outlining the nature of the work.

6. statistically illustrating supply and demand for his career according to distribution.

* 7. listing current projects under research which affect trends and outlooks related to his chosen career.

8. making a chart listing the following qualifications of his career choice--age, sex, physical qualifications, personal qualifications, special skills, special tools, preparation and time required, experience, scores on tests, and legislation affecting occupation.

* 9. preparing a flow chart showing lines of promotion, interrelationships of jobs, and opportunity for advancement.

*10. reporting on actual observations he makes in his field.

*11. taping an actual conversation with a specialist in his chosen field.

12. presenting orally all of his findings on his career choice.

D. Develop specific employability skills needed to obtain and maintain employment, by

13. using the career index to write a business letter requesting information on his career.

14. completing a job application form.

15. sketching a diagram of occupations to which his job may lead and another of occupations to which he may transfer.

16. graphing benefits, and earnings, including beginning wage, median, and average salary and increases possible through promotion and experience.

17. interviewing for a job using the role-play technique, with a classmate acting as the employer.

E. Identify the relationships between academic training (general background and basic skills courses) and career opportunities/ preparation, by

*18. choosing, participating in, and writing a report on a simulated experience, related to his career choice.

19. performing career-related laboratory experiments as listed in the teacher's guide, and submitting a written scientific report on the lab experiment.

IV. ACTIVITIES

Select and complete the correlated activities for the career objectives you have chosen. The asterisk (*) to the left designates optional activities.

A. Make a list of your major abilities, interests, values, achievements and academic preparation concerning possible career opportunities in a chosen field.

B. Write a paragraph expressing the importance of your career choice and its relation to society.

C. Write a definition of your career choice.

D. Outline the nature of work for your chosen career.

E. Statistically illustrate supply of and demand for the career.

* F. List current projects under research which affect trends and outlooks related to your chosen career.

G. Make a chart listing the following qualifications of your chosen career--age, sex, physical characteristics, personal characteristics, special skills, special tools, preparation and time required, experience, scores on tests, and legislation affecting occupation.

H. Using the career index, write a business letter requesting information on your career. (Refer to Appendix A.)

I. Complete a job application form. (Refer to Appendices B and C.)

* J. Prepare a flow chart showing lines of promotion, working interrelationships, and opportunity for advancement.

K. Draw a schematic diagram of occupations to which your job may lead or transfer.

L. Graph benefits, and earnings, including beginning wage, median and average salary, and increases possible through promotions or experience.

M. Write a paragraph explaining the non-monetary rewards and satisfactions which attracted you to this career.

* N. Plan and participate in simulated work experience and write a detailed summary description of the simulation.

* O. With assistance from the teacher, plan to make an actual observation of a situation related to your career choice and write a report on the experience.

* P. Tape an actual conversation with a specialist in your chosen field.

Q. Interview for a job using the role-play technique, with a classmate acting as the employer. (Refer to Appendix D.)

R. Perform career-related lab experiments and submit a written, scientific report of the experiment. (Refer to Appendix E.)

S. Present orally, all of your findings on your career choice.

CAREER CLUSTERS SELECTED FOR EXPLORATION

A. CLUSTER TITLES

Health Occupations
Environmental Occupations
Agri-business and Natural Resources Occupations
Marine Science Occupations
Public Service Occupations

B. CRITERIA OF DIFFERENT OCCUPATIONAL LEVELS WITH A GIVEN CLUSTER:

Professional -- Level 1

--important function
--independent
--varied responsibility
--deals with policy making and interpretation
--high level of education where relevant

Semi-Professional and Managerial -- Level 2

--some independence
--varied responsibility
--policy interpretation
--high level of education where relevant

Technical and Skilled -- Level 3

--some variation in responsibility
--some policy interpretation and decision making
--special training, apprenticeship, and/or experience
--knowledge of a particular skill or area

Semi-Skilled -- Level 4

--little or no responsibility
--some special training, apprenticeship, and/or experience

Unskilled — Level 5

--no special training and/or skill.[1]

C. SUGGESTED OCCUPATIONS FOR EXPLORATION WITHIN CLUSTERS

HEALTH OCCUPATIONS

1. Ambulance Attendant - administers emergency treatment to patients transported by ambulance.
2. Anatomist - studies the structure of plants and animals.
3. Anesthetist - trained to administer anesthetics.
4. Audiologist - helps diagnose and correct hearing disorders.
5. Bacteriologist - studies a large group of unicellular microscopic organisms called bacteria.
6. Biochemist - uses chemical methods to study the composition of biological materials and the mechanisms of biological processes.
7. Biomedical Engineer - designs instruments for use by the medical profession.
8. Biophysicist - studies the physics of living things.
9. Chiropractor - treats patients by manipulation of parts of the body, especially the spinal column.
10. Cytologist - studies the individual cell and its internal function and character.
11. Dental Assistant - assists dentist in preparing fillings and injections, and having instruments clean and ready for use.
12. Dental Hygienist - cleans and polishes teeth, takes and processes X-rays, instructs patients in oral hygiene and assists dentist.
13. Dental Laboratory Technician - makes dentures, bridges, orthodontic appliances, by following specific orders from the dentist.
14. Dentist - looks for and fills cavities, treats gum diseases, extracts teeth, and substitutes artificial dentures.

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[1] Lincoln County Exemplary Program in Vocational Education, Lincoln County Schools, Hamlin, W. Virginia, p. 75.

15. Dermatologist - specializes in the diagnosis and treatment of skin disorders.

16. Dietician - plans nutritious and appetizing meals to help people maintain or recover good health.

17. Doctor of Osteopathy - diagnose, prescribe remedies, and treat diseases of the human body; especially impairments in the musculo-skeletal system.

18. Ear, Nose, and Throat Specialist - specialist in the diagnosis and treatment of diseases and disorders of the ear, nose, and throat.

19. Electrocardiograph Technician - operates electrocardiograph and interprets electrocardiogram.

20. Embryologist - studies development of the individual from the egg to birth.

21. Endocrinologist - studies internal secretions and endocrine glands; their physiology and pathology.

22. First Aid Attendant - trained in the administering of first aid.

23. General Practitioner - physician who diagnoses diseases and treats people who are ill or in poor health.

24. Gynecologist - specialist in female medicine.

25. Histologist - studies animal and plant tissues.

26. Hospital Administrator - highest executive position in hospital, directs all administrative procedures.

27. Hospital Ward Clerk - updates records and controls visitation wards.

28. Inhalation Therapist - (respiratory therapist) monitors respiratory equipment.

29. Internist - doctor of internal medicine, especially of the digestive tract and heart.

30. Licensed Practical Nurse - provides nursing care which requires technical knowledge but not professional training.

31. Licensed Registered Nurse - administers medications and treatments, observes, evaluates and records symptoms, reactions of patients and progress, assists in education.

32. Male Nurse - see registered nurse.

33. Medical Artist - prepares visual aids for classroom use, publication, and educational programs.

34. Medical Laboratory Assistant - assists medical technologist by performing simple routine tests and related work learned in short time.

35. Medical Librarian - orders, circulates, and binds books and journals, makes literature searches and compiles reports and bibliography in medical fields.

36. Medical Secretary - secretary who must have knowledge of medical terms.

37. Medical Technician - less formal training than technologist, conducts laboratory procedures, and operates complex instruments.

38. Medical Technologist - conducts laboratory procedures, operates complex instruments, and performs precision tests.

39. Microbiologist - studies microscopic forms of life such as fungi, bacteria, viruses, protozoa, etc.

40. Mortician - embalms, prepares bodies, and directs funerals.

41. Mycologists - studies fungi.

42. Neurologist - specialist concerned with diagnosis and treatment of diseases and disorders of the brain, spinal cord, and nervous system.

43. Nuclear Medical Technologist - uses radioactive isotopes to help detect diseases.

44. Nurse's Aide - assists nurse in performing non-professional tasks.

45. Nutritionist - studies processes by which an animal or plant takes in and analyzes food substances.

46. Obstetrician - doctor who specializes in prenatal care and delivery.

47. Opthamologist - diagnoses and treats diseases and disorders of the eye.

48. Optometrist - helps people improve and protect their vision.

49. Orderly - performs non-professional tasks especially for male patients.

50. Orthodontist - a dentist who specializes in straightening teeth.

51. Parapsychologist - psychical research with people or animals.

52. Parasitologist - studies parasites.

53. Pathologist - physician who specializes in diagnosing the cause and nature of disease.

54. Pediatrician - specialist in health and care of children

55. Pharmacist - dispenses drugs and medicines and provides information on their use to help protect peoples health.

56. Pharmacologist - studies the nature and properties of drugs.

57. Physical Therapist - helps persons with muscle, nerve, bone and joint diseases or injuries, to overcome their disabilities.

58. Physical Therapy Attendant - assists therapist in patient treatment and excercises.

59. Physiologist - studies function of organs, tissues, and cells, etc.

60. Podiatrist (Chiropodist) - diagnoses and treats diseases and deformities of the feet.

61. Prosthetist - makes and fits artificial limbs.

62. Psychiatrist - medical doctor trained in the techniques of psychoanalysis and the diagnosis and treatment of patients with emotional disturbances.

63. Psychotherapist - mental health specialist.

64. Radiologic Technologist - operates X-ray equipment under direction of physicians who are usually radiologists.

65. Radiologist - physician who specializes in the X-ray procedures.

66. Speech Therapist - helps diagnose and correct speech and language disorders.

67. Surgeon - medical doctor who specializes in surgical procedures.

68. Surgical Technician - monitors operating room instruments during surgery.

69. Taxonomist-classifies plants and animals according to their natural relationships.

70. Toxicologist - studies poisons and their effects.

71. Veterinarian - concerned with the treatment of diseases and injuries of animals other than man.

72. Virologist - studies viruses.

ENVIRONMENTAL OCCUPATIONS

1. Botanist - scientist who studies plant life.

2. Consumer Safety Officer - does professional work concerned with enforcing the laws and regulations protecting consumers from foods, drugs, and cosmetics that are impure, unwholesome, ineffective, improperly labeled, or dangerous.

3. Ecologist - studies mutual relationships among organisms and between them and their environment.

4. Entomologist - studies insects, both beneficial and harmful.

5. Game Manager - concerned with management of wild game resources and insures that game laws are obeyed.

6. Geneticist - studies heredity and variations among related organisms, also breeding.

7. Geologist - studies structure, composition and history of the earth's crust.

8. Geophysicist - studies the earth's physical charasteristics such as its electric, magnetic, and gravitational fields, interior heat flow, and vibrations and solar radiation.

9. Herpetologist - studies reptiles and amphibians.

10. Meteorologist - studies the atmosphere and its phenomena especially in relation to weather forecasting.

11. Oceanographer - studies the ocean, its life, and its phenomena.

12. Paleontologist - studies life of past geological periods.

13. Range Manager - responsible for the management, development, and protection of rangelands and their resources.

14. Sanitarian - performs duties to safeguard the cleanliness and safety of the food people eat, the liquids they drink, and the air they breathe.

15. Zoologist - studies animal life and the ways in which animals influence and are influenced by their environment.

AGRI-BUSINESS AND NATURAL RESOURCES OCCUPATIONS

1. Agriculture Teacher - supervises and gives instruction in farm management, communication, mechanics, engineering, and related fields.

2. Agronomist - studies the theory and practice of field crop production and soil management.

3. Animal Husbandryman - responsible for the wise management and care of animals through studies of environmental influences.

