



CAREERS IN AGRISCIENCE

**A Lesson Plan
developed for
Teachers of Agriculture**

This lesson plan is designed to assist teachers in guiding the learning process in students as they learn more about the career opportunities in the agriscience field. As with any lesson materials that are not prepared by the teacher who uses them, this lesson plan serves only as a guide. Teachers must adapt, supplement, and/or alter this suggested plan according to their expertise and to the local needs, interests, and expected outcomes of the students who are in that classroom. Only in this way will the instruction given meet the needs of the students, school, community, and state in which the students live and the teacher works.

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CAREERS IN AGRISCIENCE

Lesson Title: Exploring Careers in Agriscience

Terminal Objective: To explore the wide range of occupations and careers in the agriscience field

Enabling Objectives: Given a lesson unit on the occupations and careers in the agriscience field, students will be able to:

1. differentiate between a job, an occupation, and a career;
2. define agriscience;
3. define an agriscience occupation;
4. describe the major career categories in the agriscience field;
5. list examples of occupations within each of the major career categories;
6. determine the value of continuing education beyond high school;
7. identify potential schools and institutions for continuing education in agriscience; and
8. prepare a personal plan for fulfilling individual career aspirations.

The teacher is encouraged to add his/her own enabling objectives and/or others that students suggest that would take into account local situations or the need to add additional content information not provided within this lesson outline.

References, Equipment, Instructional Aids, and Selected Web Sites

NOTE: *A teacher should use professional judgment in the selection and use of web sites. Web sites change over time and thus, the relevancy and accuracy of information contained on these sites will change as new information related to careers emerges.*

<http://www.kids.gov/> - A Federal Citizens Information Center with career information and links to relevant web sites

<http://www.agcareers.com> – An agriscience employment website

<http://www.spaceag.org/> - Awareness of relationship between agriculture and space, with a link to agriculture and space careers

http://www.ffa.org/index.cfm?method=c_job.CareerSearch - The National FFA Organization with numerous online resources and links to related websites

<http://www.stats.bls.gov/> - U.S. Department of Labor, Bureau of Labor Statistics latest information on the occupational environment

<http://www.bls.gov/oco/> - **Occupational Outlook Handbook** 2008-2009 Edition

<http://www.csrees.usda.gov/> - The Cooperative State Research, Education, and Extension Service website with a job opportunity link

<http://www.bls.gov/opub/ooq/1999/fall/oochart.pdf> - Unemployment rates by level of education

www.bls.gov/opub/ooq/2002/spring/oochart.htm - Annual earnings by level of education

<http://www.ag.ohio-state.edu/~taa/> - The website listing two-year post-secondary technical educational programs in agriscience located at land-grant universities

<http://faeis.usda.gov/hep/employ/brochure.pdf> - A brochure on Employment Opportunities for College Graduates in the Food and Agricultural Sciences, 2000-2005

<http://faeis.usda.gov/hep/employ/employ00-05.html> - Employment Opportunities for College Graduates in the Food and Agricultural Sciences

<http://jobsearch.usajobs.opm.gov/a9ag.asp> - A link to find jobs within the United States Department of Agriculture.

<http://www.agraplacements.com> – A listing of current occupations open in agriscience

Crunkilton, John R. and et. al. (1995). **The Earth and AgriScience**, Chapters 23-27, Danville, Illinois: Interstate Publishers, Inc.

Goecker, Alan D. (1999). **Employment Opportunities for College Graduates in the Food and Agricultural Sciences – 2000-2005**. . USDA, Washington, DC.

New Horizons, Indianapolis, Indiana: National FFA Center, all issues.

Guest speakers and employment ads from local sources

Occupational Education Handbook. 2002-2003 Edition, US Department of Labor, Washington, DC.

Occupational Outlook Quarterly. Winter 1997-1998, plus any up-to-date quarterly editions. US Department of Labor, Washington, DC.

Lesson Plan Color Code

GREEN – Suggestions to the teacher of teaching approaches, teaching techniques, instructional aids, or other ideas that the teacher might find helpful in teaching this lesson. Space is also adequate for teacher notes.

BLUE – Web sites that provide information, knowledge, or background that relate to the Enabling Objectives for the lesson. In some cases, the teacher can use the web sites to prepare for the lesson, in other cases; the students can go to the web sites for basic information or further reading.

RED – Questions a teacher can pose to the students or the questions can be used to guide the teaching process. Question numbers relate back to the number of the Enabling Objectives found at the beginning of the lesson.

