



UNIT 8: CAREERS

Careers in Agriculture

Grade level: Upper elementary

NATIONAL
STANDARDS
NL-ENG.K-12.8
NSS-C.K-4.5

Student Learning Objectives

By the end of this lesson, students will be able to:

1. List the major categories of agricultural careers.
2. Describe what is involved in one agricultural career: agricultural pilot.

Time: 50 minutes

Tools, Equipment, and Supplies: Handouts of Activity Sheets 25:1, 25:2, 25:3; classroom set of almanacs/encyclopedias or the Internet

Background Information

Approximately 22 million people now work in agriculture and agriculture-related careers. Only about two percent of the workforce is involved in production farming. The rest of the people who are employed in agriculture work in agribusiness, communications, science, government, education, processing and distribution, marketing and sales, as well as dozens of other occupations serving the farmer or the total agricultural industry.

As new technologies emerge in agriculture, so will new job opportunities and the need for well-trained and educated people. Today's agriculture industry offers more than 200 rewarding and challenging careers, from livestock production to nursery management, and from genetic engineering to landscaping and law.

Agricultural careers are open to both men and women. Today nearly half the students enrolled in agricultural courses at the college level are women. Agricultural careers are divided into eight categories. They include:

Agribusiness Systems (ABS)—the study of business principles, including management, marketing and finance, and their application to enterprises engaged in Agriculture, Food and Natural Resources. Examples of careers in this area might include: agricultural pilot, computer analyst, farm auctioneer, field sales representative, salesperson, agricultural accountant, agricultural corporation executive agent, agricultural educator, agricultural journalist, agricultural lawyer, agricultural loan officer, agricultural market analyst, computer specialist, farm investment manager, rural sociologist, etc.

Animal Systems (AS)—the study of animal systems, including life processes, health, nutrition, genetics, management and processing through the study of small animals, aquaculture, livestock, dairy, horses and/or poultry. Examples of careers



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in this area might include: kennel operator, poultry hatchery manager, feed ration developer, animal groomer, animal breeder, aquaculturalist, beekeeper, animal nutritionist, avian veterinarian, veterinarian, etc.

Biotechnology Systems (BS)—the study of data and techniques of applied science for the solution of problems concerning living organisms. Examples of careers in this area might include: biochemist, botanist, plant geneticist, corporate scientist, laboratory scientist/technician, biomedical researcher, pharmaceutical developer, USDA/government employee, etc.

Environmental Service Systems (ESS)—the study of systems, instruments and technology used in waste management and their influence on the environment. Examples of careers in this area might include: EPA inspector/officer, state environmental agency officer, environmental field agent, environmental compliance consultant, environmental researcher, soil engineer, etc.

Food Products and Processing Systems (FPP)—the study of product development, quality assurance, food safety, production, sales and service, regulation and compliance, and food service within the food science industry. Examples of careers in this area might include: food chemist, food and drug inspector, fruit distributor, grain broker, meat cutter, quality control supervisor, wine maker, meat grader, value added food product creator, food packaging specialist, fruit/vegetable wholesaler, grocery distributor, etc.

Natural Resource Systems (NRS)—the study of the management of soil, water, wildlife, forests and air as natural resources. Examples of careers in this area might include: tree farmer, entomologist, forester, log grader, animal ecologist, environmental conservation officer, forest fire fighter, forest ranger, game warden, ground water geologist, soil conservationist, water resources manager, etc.

Plant Systems (PS)—the study of plant life cycles, classifications, functions, structures, reproduction, media and nutrients, as well as growth and cultural practices, through the study of crops, turf grass, trees and shrubs and/or ornamental plants. Examples of careers in this area might include: agronomist, mushroom grower, peanut producer, rice farmer, tree farmer, floral designer, golf course superintendent, greenhouse manager, landscape architect, turf farmer, fertilizer plant supervisor, etc.

Power, Structural and Technical Systems (PST)—the study of agricultural equipment, power systems, alternative fuel sources and precision technology, as well as woodworking, metalworking, welding and project planning for agricultural structures. Examples of careers in this area might include: agriculture equipment dealer, agricultural construction engineer, diesel mechanic, equipment operator, land surveyor, machinist, parts manager, welder, etc.



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Interest Approach

I have a very important question to ask you today. This question is one you don't have to answer just yet, but one we all need to think about. Are you ready for the question? Don't yell out your answers—just think about them for the moment. "What do you want to be when you grow up?" Specifically, what kind of job do you want to have when you grow up? Just take a moment to think about it and write down your answer.

After you write down your answer, hide it away and don't commit to it quite yet. We are going to look at some career options today. Perhaps we will find something really cool to do for a career that you haven't thought about before today. Let's get started.

OBJECTIVE 1: List the major categories of agricultural careers.

Some of us have an idea about what we would like to be when we grow up, and as a class, we have learned that agriculture involves much more than farming. So today let's learn more about some of the careers that are available in agriculture.

Hand out the Activity Sheet 25.1, "Careers in Agriculture."

Let's use the activity sheet to review and identify eight categories of agricultural careers and discuss the many jobs that are available. Follow along on the handout as we talk about these career areas and the jobs available in each.

Read each category and the jobs under each category to students, explaining what each job is as you go.

Raise your hand if you know anyone who works in any of these careers. Do they enjoy their job? Why? Or why not? What is their job like? Highlight the career area that interests you most and at the bottom of the sheet, record three reasons why.