4. Arborist - specializes in tree care.

5. Farmer - deals with the problems related to production and marketing of farm products.

6. Fish and Game Commission Biologist - position for fishery and wildlife biologist employed by state agencies.

7. Fisheries Biologist - responsible for conservation, protection, and management of game fish.

8. Forester - manages, develops, and protects woodlands and their resources.

9. Game Manager - concerned with management of wild game resources and ensures that game laws are obeyed.

10. Geologist - studies structure, composition, and history of the earth's crust.

11. Horticulturist - studies techniques in growing fruits, vegetables, and flowers.

12. Nurseryman - owns, operates, or works in a nursery for growing plants, trees, etc.

13. Range Manager - responsible for the management, development, and protection of rangelands and their resources.

14. Sanitarian - performs duties to safeguard the cleanliness and safety of the food people eat, the liquids they drink, and the air they breathe.

15. Soil Scientist - studies the physical, chemical, and biological characteristics and behavior of soils, investigates soils both in fields and laboratory.

16. Taxidermist - preserves skins of animals usually by stuffing.

17. Wildlife Scientist - responsible for the conservation, management, and protection of wild mammals, water fowl, and upland game birds.

MARINE SCIENCE OCCUPATIONS

1. Botanist - studies plant life.

2. Fish and Game Commission Biologist - position for fishery and wildlife biologist employed by state agencies.

3. Fisheries Biologist - responsible for conservation, protection, and management of game fish.

4. Marine Biologist - studies plant and animal life in the oceans and environmental conditions affecting them.

5. Microbiologist - studies microscopic forms of life such as fungi, bacteria, viruses, protozoa, etc.

6. Oceanographer - studies the ocean, its life, and phenomena.

7. Zoologist - studies animal life and the ways in which animals influence and are influenced by their environment.

PUBLIC SERVICE OCCUPATIONS

The following prepare for and give instruction in their field.

1. Agriculture Teacher

2. Biology Teacher

3. Health Teacher

4. Home Economics Teacher

5. Physical Education Teacher

VI. CAREERS CORRELATED WITH TEXT, HIGH SCHOOL BIOLOGY, BSCS, GREEN VERSION

The following is an outline of the sections in your textbook and specific careers related to each section. Numbers to the side of the career indicate the related chapters in your text.

Section I. THE WORLD OF LIFE: THE BIOSPHERE

Chapter 1 - The Web of Life

Chapter 2 - Individuals and Populations

Chapter 3 - Communities and Ecosystems

Careers:

1. Ecologist - 1, 2, 3

2. Meteorologist - 3

SECTION II. DIVERSITY OF LIVING THINGS

Chapter 4 - Animals

Chapter 5 - Plants

Chapter 6 - Protists

Careers:

1. Wildlife Scientists - 4

2. Game Managers - 4

3. Fish and Game Commission Biol. - 4

4. Fisheries Biologists - 4

5. Range Managers - 4

6. Animal Husbandry - 4

7. Entomologist - 4

8. Herpetologist - 4

9. Zoologist - 4

10. Farmer - 4, 5, 6

11. Biologist - 4, 5, 6

12. Taxonomist - 4, 5, 6

13. Botanist - 5

14. Nurseryman - 5

15. Forester - 5

16. Mycologist - 5

17. Horticulturist - 5

18. Bacteriologist - 6

19. Parasitologist - 6

20. Microbiologist - 6

21. Virologist - 6

22. Pathologist - 6

23. Agronomist - 5, 6

24. Arborist - 5

SECTION III. PATTERNS IN THE BIOSPHERE

Chapter 7 - Patterns of Life in the Microscopic World

Chapter 8 - Patterns of Life on Land

Chapter 9 - Patterns of Life in the Water

Chapter 10 - Patterns of Life in the Past

Careers:

1. Medical Technician - 7

2. Medical Technologist - 7

3. Pathologist - 7

4. Medical Laboratory Assistant - 7

5. Virologist - 7

6. Bacteriologist - 7

7. Microbiologist - 7

8. Cytologist - 7

9. Histologist - 7

10. Range Manager - 8

11. Forester - 8

12. Farmer - 8

13. Geologist - 8, 10

14. Geophysicist - 8, 10

15. Wildlife Scientist - 8

16. Animal Husbandryman - 8, 9

17. Soil Scientist - 8

18. Fisheries Biologist - 9

19. Fish and Game Commission Biol. - 9

20. Ecologist - 9

21. Oceanographer - 9

22. Marine Biologist - 9

23. Botanist - 8, 9, 10

24. Zoologist - 8, 9, 10

25. Agronomist - 9

26. Paleontologist - 10

27. Taxonomist - 10

SECTION IV. WITHIN THE INDIVIDUAL ORGANISM

Chapter 11 - The Cell

Chapter 12 - Bioenergetics

Chapter 13 - The Functioning Plant

Chapter 14 - The Functioning Animal

Chapter 15 - Behavior

Careers:

1. Cytologist - 11

2. Physiologist - 11

3. Geneticist - 11

4. Microbiologist - 11

5. Histologist - 11, 13

6. Anatomist - 11, 13

7. Biochemist - 12
8. Biophysicist - 12
9. Botanist - 13
10. Arborist - 13
11. Histologist - 13
12. Anatomist - 13
13. Dental Assistant - 14
14. Dental Hygienist - 14
15. Dental Laboratory Assistant - 14
16. Dentist - 14
17. Medical Technician - 14
18. Medical Technologist - 14
19. Medical Laboratory Assistant - 14
20. Licenced Registered Nurse - 14
21. Licenced Practical Nurse - 14
22. Male Nurse - 14
23. Nurse's Aide - 14
24. Orderly - 14
25. Hospital Ward Clerk - 14
26. Hospital Administrator - 14
27. Ambulance Attendant - 14
28. First Aid Attendant - 14
29. Medical Secretary - 14
30. Medical Librarian - 14
31. Medical Artist - 14
32. Surgical Technician - 14
33. Electrocardiograph Technician - 14