Introduction: The following ideas are possible suggestions for introducing this lesson topic.

1. Ask students to help you list on the chalkboard examples of agriscience occupations that exist within the local community. Then briefly discuss what people do in these occupations and the value or service that the occupations contribute to individuals and to the community.
2. The day before this lesson is introduced, have students search local newspapers, trade journals, websites, bulletin boards, or other sources for ads that describe job openings in agriscience. Ask students to bring these ads to class and then hold a discussion as to what the students found. The teacher should also collect examples of openings in the agriscience field to supplement those openings contributed by students.
3. Ask students what jobs they would like to obtain after graduating from high school. Place these jobs on the chalkboard and then hold a brief discussion on where these jobs are located, education and/or training needed, expected wage/salaries, working conditions, and other related information. Then ask students jobs they would like to hold 20 years in the future. Discuss their ideas and whether any of these jobs relate to the agriscience field.
4. Ask students to go to any web site identified for this lesson and report back on agriscience occupations or careers found.

As a transition into the lesson unit, the teacher should relate the prior discussion that was just held in the introduction step as an important background to exploring the vast opportunities available to students in the agriscience field.

TEACHING OUTLINE

Methods/hints/aids
Teacher notes

Technical/subject matter content

Discussion
The Earth and Agriscience,
Chapter 23

1. What is the difference between a job, an occupation, and a career?

A **job** is a series of tasks, pieces of work, or duties that people are expected to do each day. While an occupational title may be the same for two different individuals, their respective jobs may vary depending on the nature of the business, work situations, time of year, or type of local community.

Review ads brought in by students

An **occupation** is the title given to an individual who is expected to possess a certain set of skills and/or knowledge in a specific area. It is also the terminology used in society to describe one's trade, profession, or business.

Review ads brought in by teacher

A **career** represents work that a person does over a long period of time. While a job or occupation can have a beginning and ending time, a career usually is viewed as to what people do from the time they enter the labor market until they retire. Thus, people who work in agriscience related jobs throughout their lifetime would say they had an agriscience career. Lifetime police officers would say they had a career in law enforcement. A person who was a teacher, then later became a school principal, or perhaps a superintendent would have a career in education.

Chalkboard, transparency

2. What is agriscience?

Agriscience is the combination of two fields, science and agriculture, where scientific knowledge is required to carry out the necessary functions in agriculture.

List on chalkboard

3a. What is an agriscience occupation?

Review expectations for the jobs brought in by students and teacher

An **agriscience occupation** is an occupation where a person is expected to perform a series of jobs where scientific and agriscience knowledge and/or skills must be successfully integrated and used in fulfilling those expectations. For each of the occupations below or others that the teacher or students might add, discuss the agriscience expectations and knowledge expected of that individual, and then discuss the science expectations and knowledge required of that individual.

Have students check the following sources.

Assign student groups/
report back in 10 minutes

<http://faeis.usda.gov/hep/employ/employ00-05.html>

<http://faeis.usda.gov/hep/employ/brochure.pdf>

The Earth and Agriscience, Chapters 25-27

Possible jobs found

Parts manager
Range manager
Veterinarian
Agricultural economist
Agronomist
Environmental scientist
Wood scientist
Logging engineer
Florist
High school agricultural teacher
Cooperative extension agent
Science writer
Game warden
Food scientist
Turf scientist
Fisheries scientist
Sales representative
Rancher
Landscape designer

Chalkboard

3b. Who are people you know in our community who hold agriscience occupations? What are these occupations? Who of you in this class are currently engaged in agriscience occupations?

Discussion, students share their experiences

3c. Of the people just mentioned, what are their job expectations?

Students interview employees

Guest speakers

Video tape person on the job, bring tape to class

Field trip

4. What are the major career categories in the agriscience industry?

Assign students to explore

<http://faeis.usda.gov/hep/employ/employ00-05.html>

<http://faeis.usda.gov/hep/employ/brochure.pdf>

Major job employment clusters in agriscience occupations

Scientists, Engineers, and Related Professionals
Production
Agricultural Marketing, Merchandising, and Sales
Education and Communications
Managers and Financial Specialists
Social Service Professionals

Any New Horizons issue

5a. What are examples of agriscience occupations in each of the major categories?

<http://faeis.usda.gov/hep/employ/employ00-05.html>

<http://faeis.usda.gov/hep/employ/brochure.pdf>

Scientists, Engineers, and Related Professionals

Agricultural Engineer
Food Scientist
Landscape Architect
Plant Scientist
Veterinarian
Water Quality Specialist

Production

Farmer
Rancher
Fruit and Vegetable Grower
Gardener
Wildlife Manager
Aquaculturalist

Agricultural Marketing, Merchandising, and Sales

Florist
Landscape Contractor
Real Estate Broker
Sales Representative
Advertising Manager
Technical Service Representative

http://www.ffa.org/index.cfm?method=c_job.CareerSearch

Education and Communication

College Teacher
High School Teacher
Cooperative Extension Agent
Journalist
Information Specialist
Computer Software Designer

Managers and Financial Specialists

Accountant
Appraiser
Human Resource Development Manager
Customer service Manager
Retail or Wholesale Manager
Economist

Social Service Professionals

Conservation Officer
Food Inspector
Park Manager
Peace Corps representative
Youth Program Director
Dietitian

Discussion

List names on chalkboard
Interview employees/employers
and report back to class

5b. Who in our community holds any of these occupations?

6a. Why should you consider furthering your education beyond high school?

www.bls.gov/opub/oog/2002/spring/oochart.htm

The Earth and Agriscience,
Chapter 24

More education means higher earnings

(Source: Occupational Outlook Quarterly, Spring 2002) – Median yearly earnings for 2000

Professional degree - \$80,200

Doctorate - \$70,500

Master's degree - \$55,300

Bachelor's degree - \$46,300
Associate degree - \$35,400
Some college, no degree - \$32,400
High school diploma - \$28,800
Some high school, no diploma - \$21,400

6b. What could you buy in a year with an extra \$10,000?

Discussion

Ask students to write their ideas in their notes

More education means lower unemployment

(Source: Occupational Outlook Quarterly, Fall 1999) Percent unemployment in 1998

<http://www.bls.gov/opub/ooq/1999/fall/oochart.pdf>

Professional degree – 1.3 percent
Doctorate – 1.4 percent
Master's degree – 1.6 percent
Bachelor's degree – 1.9 percent
Associate degree – 2.5 percent
Some college, no degree – 3.2 percent
High school graduate – 4.0 percent
Less than high school diploma – 7.1 percent

7. Where are institutions located for furthering one's preparation in an agriscience career?

www.spaceag.org

http://www.ffa.org/index.cfm?method=c_job.CareerSearch
<http://www.ag.ohio-state.edu/~taa/>

Technical schools
Community colleges and post-secondary programs at land-grant universities

Students check web sites and report back to class

8. What are your plans for a career?

Each student is expected to complete a personal career goal plan

Elements of the plan might include:

Intended Occupation(s)
Examples of jobs related to this occupation
Description of job expectations
Educational preparation needed
Name(s) of school(s) that offer this
education/training
People in community who hold this occupation
Positive aspects of this occupation
Negative aspects of this occupation
Expected salary and benefits
Leadership skills needed

**Student should list all resources
(electronic or hard copies) reviewed
during completion of this assignment**

Summary

1. A daily summary of the lesson or material covered each day should be held. This could be accomplished with several questions or a quiz on the material covered.
2. The end of the unit summary should evolve around the eight enabling objectives listed at the beginning of the lesson.

Plans for Application

Several examples for application of the content taught were incorporated within the lesson, other suggestions follow:

1. Explore the yellow pages of the local telephone book to locate the agriscience businesses in the community.
2. Collect agriscience job vacancy ads from local newspapers, trade journals, and other media and place on a bulletin board in the classroom.
3. Students interview people in local community that hold agriscience jobs in each of the six major categories and orally report back to class or prepare a written report.
4. Video taping these interviews might be encouraged.

5. Invite a guest speaker(s) or panel of speakers to class to discuss their agriscience jobs and occupations.
6. Take a field trip to a large farm or ranch, agribusiness, or factory and have students observe people in their jobs and record what they do.
7. Inventory a local agriscience business as to the number of employees, occupational titles, job responsibilities, educational levels, and job perceptions.
8. Video tape a person(s) in an agriscience occupation.

Evaluation

1. Informal evaluation of the students could be accomplished by teacher observation of the students as they engage in discussions and activities related to this unit and willingness to take the initiative to follow up on non-graded assignments.
2. A more formal evaluation would be the Personal Career Goal Plan developed by the student for Enabling Objective 8 or a cognitive test centered on the technical or subject matter information covered for each of the enabling objectives.