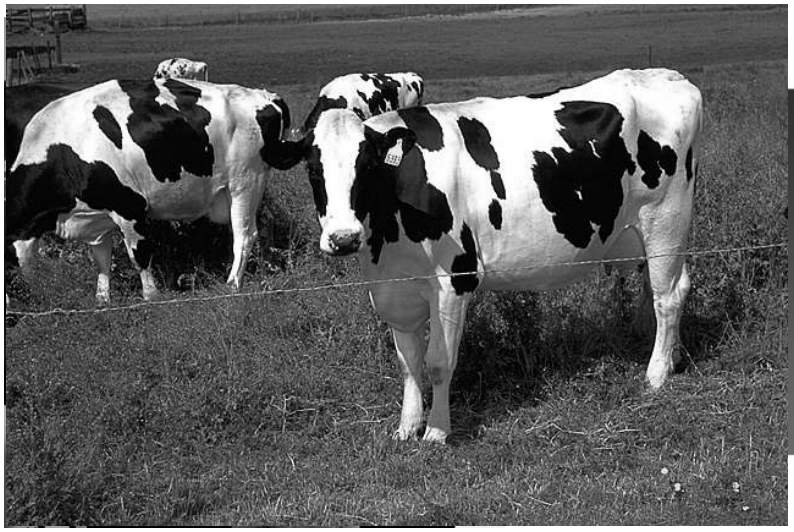
Lesson - Careers in Animal Systems



Lesson Overview

In this lesson, students will be introduced to careers relating to animal systems. A variety of occupations relating to this area will be explored.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify career opportunities relating to agriculture, specifically in animal systems
- Articulate the educational requirements, typical job duties, occupational outlook and more for each explored profession

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• *What Makes a Good Employee in Animal Systems* handout	1. Print/photocopy the *What Makes a Good Employee in Animal Systems* handout – one for each pair	10-15 minutes
LEARN	• *Job Description Project* instructions • *Job Postings* handout	1. Print/photocopy the *Job Description Project* instructions and *Job Postings* handout – one for each participant	30-90 minutes
REVIEW	• *Animal Systems Employment Self-Assessment* handout • Questions for panel - optional	1. Print/photocopy the *Animal Systems Employment Self-Assessment* handout – one for each participant 2. Contact local professionals and invite them to participate in a panel discussion 3. Set up the room with panel seating in the front and audience facing the panel	5-10 minutes (optional activity 60-90 minutes)

Lesson - Careers in Animal Systems

FOCUS: Animal Systems Employment Skills and Abilities

10-15 minutes

Purpose:

The world has long relied on the skills of workers in animal systems to enrich our lives. Animal systems comprise a wide variety of careers relating large animals, small animals, wildlife animals and research animals. Because of the many areas employees are needed to work with a variety of animal types, there will always be a demand and need for skilled workers in this pathway. This lesson will take a closer look at occupations in animal systems and the variety of opportunities available today.

Materials:

- *What Makes a Good Employee in Animal Systems* handout

Facilitation Steps:

1. Share the information below with the class.

   Instructor information: Careers in the animal systems pathway relate to working with large, small, wildlife and research animals. There are many ways you can work within this pathway from education, nutrition, producers, caretakers, inspectors and more.

2. Give students the *What Makes a Good Employee in Animal Systems* handout. Have students pair up and give them five minutes to brainstorm and write down as many skills and abilities that they can think of.