34. Radiologic Technologist - 14

35. Nuclear Medical Technologist - 14

36. Prosthetist - 14

37. Mortician - 14

38. Microbiologist - 14

39. Bacteriologist - 14

40. Parasitologist - 14

41. Virologist - 14

42. Mycologist - 14

43. Endocrinologist - 14

44. Toxicologist - 14

45. Cytologist - 14

46. Anatomist - 14

47. Histologist - 14

48. Embryologist - 14

49. Physiologist - 14

50. Taxonomist - 14

51. Dietician - 14

52. Nutritionist - 14

53. Speech Therapist - 14

54. Physical Therapy Attendant - 14

55. Audiologist - 14

56. Inhalation Therapist - 14

57. Biomedical Engineer - 14

58. Biochemist - 14

59. Biophysicist - 14

60. Chiropractor - 14

61. Psychiatrist - 14, 15

62. Anesthetist - 14

63. Radiologist - 14

64. Pharmacologist - 14

65. Pharmacist - 14

66. General Practitioner - 14

67. Surgeon - 14

68. Veterinarian - 14

69. Podiatrist - 14

70. Dermatologist - 14

71. Doctor of Osteopathy - 14

72. Ear, Nose, and Throat Specialist - 14

73. Internist - 14

74. Ophthamologist - 14

75. Orthodontist - 14

76. Pathologist - 14

77. Pediatrician - 14

78. Gynecologist - 14

79. Endocrinologist - 14

80. Toxicologist - 14

81. Physiologist - 14

82. Neurologist - 14, 15

83. Obstetrician - 14

84. Consumer Safety Officer - 14

85. Parapsychologist - 15

86. Psychotherapist - 15

SECTION V. CONTINUITY OF THE BIOSPHERE

Chapter 16 - Reproduction

Chapter 17 - Heredity

Chapter 18 - Evolution

Careers:

1. Embryologist - 16
2. Gynecologist - 16
3. Endocrinologist - 16
4. Horticulturist - 16
5. Geneticist - 17
6. Botanist - 18
7. Zoologist - 18
8. Taxonomist - 18

SECTION VI. MAN AND THE BIOSPHERE

Chapter 19 - The Human Animal

Chapter 20 - Man in the Web of Life

Careers:

1. Anatomist - 19
2. Psychiatrist - 19
3. Paleontologist - 19
4. Medical Technologist - 19
5. Geneticist - 19
6. Pathologist - 19
7. Ecologist - 19, 20
8. Soil Scientist - 20
9. Forester - 20
10. Wildlife Scientist - 20

11. Game Manager - 20

12. Sanitarian - 20

SECTION VII. ENTIRE BOOK

1. Agriculture Teacher
2. Biology Teacher
3. Health Teacher
4. Home Economics Teacher
5. Physical Education Teacher

VII. EVALUATION OF STUDENT OUTCOMES

The student evaluation will be based on three criteria--performance, written activities, and oral presentation.

1. Performance - This protion of the evaluation will consist of the teacher's observations of the student's actual work in the laboratory, his role-play activity, and his simulated work experience. These activities will account for one-fourth of his total grade on the career exploration activities.

2. Written Activities - The evaluation of written materials will be composed of individual grades for all of the student's written activities. These will comprise one-half of the total grade on the career exploration activities.

3. Oral Presentation - The evaluation of oral presentation will include the taped conversation and final oral report. These will make-up one-fourth of the total grade on the career exploration activities.

VIII. RESOURCE MATERIALS

The resource materials are divided in six categories - books, films, filmstrips, occupational guidance kits, VIEW scripts, and pamphlets.

A. BOOKS - All the following books are found in the Leon High School Library or the Guidance Office.

170.0 B	Your School and You, A Textbook of Guidance by Bliss, Walter B.
331.7 Bru	Your Future in a Changing World - Brunetti, Cledo
331.7 Bru	Occupations - Brunetti, Cledo
331.7 D	Occupations - Duckal, Walter
331.7 D	A Guide to Professional Careers - Duckal, Walter
331.7 H	Encyclopedia of Careers & Vocational Guidance - Hopke, Wm. E.
331.7 H	Occupations - Hopke, Wm. E.
331.86 K	Apprenticeships in America - Kursh, Harry
333.7 H	Careers in Natural Resources Conservation - Herbert, Fred W.
333.7 H	Conservationists and What They Do - Harrison
362.11 Kir	Aim For a Job in a Hospital - Kirk, Weir Robert
371.1 G	So you Want to be a Teacher - Gelinas
371.42	An Outline of Careers - Bernay, E, L.
371.42	Career Opportunities - Career Information Service, N.Y.
371.42	How You Can Get the Job You Want - Gardiner, Glenn L.
371.42 A	Career Choices For the 70's - Arnold
371.42 Cob	The Scientific Approach to Career Planning - Cobb, M.
371.42 D	Your Plans For the Future - Detzen, M. F. & E. W.
371.42 Em	Employability: Discovering, Developing, and Using Personal Abilities
371.42 Fer	Careers For You - Ferrain, E. P.
371.42 F	Careers For Women - Filene, C.

371.42 Gru	Resumés That Get Jobs - Gruber, Edward C.
371.42 Moo	Career Guide For Young People - Moore, Mary F.
371.42 Moo	Occupations - Moore, Mary F.
371.42 P	Occupations - Puchaski, Ben S.
371.42 Par	Job Opportunities For Young Negroes - Paradis, Adrian A.
371.42 Spl	Occupations - Splaver, Sarah
371.42 Spl	Your Career if Your Not Going to College - Splaver, Sarah
540.69 Nou	So You Want to Be a Chemist - Nourse, Alan E.
551 W	Your Future in Geology - Weitz, Joseph L.
551.4023 G	Your Future in Oceanography - Gaber, Norman H.
551.5 Ber	Your Future in Meteorology - Berry, Fred A.
570.69 Fox	Careers in Biological Sciences - Fox, William
610.69 Nou	So You Want to be a Doctor - Nourse, Alan E.
610.69 Paul	Your Future in Medical Technology - Paul, Grace
610.69 Sta	Find a Career in Medicine - Starrell, Robert S.
610.6953 Che	Your Future in Medical Assisting - Chernok, Norman B.
610.7 D	Careers For Nurses - Deming, Dorothy
610.7 E	Nurse, The Story of Great Professions - Ebrele, Irmengarde
610.9	Medicine In Action - Hyde, Margaret
615.4 Kra	Your Future in Pharmacy - Kraemer, James
615.85 Shu	Your Future in Occupational Therapy - Shuff, Frances L.
621.38 Wes	Find a Career in Electronics - West, Wallace
623.8 Ste	Nuclear Submarine Skippers and What They Do - Steele, George P.
629.1 Dau	Aviation as a Career - Daughtery, Charles M.
629.4 L	Your Future in NASA - Levine, Sol
630.0 P	Agriculture and Farm Life - Phillips, Harry A.