Use a Hieroglyphic e-Moment® by having students develop a hieroglyphic for each career category.

OBJECTIVE 2: Describe what is involved in one agricultural career: agricultural pilot.

Great job, class! I hope we are all starting to realize that agricultural careers involve much more than what we consider as traditional farming. Let's read about a job you probably haven't considered.



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Hand out Activity Sheet 25.2, "A Career that's Really Taking Off."

Follow along as I read the story about an agricultural pilot.

Read the story.

Wasn't that cool? That's just one of the very exciting careers in agriculture you may want to investigate. We should also point out that agricultural careers are open to both men and women. Today there are just as many or more female students enrolled in agricultural courses at the college level as male students.

Use an Almanac or Encyclopedia e-Moment® to list specific agricultural careers.

SUMMARY/REVIEW

Great job today! Maybe some of us have a new idea about what we want to do for a living when we grow up. Let's continue our investigation into agricultural careers by using this activity (Activity Sheet 25.3), "One Person's Agricultural Career." We need to find someone working in one of the careers we identified today and interview him or her. Be prepared to present findings in class.

Set a date for the class to present their findings.

REFLECTIVE REVIEW QUESTIONS:

- What are the agricultural careers available in our area?
- What areas of agriculture are you most interested in?
- Who might you visit with if you want to learn more about working in agriculture?

APPLICATIONS

APPLICATION 1: If possible, invite a guest speaker or speakers to your class. Contact your local FFA chapter for help in finding possible speakers.

APPLICATION 2: Read "My Mom's a Vet" by Henry Horenstein (Candlewick Press, Cambridge, Mass.)



ACTIVITY SHEET 25:1

Careers in Agriculture

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Agribusiness Systems (ABS)—the study of business principles, including management, marketing and finance, and their application to enterprises engaged in Agriculture, Food and Natural Resources. Examples of careers in this area might include: agricultural pilot, computer analyst, farm auctioneer, field sales representative, salesperson, agricultural accountant, agricultural corporation executive agent, agricultural educator, agricultural journalist, agricultural lawyer, agricultural loan officer, agricultural market analyst, computer specialist, farm investment manager, rural sociologist, etc.

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Highlight the career area that most interests you and list three reasons below:

1. _____
2. _____
3. _____



ACTIVITY SHEET 25:2

A Career that's Really Taking Off

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"Don't forget," Mrs. Smith told the fifth graders as school was ending on Friday. "Your report on a career that interests you is due in one week."

That night at dinner, Juan told his family about the assignment. He said, "I'm stuck. I don't know what to write about."

Juan's dad said, "Well, we're going to visit your Uncle Frank at his farm tomorrow. Maybe you'll get some ideas there." The next day, as the family drove down the road to the farm, Juan saw an airplane out the window of the car. It was flying much closer to the ground than any other airplane he'd ever seen. As he watched, he saw a gentle mist coming from the back of the plane.

"Look at that!" he said. "Wouldn't it be exciting to fly in a plane like that? I wonder what that pilot is doing." "Let's ask your uncle," Juan's dad said. "That's his field."

Juan could hardly wait to get to the farm. Before anyone could say "hello," he rattled off a list of questions to his uncle. "I saw an airplane flying over your field. What was it doing? Did you know it was there? Have you ever ridden in one of those planes?"

"Slow down!" Uncle Frank laughed. "I'll be glad to answer all of your questions. Say, maybe you'd like to meet Pat, the pilot of the airplane. I'll make a call and see if we can arrange it." About an hour later, Juan and Uncle Frank pulled into a small air strip. There was the plane Juan had seen. And there, washing the outside of the plane, was a woman. "That's Pat," Frank said. She's the best pilot in the country. Pat, I'd like you to meet my nephew. He's got about 100 questions to ask you."

Pat and Juan talked for more than two hours. He learned that there are nearly 10,000 airplanes and almost 1,000 helicopters working in agriculture. The pilots of these aircraft spray chemical on crops to protect them against bugs, mold, weeds and plant diseases. The planes work much more quickly than a tractor — just one or two passes over a field and the job is usually done. But agricultural pilots do a lot more than spray crops, Juan learned.

"Just last week," Pat said, "a farmer wanted me to spread seeds on a field. The ground was too wet for a tractor to get into it. Tomorrow, I'm flying up to Green Lake, where I'm doing a different kind of seeding. I'll be putting tiny fish in the lake. I've also planted trees on steep hillsides where other farm equipment couldn't travel. Juan learned that other pilots help clean up oil spills in rivers and harbors. Others have helped fight forest fires. "It's an exciting career," Pat said. "But you have to know a lot. You have to be a good pilot to miss power lines and trees when you're flying so low. You have to figure out exactly where to spread your cargo. Luckily, I have a computer in my office and another one in the plane to help. And you have to pay close attention to the weather. Still, it's a good career for someone who loves flying as much as I do." "It sounds wonderful," Juan said. "Thanks so much. Not only have I learned about a career, but I've figured out what I'm going to write in that report for Mrs. Smith."



ACTIVITY SHEET 25:3

One Person's Agricultural Career

Use this guide to interview a person who works in an agricultural career.

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What is the name of your career?

Why did you choose this career?

Why do you enjoy it?

What are the not-so-good things about this career?

What training does this career require?

What are the job opportunities in this field?

What does your average day include?

Other questions I want to ask: