

Scientific Careers in Agriculture

Grade Level: 4-6

Approximate Length of Activity: One Class Period

Objectives

Teacher

1. Create awareness that science involves agriculture.
2. Teach students about careers available in agriculture.

Students

1. Learn that there are many jobs related to science in the field of agriculture.
2. Match agriculture occupations to their job descriptions.

Michigan Content Standards: (Science) S.RS.E.1: S.RS.04.11; S.RS.04.16; S.RS.04.17; S.RS.04.18; S.RS.04.19; **S.RS.M.1:** S.RS.05.12; S.RS.05.16; S.RS.05.17; S.RS.05.19; S.RS.06.12; S.RS.06.16; S.RS.06.17; S.RS.06.18; S.RS.06.19

Introduction

You don't have to come from a farm to pursue a position in agriculture. There are ag-related jobs everywhere for anyone! In fact, one out of every six jobs in the United States is related to agriculture. With more than 250 career areas available in the field of agriculture the possibilities are numerous. Plus, there is a demand for qualified people to fill these positions. According to the U.S. Department of Agriculture, more than 57,000 jobs open each year in agriculture.

More than 22 million people have careers in agriculture. Only two million people are traditional farmers while many people are involved in the process from farm to market. There are agricultural careers in agri-business, communications, engineering, biotechnology research, government, education, computer science, processing, distribution, marketing and many other areas. Some people have careers connected to agriculture, but they do not realize it! For example, sales representatives for food distributors, genetic researchers and elementary teachers who teach topics such as plant and animal systems are all involved in agriculture because their job relates to the food and fiber system.

The agriculture industry consists of six employment areas:

- Production Specialist -- 7 per cent
- Social Service Professionals – 9 per cent
- Education and Communication – 11 per cent
- Managers and Financial Specialists – 13 per cent
- Scientists, Engineers and Related Specialists – 32 per cent
- Marketing, Merchandising and Sales Representatives – 28 per cent

Production Specialist includes: aquaculturists, turf producers, viticulturists, ranchers, farm managers, grain and/or livestock farmers, wildlife managers, fruit and vegetable growers and specialty animal producers.

Social Service Professionals includes the fields of career counselor, youth program director, dietitian, regulatory agent, community development specialist, regional planner, park manager and food inspector.

Education and Communication Specialists are computer systems analysts, illustrators, journalists, information specialists, personnel development specialists, agriculture/horticulture teachers, public relations representatives, computer software designers and radio/television broadcasters.

Managers and Financial Specialists are accountants, policy analysts, bankers, food service managers, retail managers, consultants, wholesale managers, economists, insurance agency managers and association managers.

Scientists, Engineers, and Related Specialists includes careers as agronomists, remote sensing specialists, research technicians, environmental scientists, landscape architects, food scientists, animal scientists, agricultural engineers, water quality specialists and plant scientists.

Marketing, Merchandising, and Sales Representatives includes grain merchandisers, insurance agents, sales representatives, landscape contractors, restaurant managers, market analysts, commodity brokers, export sales managers, advertising managers and forest product merchandisers.

This lesson is designed to expose the student to the many branches of science and then tie them with the field of agriculture. Farming is not the only career in agriculture.

Materials Needed

- "A Career First Search" worksheet
- Dictionaries

Activity Outline

1. Begin by discussing the definition of science. Science is the knowledge gained from the study of the natural world, which includes plants and animals. Studying the natural world includes observations and experimentation.
2. Tie this information to agriculture. Production agriculture is the science, art and occupation dealing with cultivation of the land, raising crops, feeding, breeding and raising livestock while caring for the environment. Explain that there are scientists and researchers that help the farmers grow better crops and raise healthier animals. Help the students make a connection between agriculture and science.
3. Explain to the students that there are many types of scientists in agriculture. Hand out the worksheet "A Career First Search." See if the students can use word parts to figure out any of the occupations before they start using dictionaries, etc. Depending on the size of the class and availability of resources, students may work individually, in pairs, or in teams to complete the worksheet.
4. Discuss the worksheet and see what the students know about these careers.
5. If time permits, have each student pick one agri-science career and write a paragraph explaining why he/she would want that career. Read and share these with other classmates.

Discussion Questions

1. What is science?
2. What is agriculture?
3. How are science and agriculture related?
4. Discuss the occupations on "A Career First Search" worksheet. Ask how people learn these jobs.
5. Ask the students if they know anyone who has a career listed on the worksheet.

Related Activities

1. Have speakers from these fields talk to your class.
2. Role-play these jobs. Have one student be the career and the other an interviewer.
3. The Michigan Farm Bureau has an educational magazine geared for kids, entitled "Career Ag Mag". Contact Michigan Farm Bureau, Promotion and Education Department at (-800) 292-2680, ext. 3202 to obtain copies for your classroom.
4. The lesson "Count on an Ag Career" located in the math section of this curriculum guide.
5. The lesson "Foods Amazing Journey" located in the social studies section of this curriculum guide.
6. The lesson "Picture This Agriculture Career" located in the language arts section of this curriculum guide.

A Career First Search

There are many scientific occupations that are related to agriculture. Match the following careers with their related jobs.

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|---------------------------|--|
| 1. _____ Agriculturist | a. Studies the science of soil and crops |
| 2. _____ Agronomist | b. Scientific study of plants |
| 3. _____ Anthropologist | c. Studies insects |
| 4. _____ Apiculturist | d. Scientific study of producing crops and raising livestock |
| 5. _____ Bacteriologist | e. Studies water |
| 6. _____ Biochemist | f. Studies the atmosphere |
| 7. _____ Biologist | g. Studies the production and distribution of goods and services |
| 8. _____ Biophysicist | h. Studies chemicals in living things |
| 9. _____ Botanist | i. Studies animals |
| 10. _____ Conservationist | j. Studies beekeeping |
| 11. _____ Economist | k. Studies the physics of living things |
| 12. _____ Entomologist | l. Studies the raising and caring of plants |
| 13. _____ Geophysicist | m. Studies living things seen through a microscope |
| 14. _____ Horticulturist | n. Studies the physics of geology |
| 15. _____ Hydrologist | o. Studies and supports saving the natural environment |
| 16. _____ Meteorologist | p. Studies man |
| 17. _____ Microbiologist | q. Studies bacteria |
| 18. _____ Zoologist | r. Studies living things |

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