635.9 Pin — Horticulture; Your Future in The Nursery Industry - Pinney, John James

636.089 Ris — Your Future in Veterninary Medicine - Riser, Wayne H.

641 H — The Story of Meat - Hinman, Robert B.

651.02 Cof — The Medical Secretary - Coffin, K. B.

F D — Pam Wilson, Registered Nurse - Deming, Dorothy

F D — Penny Marsh, Public Health Nurse - Deming, Dorothy

F D — Trudy Wells, R. N., Pediatric Nurse - Deming, Dorothy

F Rob — Holly Andrews, Nurse in Alaska - Roberts, Suzanne

Lovejoy's Career and Vocational School Guide - Clarence E. Lovejoy (Occupational Specialist)

Career Index - Chronicle Guidance Publishers (Guidance Office)

Handbook of Job Facts - Thremann, Norman L. (Guidance Office)

Occupational Outlook Handbook - U.S. Dept. of Labor (Occupational Specialist)

B. FILMS - The following films have been ordered, and will be shown as they become available, (only postage fee required):

1) Day of Judgement - Pharmacy Recruitment - Lilly & Co.

2) American Doctor - American Osteopathic Association

3) New Life For Lisa (Nursing) - Ethicon, Inc.

4) Light in Shadows: Story of X-Ray (Radiologist) - Dupont deNemours & Co., Inc.

5) Laser & Living Cells (Cytologist) Merck, Sharp & Dohme Films

6) Careers in Oceanography - Dept. of the Navy

7) Animals of the Sea - Dept. of the Navy

8) Laboratory of the Body - (Dental research) American Dental Asso.

9) Challenge of Denistry - American Dental Asso.

10) The Grass is Greener - Gardeners, etc - Chevron Chemical Co.

11) The Making of a Plague - Entomologist, Pest Control Operator Chevron Chemical Co.
12) A Green Thumb for Macauley - Gardeners, Horticulturist - Union Fork & Hoe Co.
13) Goodbye, Mrs. Ant - Entomologist, Pest Control Operator Velsicol Chemical Co.
14) Trek to the Tetons - Wildlife Scientist - Eastman Kodak Co.

15) Man Behind the Gun - Pest Control Operators Chemagro, Division of Baychem Corp.
16) Web of Life, Endless Chain - Ecologist USAEC

17) Atomic Greenhouses - USAEC

18) Building Blocks of Life - USAEC

19) Controlled Photosynthesis - USAEC

20) Radiation & the Population - USAEC

21) Radiation in Biology - USAEC

22) Understanding the Atom: Radioisotopes in Biology & Agriculture - USAEC
23) The River Must Live - Pollution Control - Florida Dept. of Natural Resources
24) Air is for Breathing - Shell Oil

25) The Rival World - Entomologist, Pest Control - Shell Oil

26) Odd Occupations - Florida Dept. of Commerce

27) Career in Bacteriology - Becton, Dickinson & Co.

28) The Air Force Nurse - U.S.A.F.

29) The Army Nurse - Dept. of Army

30) To Touch the Sky - Forestry - Modern Talking Picture Service

31) The Career Game - Modern Talking Picture Service

32) Code Blue - Minority Groups - Careers in Health - Modern Talking Picture Service
33) The Covenant - Veterinarians - Modern Talking Picture Service

34) Horizons Unlimited - Over 200 Careers in Medicine - Modern Talking Picture Service
35) Matter of Opportunity - Minority Careers in Medicine - Modern Talking Picture Service
36) The Surgeon - Modern Talking Picture Service

37) Creatures of the Sea (Marine) - Miami Seaquariam

38) Marine Life Preview - Marineland of Florida

39. The Hidden World - (Entomologist) Aetna Life & Casualty
40. Cracking the Code of Life - (Geneticist, Embryologist) American Cancer Society
41. From One Cell - (Embryologist) American Cancer Society American Cancer Society
42. In a Medical Laboratory - (Medical Technicians, Pathologists, Lab. Assistants, Etc.) American Cancer Society

C. FILMSTRIPS - These filmstrips are in the Leon High School Library and can be checked out through your teacher.

FS082	The Astronomer at Work
FS201	You and Your Mental Abilities
FS202	Discovering Your Interests
FS331.1	Finding Your Career
FS331.1	Getting a Better Job
FS331.1	Job Shopping
FS331.1	The Job Interview
FS331.1	What Can You Do?
FS409	Science Opens New Doors
FS414	New Career Opportunities
FS640	New Frontiers in Space
FS644	Development of Embryos
FS740	The Fruit Fly, Key to Heredity
FS746	New Exploration in Science
FS781	Bacteriological Techniques
FS1033	Animal Care in the Laboratory
FS1052D	Getting a Job and Keeping It
FS1077A-F	Interdependence of Living Things Series - Ecology
FS1109	Requirements in the World of Jobs
FS1110	Achieving Success in the World of Jobs
FS1149	Investigations in Biological Heredity
FS1159	Basic Subjects - Preparation for Work
FS1195	Oceanography: Developing Science
FS1208	Interpreting Biological Data
FS1254	Science Technology and Society
FS1281	Careers in the World of Tomorrow
FS1284	Your Job Outlook
FS1331	Foundations in Occupational Planning Pharmacy: A Health Career
New	People Who Work in Science - Guidance Associates

D. OCCUPATIONAL GUIDANCE KIT - This is a series of booklets giving information on numerous careers. It is available in the Leon High School Library and the Occupational Specialist's office. All careers are listed alphabetically in an index volume.

SCIENCE & ENGINEERING CAREERS KIT - Largo - This kit contains an alphabetized series of scientific career descriptions. It will be kept in the science department or media center.

E. VIEW SCRIPTS - The VIEW scripts can be found in both the library and the Occupational Specialist's office. They list information concerning careers in condensed form. The following are available biology-related careers broken down by clusters:

a. Health Occupations

1) Dental Assistant
2) Dental Hygienist
3) Dental Lab Technician
4) Inhalation Therapist
5) Medical Lab Assistant
6) Medical Office Assistant
7) Medical Technician
8) Nurse's Aide
9) Operating Room Technician
10) Dental Technician
11) Opticalman
12) Practical Nurse
13) Registered Nurse
14) Veterinarian Assistant
15) Hospital Ward Clerk
16) X-ray Technician
17) Funeral Director (Mortician)
18) Technical Illustrator (Artist)
19) Child Care Service

b. Environmental Occupations

1) Park Ranger
2) Forestry Aide
3) Pest Control Worker

c. Agri-business and Natural Resources Occupations

1) Retail Meat Cutter
2) Animal Keeper

d. Marine Science Occupations

1) Oceanographic Technician

e. Public Service Occupations

1) Teacher's Aide

F. PAMPHLETS - The following list of pamphlets and books have been ordered as resource materials for the students. This is not intended to be a complete list, as other materials will soon be ordered. These are broken down into clusters, with the first group of general interest to everyone.

I. GENERAL

Can I Be A Scientist?
General Motors Corporation

Can I Get the Job?
General Motors Corporation

Career In Biology
American Institution of Biological Sciences

Cross Reference: Manpower-Education-Careers
American Hospital Association

Preparing For A Career in Biology
Carolina Biological Supply Co.

A Career in the Biological Sciences
B'nai B'rith Career & Counseling Services

II. HEALTH

A Career in Nursing
B'nai B'rith Career and Counseling Services

Career Materials
American Nurses' Association, Inc.

Career Opportunities - Licensed Practical Nurse
National Association For Practical Nurse
Education and Services, Inc.

Declaration of Functions of the Licensed Practical/Vocational Nurse
National Association For Practical Nurse
Education and Services, Inc.

Do You Want to Be A Nurse?
National League For Nursing, Inc.

Education For Nursing: The Diploma Way
National League For Nursing, Inc.

Husband/Father/Humanitarian/Specialist/Nurse
National League For Nursing, Inc.

A Secure Job, A Lifetime Career, after One Year of Study
National Association For Practical Nurse
Education and Service, Inc.

Why Have Male Nurses?
National Association For Practical Nurse
Education and Service, Inc.

Careers in Dental Hygiene
American Dental Hygienist Association

Orthodontics; A Challenging Dental Career
American Dental Association

Careers in Pharmacy
B'nai B'rith Career & Counseling Services

Pharmacy Serves Everyone
American Association of Colleges of Pharmacy

Shall I Study Pharmacy
American Association of Colleges of Pharmacy

What is A Pharmacist?
Upjohn Company

Pharmacy: A Synthesis of Sciences (book) by Fay
D.C. Heath Co.

Opportunities in Pharmacy Careers (book) by Gable
Vocational Guidance Manuals

A Career in Pharmacology
American Society for Pharmacology
and Experimental Therapoutucs, Inc.

Opportunities in Opticianry
Vocational Materials

The Paraoptometrics
American Optometric Association

Career Opportunities For Orthotists and Prosthetists
American Orthotic and Prosthetic Assoc.

The Internist and Your Health
American Society of Internal Medicine

Occupational Therapy...A Communication Process in Psychiatry
(book)
American Occupational Therapy Association

Employment Outlook For Physical Therapists and Occupational
Therapists
U.S. Government Printing Office

A Career For You
American Physical Therapy Association

Careers In Physical Therapy
American Physical Therapy Association

Because You Like People...Choose A Career in Mental Health
National Association For Mental Health, Inc.

Action For Mental Health (book)
John Wiley and Sons, Inc.

Guidelines For the Training of Group Psychotherapists
American Group Psychotherapy Association, Inc.

The Psychiatric Technician
National Association of Human Services Technologists

Standards in Training in Psychoanalysis
American Psychoanalytic Association

Psychiatric Social Worker
Science Research Associates

Educational Opportunities in Parapsychology
Parapsychology Association

Certification of Respiratory Therapy Technicians
American Association of Respiratory Therapy

Considering A Career in Respiratory Therapy
American Association for Respiratory Therapy

Family Foot Specialist: Doctor of Podiatry Medicine
American Podiatry Association

Podiatry Education
American Podiatry Association

Careers in X-Ray Technology
American Society of Radiologic Technologists

A Career in Veterinary Medicine
U.S. Department of H.E.W.

Career Facts About Today's Veterinarian
American Veterinary Medical Association

Today's Veterinarian
American Veterinary Medical Association

Careers in Health
U.S. Department of H.E.W.

Career Opportunities - Health Technicians (book)
F.G. Ferguson Publishing Co.

Careers in the Health Field (book)
Julian Messner

Health Career Series
American Hospital Association

Join the Life Corps
U.S. Department of H.E.W.

New Careers in Health Service, Research and Administration
U.S. Department of H.E.W.

Health Education As Your Career
American Association For Health, Physical Education, and Recreation

What is a Public Health Educator?
Society For Public Health Education

Horizon Unlimited
American Medical Association

Careers and Opportunities in the Medical Services (book)
F.D. Duttonand Co., Inc.

Careers in the Medical Laboratory
Registry of Medical Technologists

Be a Medical Librarian
Medical Library Association, Inc.

Wanted: Medical Technologists
Public Affairs Pamphlets

What Kind of Career Could I have in a Medical Lab?
Registry of Medical Technologists

Fact Sheet: Medical Record Administrator and Medical Record Technician
American Medical Record Association

Learn Medical Transcription
American Medical Record Association

Medical Library Careers
Medical Library Association, Inc.

Medical Record Administration
American Medical Record Association

Medical Record Librarian
American Medical Record Association

Your Career As A Medical Record Technician
American Medical Record Association

An Educational Opportunity: Correspondence Course For Medical Record Personnel
American Medical Record Association

Careers That Count
American Hospital Association

Today's Hospital: Career Center For America's Youth
American Hospital Association

Your Career Opportunities in Hospitals (book)
Chas Pfizer and Co., Inc.

Find a Career That Counts - In Hospital Financial Management
Hospital Financial Management Assoc.

Hospital Food Service Administrator
American Hospital Association

Hospital Personnel Director
American Hospital Association

Hospital Public Relations Officer
American Hospital Association

Hospital Purchasing Agent
American Hospital Association

Wanted: An Executive Housekeeper
National Executive Housekeepers Association, Inc.

Job Descriptions and Organizational Analysis For Hospitals and Related Health Services
U. S. Department of Labor

American Dietetic Association

A Career in Pediatrics

American Academy of Pediatrics

A Guide to Opportunities in Cell Biology
American Society For Cell Biology

The Human Cell and the Cytotechnologist
Registry of Medical Technologists

Microbiologist
U.S. Food and Drug Administration

Microbiology in Your Future
American Society for Microbiology

Careers in Plant Pathology
American Phytopathological Society

Should You Be A Pathologist?
Intersociety Committee on Pathological Information, Inc.

A Career in Physiology
The American Physiological Society

Careers in Physiology
The American Physiological Society

III. ENVIRONMENT

Develop a Career as a Professional Landscape Expert
National Landscape Association

Nursery Careers
American Association of Nurserymen, Inc.

Career Opportunities in Tree Care
National Arborist Association

Careers in Horticulture Sciences (book) Julian Messner

Career Opportunities in the Pest Control Industry
National Pest Control Association

A Soil Conservation Career For You in SCS
U.S. Department of Agriculture

A Wildlife Conservation Career For You
Wildlife Society

IV. AGRI-BUSINESS

The Compleat Inspector
U.S. Food and Drug Administration

The Scientist in the Food and Drug Administration
U.S. Food and Drug Administration

A Career in Animal Sciences
American Society of Animal Sciences

A Career in Laboratory Animal Science and Technology
American Association For Laboratory
Animal Sciences

V. MARINE

The Ocean and You
Marine Technology Society

Research in the Sea
Woodshole Oceanographic Institution

IX. APPENDIXES

APPENDIX A: INFORMATION ON LETTER WRITING

APPENDIX B: INFORMATION ON COMPLETING A JOB APPLICATION FORM

APPENDIX C: A SAMPLE APPLICATION BLANK

APPENDIX D: HOW TO PREPARE FOR YOUR INTERVIEW - DO'S AND DON'TS

APPENDIX A.

INFORMATION ON LETTER WRITING

I. Business letters should follow prescribed usage with respect to these six essential parts:

A. Heading - must give the full address of the writer and the date letter was written; should be flush with the right margin.

B. Inside address - (identical with the address on the envelope)- must give the name and the full address of the person to whom the letter is written. It is typed flush with the left margin about four spaces lower than the heading.

C. Salutation - (or greeting) - should be consistent with the tone of the letter, the first line of the inside address, and the complimentary close. It is typed flush with the left margin two spaces below the inside address and is followed by a colon.

D. Body - should follow the principles of good writing. Typewritten letters are usually single spaced, with double spacing between paragraphs. All paragraphs are flush with the left margin. Double-space between paragraphs. Hand written letters should be written legibly, neatly and attractively in ink. Use good quality white paper.

E. Complimentary close - should be consistent with the tone of the letter and with the salutation. It is two spaces below the last line of the body and directly under the salutation, flush with the left margin.