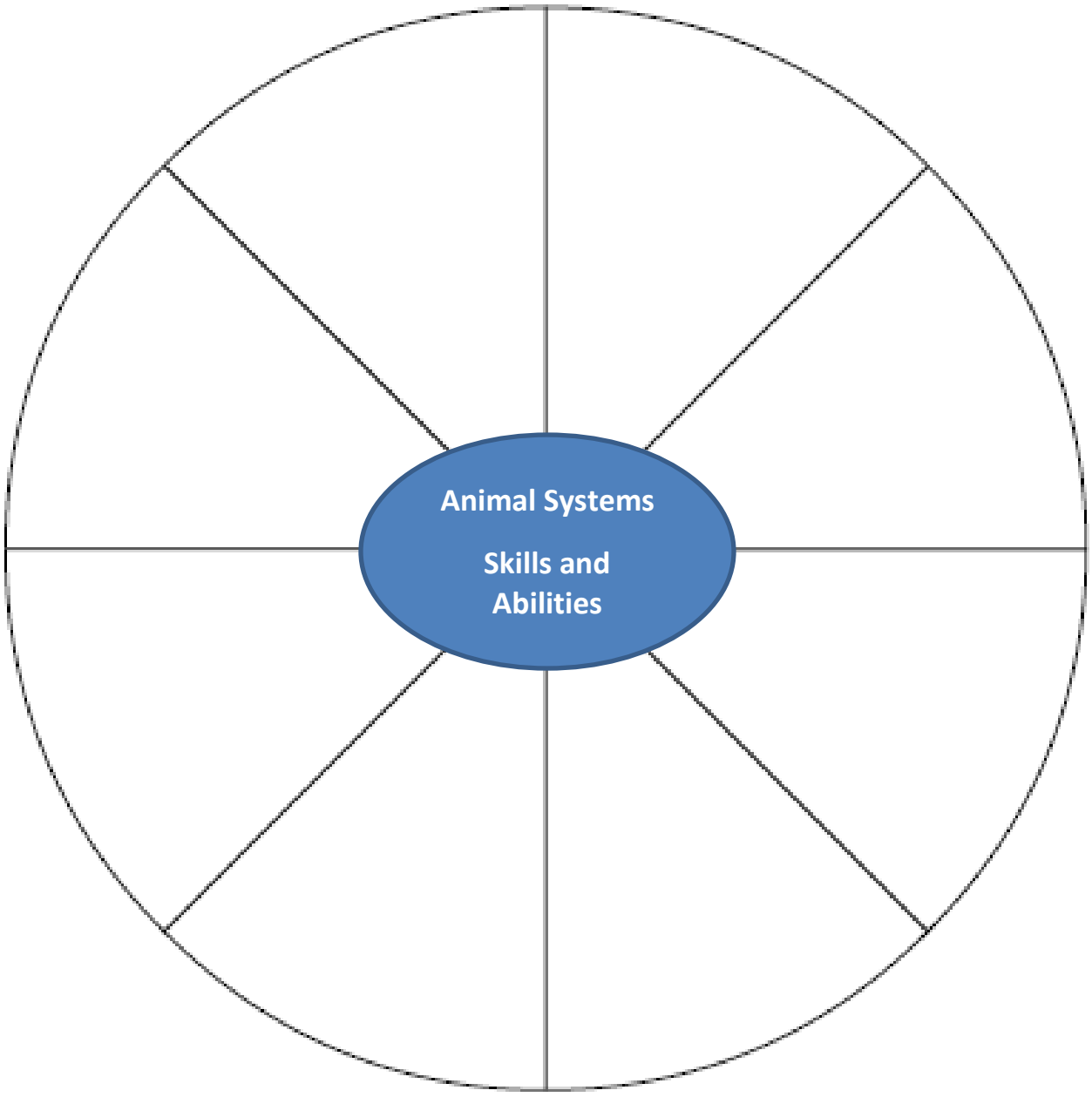
3. Call the class back together and ask students the following question: What skills and abilities should a successful employee have relating to occupations within the animal systems pathway?

4. Write student responses on a master list on a white board or similar item. Continue calling upon students until every group has had a chance to contribute to the list.

5. Share a list of skills and abilities for animal systems from a career or occupational website such as O*NET Online - https://www.onetonline.org/find/quick?s=animal+systems

What Makes a Good Employee in Animal Systems

List as many skills and abilities you can think of in the spaces provided that successful employees working in occupations relating to animal systems would possess.



Lesson - Careers in Animal Systems

LEARN: Job Description Project

30-90 minutes

Purpose:

The purpose of this activity is to have participants take a closer look at several different careers that involve animal systems in agriculture including: agricultural educator, livestock producer, veterinarian, nutritionist, reproductive physiologist (this is not an exhaustive list).

Materials:

- Library and internet resources
- *Job Description Project* instructions
- *Job Postings* handout

Facilitation Steps:

1. Give students the *Job Description Project* instructions. Tell them that they can use the internet or other sources in the library for their research. Here are a few helpful websites:
    - www.bls.gov
    - http://www.bls.gov/ooh/
    - www.careerinfonet.org
    - www.careervoyages.gov
    - http://careerplanning.about.com/od/occupations/a/car
    - http://www.myplan.com/careers/index.phpeer_briefs.htm
    - http://www.onetonline.org/find/career?c=10&g=Go
2. Give students one or two class periods to complete their research. You can also assign this as homework. Students should prepare a job posting for four positions listed in the instructions. You may give the students the *Job Postings* handout for this task.
3. The suggested grading rubric for the *Job Description Project* is 25 points for each of the completed job postings if all information is complete. Deduct points if information is missed in required sections.

Job Description Project

Scenario: You are the Director of Human Resources for a large, new agricultural consulting firm that provides products and services for many areas relating to animal systems. Your task is to hire four new employees that will work in your facility. You will be completing job postings for four positions. Choose from: nutritionist, veterinarian, livestock geneticist, dairy producer and USDA inspector (or other related titles of choice). For each job posting, you must include the following information:

- Job title
- Degree, certification or licenses required
- Summary of the general nature and level of the job
- List of duties or tasks performed critical to success
- Job location where the work will be performed (environment)
- Equipment to be used in the performance of the job (if any)
- Starting salary range (per year or per hour)

You may photocopy and use the *Job Postings* handout. Prepare four different job postings, one for each position that you need to hire.

Job Postings

Job Title	
Degree, certification or licenses required	
Summary and level of the job	
List of duties or tasks	
Job location and work environment	
Equipment to be used – if anything specific	
Starting salary (per year or per hour)	

Lesson - Careers in Animal Systems

REVIEW: Animal Systems Employment Self-Assessment

5-10 minutes (optional activity 60-90 minutes)

Purpose:

To review what students have learned about career opportunities relating to animal systems in agriculture, food and natural resources and see if they possess the qualities to be successful in this occupation.

Materials:

- *Animal Systems Employment Self-Assessment*

Facilitation Steps:

1. Give each student the *Animal Systems Employment Self-Assessment.* Give them five minutes to complete it.
2. Have students add up the total number of boxes they have checked in the "Yes" column and the "No" column. If they have more yes boxes checked than no boxes, they may be a good fit for a career in animal systems.

Extension Activity: Contact a variety of local employers that relate to careers in animal systems. Invite them to attend a panel discussion in your class.

The day of the panel discussion, set up your space so that there is a table with seating for all panel members at the front of the room. If sound is an issue, have a microphone available.

Invite participants in the audience to ask questions to panel members. Remind participants ahead of time to keep questions relevant to work. You may ask participants to submit questions in advance if desired.

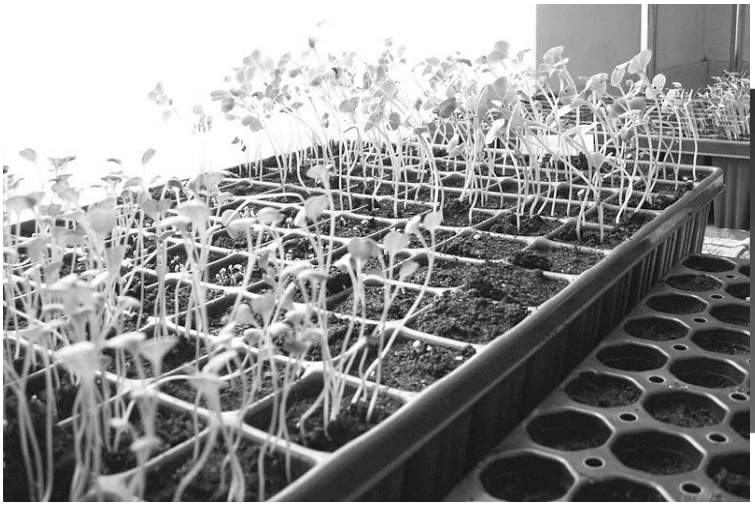
Animal Systems Employment Self-Assessment

Check Yes or No reflecting on your skills and abilities:

Yes	No	
___	___	Strong reading skills
___	___	Strong math skills
___	___	Effective communication skills
___	___	Ability to read and understand scientific information
___	___	Flexible and adaptable on the job
___	___	Able to understand financial, tax and production types of data
___	___	Ensure all equipment is properly maintained
___	___	Able to use a variety of strategies in unpredictable circumstances
___	___	Strong interest in working with animals
___	___	Ability to multitask
___	___	Ability to understand, interpret and apply relevant regulations and laws
___	___	The ability to work with many types of people
___	___	The ability to understand and apply research and best practices on the job
___	___	The ability to work independently or with little supervision

Total "Yes" _____ "No" _____

Lesson – Career Opportunities in Plant Systems



Lesson Overview

In this lesson, participants will be introduced to careers relating to plant systems. Participants will research and explore a variety of related careers in the plant systems pathway.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify several professions in the plant systems pathway
- Consider if any of the occupations covered in class are appropriate for them to pursue

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• *Plant Systems Career Pathway Note Sheet*	1. Print/photocopy the *Plant Systems Career Pathway Note Sheet* – one for each participant	10-15 minutes
LEARN	• Library and internet resources • *Career Exploration Research Summary* handout	2. Print/photocopy the *Career Exploration Research Summary* handout – one for each participant	30-90 minutes
REVIEW	• Questions for panel (optional)	1. Contact 3-5 local horticulture, agronomy, forestry, viticulture, soils and related professionals and invite them to participate in a panel discussion 2. Set up the room with panel seating in the front and audience facing the panel	45-60 minutes

Lesson - Career Opportunities in Plant Systems

FOCUS: Defining the Available Career Paths

10-15 minutes

Purpose:

Participants will learn the variety of occupational areas that fall within the plant systems pathway classification and how this translates into career opportunities.