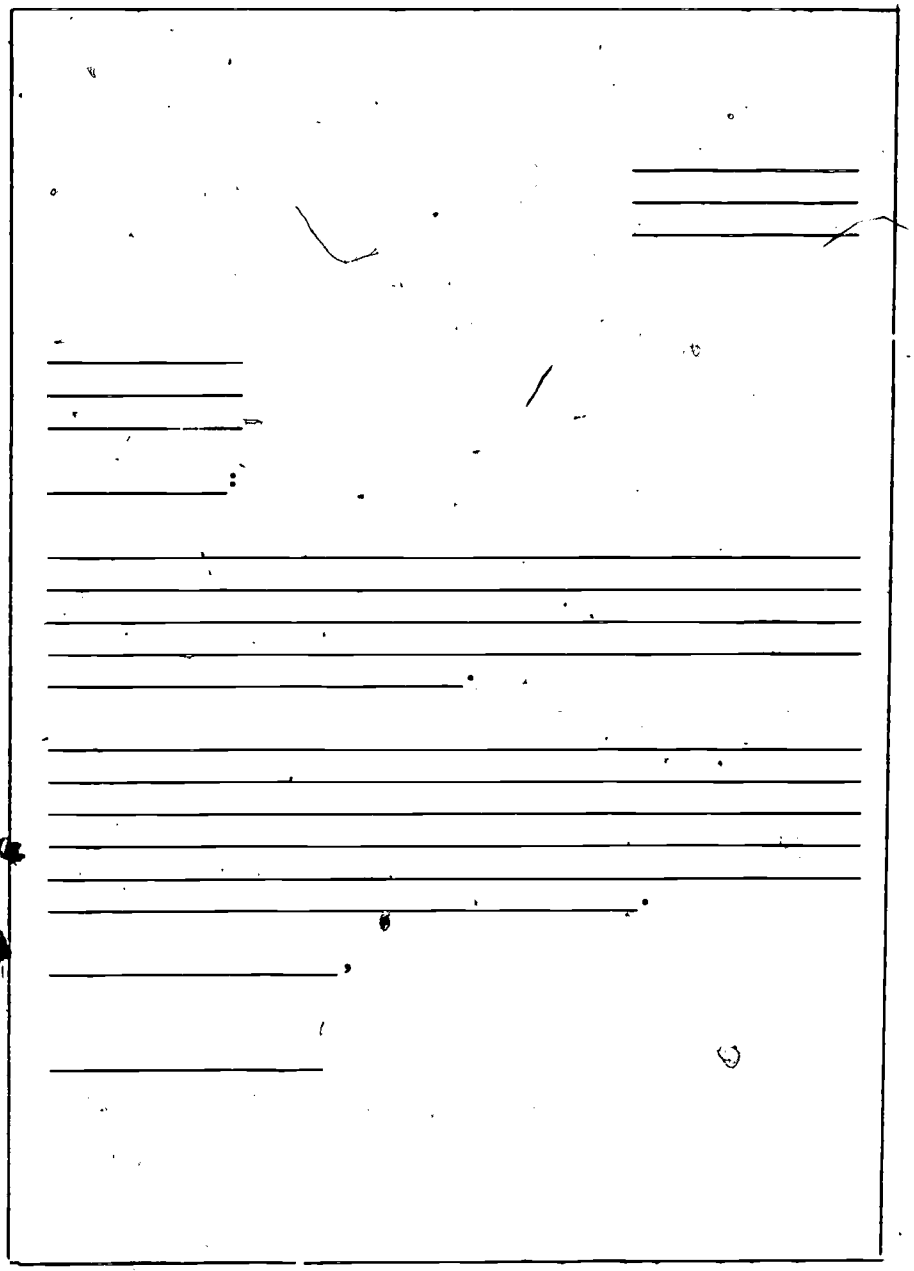
F. Signature - should be written by hand directly below the complimentary close.

II. In the text of the letter describe your general qualifications and your availability date. If you were referred, mention by whom. It is also important to include your phone number.

III. Keep a carbon copy for further reference.

On the following page is a sample form for setting up the letter.

SAMPLE LETTER FORMAT



APPENDIX B.

INFORMATION FOR COMPLETING THE APPLICATION BLANK

I. The application blank should be filled out neatly and accurately.

II. Use ink and print unless directed otherwise.

III. Follow directions exactly.

IV. Be candid and honest in your answers.

V. Write your name where signature is indicated.

VI. Be sure the application is complete; all questions are answered.

APPENDIX C.

SAMPLE APPLICATION BLANK

PLEASE PRINT

I. Personal Information

Date _____, 19___

Name _____
LAST FIRST MIDDLE

Address (present) _____
Street City

_____
State Zip Code

Address (permanent) _____
Street City

_____
State Zip Code

Phone _____

Position Applied For _____

Salary Required _____

Social Security No. _____ Height _____ Weight ____

Place of Birth _____ Date of Birth _____

Age _____ Sex _____

Are You a Citizen of the U.S. _____

Check Your Status: ___ Married, ___ Single, ___ Divorced,
___ Separated, ___ Widowed

Name of Husband (wife) _____

Where Employed _____

Occupation _____

Number of Children _____ Are You an Expectant Mother? _____

Is Your Health? ____ Excellent, ____ Good, ____ Fair, ____ Poor

List, with dates, any chronic or acute illness or operations you have had. _____

II. Education: Check the highest level school you completed:
Elementary (K-6) ___, Junior High (7-9) ___,
High School (10-12) ___, College, 4 yrs. ___, 6 yrs. ___,
Technical or Trade School ___.

List High Schools, Colleges, & Technical Schools, dates you attended, and degrees or diploma.

School	Dates Attended From - To	Degree or Diploma

III. Work Experience (Please list last position held first)

A Institution	B Address	C Dates From-To	D Job Title	E Reason Leaving	F Supervisor	G Salary

IV. Military Service

Dates in Service: From _____ to _____

Branch and Corps _____

Type of Discharge _____

Highest Rank Held _____

Draft Status _____

V. Personal References: List 3 people not related to you, who you have known for at least 2 years.

Name	Address	Phone	Occupation	Yrs. Known

VI. Miscellaneous

Have you ever applied here before? _____ When? _____

Are you related to anyone employed here? ___ Whom? _____

Have you ever been fired? ___ (if yes, please explain) _____

Were you ever arrested? _____ If yes, describe. _____

Have You ever been convicted of a crime? ____ If yes, describe. ____

Read Carefully and Sign

I certify that the answers to the above questions are correct and that a mis-statement of fact shall be cause for dismissal.

Signature _____

Date _____

APPENDIX D.

HOW TO PREPARE FOR YOUR INTERVIEW - DO'S AND DON'TS

I. Prior to the interview, investigate fully, facts concerning the company and be prepared to defend your desire for the job. Compile a list of questions that you may want to ask.

II. Dress in an appropriate manner and be punctual for your interview.

III. During the interview, communications should be as follows:

a. Be friendly

b. Maintain eye contact with the interviewer

c. Do not chew gum and smoke only if invited to do so

d. Be enthusiastic

e. Be precise in your answers but avoid excessive and unnecessary detail

f. Ask questions you have concerning the job

g. Upon leaving, re-emphasize your interest in the job

APPENDIX E.

OUTLINE FOR LAB REPORT

I. Title

II. Date

III. Purpose

IV. Materials and Equipment

V. Procedure

VI. Results and Conclusions including answers to questions, charts, graphs, etc.