Materials:

- *Plant Systems Career Pathway Note Sheet*

Facilitation Steps:

1. Give each student the *Plant Systems Career Pathway Note Sheet*. Have them take notes while you share the following definitions of the plant systems pathway.

   This pathway includes occupations related to growing food, feed and fiber crops, and the study of plants and their growth to help producers meet consumer demand while conserving natural resources and maintaining the environment. Here are six types of career classifications within the plant systems pathway:

- **Horticulture** is evolved from the Latin words 'hortus' (garden plant) and 'cultura' (culture), horticulture is the culture of cultivating. But at the same time, it is a huge field of study. Horticulture is heavily dependent on three broad areas of knowledge: science, business and art. An appropriate balance and interaction of these three components is necessary for success in Horticulture.

  Horticulture involves the study of growing crops, plants, herbs, turfs, shrubs, trees, fruits, flowers, vegetables, grains, cereals, and anything else that falls in this genre. It is a science of plant propagation and crop production. Involved are the topics of botany and agriculture that study physiology, biology and chemistry of plants and trees.

  Subjects of genetic engineering and bio-technology falls into the same group as well. Crop reaping, storage, quality assurance, processing, maintenance and transportation are also included. The tricks and techniques of improving crop production, their quality, nutritional virtues, immunity to diseases is covered as well. Not only this, horticulture also extends to the study of non-edible ornamental kind of plants.

  Horticulture employs a wide range of tools and technologies. It is a scientific methodology of cultivation, so as to make the crops yield the desired quality.

- **Agronomy** is a science and practice that looks at agriculture from an integrated, holistic perspective. In agronomy, it's important to understand the properties of the soil and how the soil interacts with the growing crop; what nutrients (fertilizers) the crop needs and when and how to apply these nutrients; the ways that crops grow and develop; how climate and other environmental factors affect the crop at all stages; and how best to control weeds, insects, fungi and other crop pests.

  Another big focus in agronomy is how to grow crops effectively and profitably while conserving natural resources and protecting the environment. Growing crops requires collaboration among many fields, including the traditional soil, plant and weed sciences, as well as related disciplines such as ecology, entomology, climatology and economics. The best crop production methods are always grounded in scientific research. As a result, they are by nature continually evolving and improving.

  Agronomists are plant and soil scientists who develop innovative farm practices and technologies that not only boost crop yields but also control pests and weeds and protect the environment. Agronomists are also professional practitioners, educators and advisers who work directly with farmers, companies and others in the

agriculture community to implement the latest methods and tools for growing crops profitably and sustainably.

- **Forestry** is the science, art and practice of understanding, managing and using wisely the natural resources associated with, and derived from, forest lands. These resources include timber, water, fish, wildlife, soil, plants and recreation. Forest lands are instrumental in the beauty and spiritual impact of our landscape. Finding a balance between multiple uses, while sustaining and conserving forest resources is the basis of this challenging and exciting career area.

  Forestry career paths include forest biologists, professional foresters, wood engineers, forestry business administrators, conservationists and renewable resource managers. As an applied science, a forestry education can also serve as a foundation for entry into other professions such as education, business and law.

- **Turf Management** includes many job options in grounds keeping and greens keeping, especially for sports fields and golf courses. Turf management professionals must be physically capable of doing the work under various conditions, especially outdoors. Although many academic institutions offer jobs in turf management may be found at athletic fields or golf courses for universities, professional sports teams, municipal parks and private clubs. Career titles may include assistant golf course superintendent, landscape operations manager, turf scout, pesticide technician, tree trimmers, lawn care specialist, landscaping crew supervisor and sports field manager, among others. Turf managers may also work as consultants or sales representatives.

- **Viticulture** is the science, production and study of grapes which deals with the series of events that occur in the vineyard. When the grapes are used for winemaking, it is also known as viniculture. It is one branch of the science of horticulture. So, if you love to be outdoors and are interested in agriculture, then a career in viticulture may be the type of wine job that would interest you.

  From deciding what grape varieties to plant, to pest management, to irrigation and to deciding when is the best time to harvest the grapes, there are many aspects to this field of study and an assortment of career paths one could take. An advanced degree is generally required by someone who wants to pursue work as a viticulturist, which usually leads to positions like vineyard manager (in charge of a single vineyard), director of viticulture (oversees multiple vineyard locations), enology (also often spelled oenology) is the science of wine production or winemaking.

- **Soil Science** is the science dealing with soils as a natural resource on the surface of the earth including soil formation, classification and mapping; physical, chemical, biological and fertility properties of soils; and these properties in relation to the use and management of the soils.

  Soil scientists work for federal and state governments, universities and the private sector. The job of a soil scientist includes collection of soil data, consultation, investigation, evaluation, interpretation, planning or inspection relating to soil science. This career includes many different assignments and involves making recommendations about many resource areas. Soil scientists work in both the office and field. Soil scientists work in a variety of activities that apply soil science knowledge.

  There are a wide variety of soil science careers to choose from in addition to being a soil scientist. A few are:

  - Wetland specialist
  - Watershed technician
  - Hydrologist with Board of Health
  - Environmental technician
  - State soil and water quality specialist
  - Soil Conservationist
  - County Agricultural Agent
  - Landscaping business
  - Farming
  - On-site evaluation
  - Crop consultant
  - Research technician
  - Conservation planner

- District marketing manager for an
- agricultural firm
- County conservationist
- Crop production specialist
- Research scientist

2. To learn more about the job outlook for each of these types of occupational areas you can go to websites like the following:

   - https://www.agcareers.com/career-profiles
   - https://www.agexplorer.com/focus/plant-systems
   - https://www.bls.gov/oes/current/oes191013.htm
   - https://www.learnhowtobecome.org/career-resource-center/careers-with-plants/

Plant Systems Career Pathways Note Sheet

Pathway – What Is…..?	Types of Occupations
Horticulture	
Agronomy	
Forestry	
Turf Management	
Viticulture	
Soil Science	

Lesson – Career Opportunities in Plant Systems

LEARN: Research Project

30-90 minutes

Purpose:

The purpose of this activity is to have participants take a closer look at related plant systems career options. Participants will research an occupation of their choice. Information learned from the research will be shared with the group via a brief presentation.

Materials:

- Library and internet resources
- *Career Exploration Research Summary* handout

Facilitation Steps:

1. Have students choose one of the careers to explore further. Give students the *Career Exploration Research Summary* handout. Tell them that they can use the internet or other sources in the library for their research. Here are a few helpful websites:
    - www.bls.gov
    - http://www.bls.gov/ooh/
    - www.careerinfonet.org
    - www.careervoyages.gov
    - http://careerplanning.about.com/od/occupations/a/car
    - http://www.myplan.com/careers/index.phpeer_briefs.htm
2. Give students one or two class periods to complete their research. You can also assign this as homework. Students should prepare a short five-minute presentation about this career including the information on the summary sheet.
3. Have each student present their chosen plant systems-related career to the group.
4. Here is a suggested grading rubric for the class presentation:

    30 points – Completed all information on the *Career Exploration Research Summary* handout

    20 points – Prepared for the presentation

    20 points – Presentation content was clear, concise and gave a good understanding of the chosen career

    20 points – Demonstrated the ability to think critically, taking information from other sources to create something new

    10 points – Demonstrated time management skills by delivering a well-planned five-minute presentation

Name: _____ Date: _____

Career Exploration Research Summary

Identify and research one career relating to the plant systems pathway. Complete this worksheet for your career choice. Possible sources for information include your school library, public library, Bureau of Labor Statistics website, Occupational Outlook Handbook website and other career-related websites on the internet.

Career name: _____

Degree or licenses required: _____

Length of time to complete training or earn degrees: _____

Average starting salary: _____

Job outlook: _____

Short job description:

_____

_____

_____

_____

_____

_____

_____

Skills a person should have to be successful in this career:

_____

_____

_____

_____

_____

_____

Sources used for this project:

_____

_____

_____

Lesson - Career Opportunities in Plant Systems

REVIEW: Career Panel Discussion

45-60 minutes

Purpose:

To hear from agriculture professionals who work in a variety of careers that fall within the plant systems pathway.

Materials:

- Panel of 3-5 local professionals who work in agronomy, horticulture, forestry, turf management, viticulture and/or soil science.

Facilitation Steps:

1. Contact local plant systems-related businesses and invite them to attend a panel discussion in your class. Agronomists, horticulturists, foresters, turf managers, viticulturists or soil science professionals would be great resources for students to have access to. Also, local professionals from a variety of different types of related businesses would provide additional and interesting perspectives.
2. The day of the panel discussion, set up your space so that there is a table with seating for all panel members at the front of the room. If sound is an issue, have a microphone available.
3. Invite participants in the audience to ask questions to panel members. Remind participants ahead of time to keep questions relevant to work. You may ask participants to submit questions in advance if desired.

Lesson - A Day in the Life of an Agribusiness Professional

Lesson Overview

In this lesson, participants will be introduced to agribusiness careers. Participants will gain a better understanding of what life in these jobs looks like.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify work tasks that agribusiness professionals do on the job and the working conditions
- Consider if an agribusiness career is a fit for them
- Identify a variety of career opportunities that fall within agribusiness

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• *Career Exploration K-W-L* handout	1. Print/photocopy *Career Exploration K-W-L* handout - one for each group	10 minutes
LEARN	• Video clips about agribusiness careers • *Career Exploration Research Summary* handout	1. Choose the video clip(s) you wish to show about agribusiness careers and have available online 2. Print/photocopy the *Career Exploration Research Summary* handout – one for each participant	30-90 minutes
REVIEW	• *Career Exploration K-W-L* handout	1. Have the *Career Exploration K-W-L* handouts available 2. Contact local businesses for setting up a field trip	5-10 minutes

Lesson - A Day in the Life of an Agribusiness Professional

FOCUS: K-W-L Activity

10 minutes

Purpose:

There are many different fields that agribusiness professionals can work within. Some of these include sales, service, farm and ranch management, entrepreneurship, economics and many more. This lesson will help your students become more aware of what breadth/variety of skills and education they need to work in this area Students may be unaware of the many opportunities that are available to them if they wish to follow this career path.

Materials:

- *Career Exploration K-W-L* handout

Facilitation Steps:

1. Begin by defining what the agribusiness systems pathway is. Share this definition with the class:

   The agribusiness systems pathway includes occupations involved in the coordination of all activities that contribute to the production, processing, marketing, distribution, financing and development of agricultural commodities, plant and animal products, and other natural resources.

   Divide the class into pairs to work together. Make a photocopy for each pair of the *Career Exploration K-W-L* handout. Explain the purpose of the activity, distribute the handout and give pairs five minutes to complete it.

2. After five minutes, call the class back together. Ask each pair to share one thing they already know about agribusiness occupations and one thing they'd like to learn about this career pathway. Write these on a master list on a white board or similar item. Continue calling upon each pair until everyone has had a chance to contribute to the K and W class chart.

Career Exploration K-W-L

Directions: With your partner, complete the “K” and “W” columns, saving the “L” column for later in the lesson. In the “K” column, identify what you already know about agribusiness occupations. In the “W” column, write down what you would like to learn about a potential career as an agribusiness professional.

K	W	L

Lesson - A Day in the Life of an Agribusiness Professional

LEARN: Research Project

30-90 minutes

Purpose:

The purpose of this activity is to have participants take a closer look at the agribusiness systems as a pathway. Participants will research one specific field of occupation and prepare a class presentation.

Materials:

- Library and internet resources
- *Career Exploration Research Summary* handout

Facilitation Steps:

1. To learn more about agribusiness as a career, watch a short career video on YouTube. Here are a few suggestions, or you can keyword search "agribusiness":
    - https://www.youtube.com/watch?v=c75UePXHUwc
    - https://www.youtube.com/watch?v=vthLjEmV4B4
    - https://www.youtube.com/watch?v=pgStG7Rhj4E
    - https://www.youtube.com/watch?v=B_WSLbw3ApA
2. Review the list of fields that are part of agribusiness. Have each student choose one of the careers to explore further. Depending on how many participants are in your class, you can decide whether to allow multiple students to research the same field.
    - Agribusiness Sales
    - Related Agribusiness Services
    - Farm and Ranch Management
    - Entrepreneurship
    - Economics
    - And more
3. Give students the *Career Exploration Research Summary* handout. Tell them that they can use the internet or other sources in the library for their research. Here are a few helpful websites:
    - www.bls.gov
    - http://www.bls.gov/ooh/
    - www.careerinfonet.org
    - www.careervoyages.gov
    - http://careerplanning.about.com/od/occupations/a/car
    - http://www.myplan.com/careers/index.phpeer_briefs.htm
    - http://www.onetonline.org/find/career?c=10&g=Go
4. Give students one or two class periods to complete their research. You can also assign this as homework. Students should prepare a short five-minute presentation about this career including the information on the summary sheet.
5. Have each student present their chosen agribusiness career field to the group.
6. Here is a suggested grading rubric for the class presentation:

    30 points – Completed all information on the *Career Exploration Research Summary* handout

    20 points – Prepared for the presentation

    20 points – Presentation content was clear, concise and gave a good understanding of the chosen career

    20 points – Demonstrated the ability to think critically, taking information from other sources to create something new

    10 points – Demonstrated time management skills by delivering a well-planned five minutes presentation

Career Exploration Research Summary

Identify and research the agribusiness systems career in your chosen field. Complete this worksheet for your agribusiness career choice. Possible sources for information include your school library, public library, Bureau of Labor Statistics website, Occupational Outlook Handbook website and other career-related websites on the internet.

Career name:_____

Degree or licenses required: _____

Length of time to complete training or earn degrees: _____

Average starting salary: _____

Job outlook: _____

Short job description:

_____

_____

_____

_____

_____

_____

_____

Skills a person should have to be successful in this career:

_____

_____

_____

_____

_____

How does this job involve agriculture?

_____

_____

_____

_____

Lesson – A Day in the Life of an Agribusiness Professional

REVIEW: What have you learned…?

5-10 minutes

Purpose:

To have participants review what they have learned about career opportunities relating to agribusiness systems pathway.

Materials:

- *Career Exploration K-W-L* handout

Facilitation Steps:

1. Have students pair up with the person they worked with at the beginning of the lesson to complete the K-W sections of the handout.
2. Have students complete the "L" column on the handout, identifying things they have learned about agribusiness. Give students five minutes to complete this task.
3. After five minutes, call the class back together.

   Ask each pair to share one thing they learned about agribusiness as a career option. Write these on a master list on a white board or similar item. Continue calling upon each pair until everyone has had a chance to contribute to the "L" class chart.

Extension Activity: Contact local agribusinesses and ask if you could take a field trip to their place of business to see what the work environment is like for an agribusiness employee, to be able to ask employees questions about their job and to observe professionals in action if possible.

Lesson - Exploring a Career in Food Products and Processing Systems

Lesson Overview

In this lesson, participants will be introduced to the food products and processing systems career pathway. Participants will gain greater knowledge of what it takes to become employed in related occupations.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify the tasks that are typical for food processing, preserving and packaging professions
- Research and identify the qualifications, including education and training that is required to become an employee in food processing, preservation, packaging, distribution, monitoring and regulation
- Write a clearly written cover letter

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Food processing and processing systems video clips	1. Choose the video clip(s) you wish to show about the food products and processing pathway and have available online	10 minutes
LEARN	• Internet access • *Food Safety Inspector Pathway Education and Training Plan* handout	1. Print/photocopy the *Food Safety Inspector Pathway Education and Training Plan* handout – one per participant	30-90 minutes
REVIEW	• *Cover Letter Format* handout • Job listings • *Cover Letter Assessment Rubric*	1. Have the *Cover Letter Format* handouts available – one per student	60-90 minutes

Lesson - Exploring a Career in Food Products and Processing Systems

FOCUS: How do you ensure a high quality, safe food system?

10 minutes

Purpose:

Safety and quality in food products and processing is very important. Employees in this area need a great deal of education and experience to become a successful worker. Participants will be introduced to the important role that these career opportunities play in the world of food safety and quality.

Materials:

- Food processing and processing systems video clips

Facilitation Steps:

1. Begin by sharing this information with students:

   The food products and processing systems career pathway encompasses the study of food safety and sanitation; nutrition, biology, microbiology, chemistry and human behavior in local and global food systems; food selection and processing for storage, distribution and consumption; and the historical and current development of the food industry. Students completing a program of study in this pathway will demonstrate competence in the application of principles and techniques for the development, application and management of food products and processing systems in agriculture, food and natural resources settings.

2. Show a short video, if possible, about food safety occupations. Go to YouTube and use keywords, "food safety" or "food supply quality" or similar. Here are links to a few examples:

   - https://www.youtube.com/watch?v=rDVQK-hTDz0
   - https://vimeo.com/83792229
   - https://study.com/videos/Food_Processing_Professions_Video_Meat_Cutting_and_Meat_Packing_Career_Info.html

   You may also find free resources at various local, state and national FFA sites. Some universities may also have free career information relating to this area.

3. Ask students the following question, "What types of tasks should food safety professionals be able to do?" Make a list of their answers on a whiteboard. Share the following condensed list of expected tasks that food safety manager should be able to perform:

   - Develop and provide training for food safety and quality requirements
   - Develop and maintain documentation such as SOP's, as well as maintenance of manuals, policies and procedures as relate to any food safety concerns
   - Conduct facility food safety audits as well as manage third party audits
   - Monitor and verify activities to ensure that all products coming in and out of the facility meet food safety standards in addition to quality standards
   - Update existing food safety procedures and documentation to keep up with changing requirements
   - Assist buyers with training and educating potential suppliers to ensure compliance
   - Oversee proper maintenance and sanitation of all facility to comply with food safety requirements
   - Ensure that all company food safety and quality assurance procedures are always followed and documented correctly

LEARN: Research Project

30-90 minutes

Purpose:

The purpose of this activity is to have participants take a closer look at what it takes to become a Food Safety Inspector for the United States Department of Agriculture (USDA). Students will put together an education and training plan that those wishing to pursue the food safety inspection field would have to follow.

Materials:

- Library and internet access
- *Food Safety Inspector Pathway Education and Training Plan* handout

Facilitation Steps:

1. Tell students that they are each going to complete a short research project about the required qualifications for becoming a food safety inspector eligible for working for the USDA.
2. Give students the *Food Safety Inspector Pathway Education and Training Plan* handout. Tell them that they can use the internet or other sources in the library for their research. Here are a few helpful websites:
    - https://www.fsis.usda.gov/wps/portal/fsis/topics/careers/opportunities-and-types-of-jobs/food-inspector-and-consumer-safety-inspector/food-inspector-and-consumer-safety-inspector
    - http://www.bls.gov/ooh/
    - www.careerinfonet.org
    - www.careervoyages.gov
    - http://careerplanning.about.com/od/occupations/a/car http://www.myplan.com/careers/index.phpeer_briefs.htm
    - http://www.onetonline.org/find/career?c=10&g=Go
3. Give students one class period to complete their research. You can also assign this as homework.

Food Safety Inspector Pathway Education and Training Plan

Scenario: You have decided to become a Food Safety Inspector. You must put together a plan that will help you meet all education and training requirements needed to become one. You will start your plan for high school, then through college and any additional certifications or exams you will need to take. The goal is to successfully become a food safety inspector for the USDA.

Recommended High School Courses	
Higher Education: Name one degree that you could get and name three schools in your state that you could attend to obtain that degree.	
Work Experience: List two jobs that would help you get experience	
List any national or state associations relating this occupation	

Required certification exam(s) for becoming a food safety inspector	
Optional endorsements you can obtain	
Explain any recertification requirements that exist, if any	

Lesson - Exploring a Career in Food Products and Processing Systems

REVIEW: Writing a Cover Letter

60-90 minutes

Purpose:

Students will use what they have learned about what it takes to become a Food Safety Inspector to write a cover letter applying for that position.

Materials:

- *Cover Letter Format* handout
- Job listing for a USDA Food Safety Inspector
- *Cover Letter Assessment Rubric*

Facilitation Steps:

1. Introduce business letters. Tell students that an important skill in the job application process is knowing how to write a proper cover letter.
2. Give each student the *Cover Letter Format* handout. Review the standard parts of a cover letter with students:
    - Heading
    - Date
    - Inside Address
    - Subject
    - Salutation
    - Body Paragraphs

      Special Note: The body paragraphs should describe what you have to offer the employer. Convince the reader that they should grant you an interview. Make a strong connection between your abilities and their needs. Mention specifically how your education, skills and experience (create a work history that you know would be appropriate) match the job you are applying for. Try to support each statement you make with a piece of evidence.

    - Closing and Signature
    - Enclosure
3. Have students research and find a real job listing for a food safety inspector, preferably with the USDA. This is the position they should be applying for with the cover letter they write.

   After each student has completed an initial draft of their cover letter, they should have another peer edit their draft. Peer editors should follow the template and make sure that each part is included in the draft, along with checking on spelling and grammar.
4. Have students prepare the final cover letter and turn it in as part of their grade for this lesson. Use the attached *Cover Letter Assessment Rubric* for your convenience.

Cover Letter Format

When writing a cover letter, follow the format below.

Heading – Your Address
Name
Street Address
City, State, ZIP

Skip 1

Date

Skip 2

Inside Address
Mr./Mrs./Ms./Dr. Full name of Recipient
Job Title of Recipient (if applicable)
Name of the Company/Organization (if applicable)
Street Address
City, State. ZIP

Skip 1

Subject:

Skip 1

Salutation
(Dear Ms./Mrs./Mr. and Last Name and a colon at the end)

Skip 1

Body Paragraphs
This is the content of the letter. The paragraphs should be single spaced with one line skipped between each paragraph.

Body Paragraph 1

Body Paragraph 2

Body Paragraph 3

Skip 1

Closing (Sincerely,)

Skip 3

Your Typed Name (Handwritten Signature Above)
Your Typed Title

Skip 1

Enclosure
Use this if your letter includes another document other than the letter itself. If it is more than one, you would type "Enclosures."

Cover Letter Assessment Rubric

Topic (Weight)	1	2	3	4
Return Address & Date	❑ Return address or letterhead is missing. ❑ Date is missing. ❑ 4 or more spelling, capitalization, or punctuation errors.	❑ Return address or letterhead is missing some information. ❑ Date is there but format is incorrect. ❑ 3 spelling, capitalization, or punctuation errors.	❑ Return address or letterhead is complete & accurate. ❑ Date is complete & positioned correctly. ❑ 1-2 spelling, capitalization, or punctuation errors.	❑ Return address or letterhead is complete & accurate. ❑ Date is complete & positioned correctly. ❑ No spelling, capitalization, or punctuation errors.
Inside Address & Salutation	❑ Inside address is missing. ❑ Salutation is missing. ❑ Subject line is missing. ❑ More than 3 spelling, capitalization, or punctuation errors.	❑ Inside address is missing information. ❑ Salutation is inappropriate. ❑ Subject line information is misleading. ❑ 3 spelling, capitalization, or punctuation errors.	❑ Inside address is complete & accurate. ❑ Salutation is appropriate but incomplete. ❑ A subject line needed or added correctly. ❑ 1 - 2 spelling, capitalization, or punctuation errors.	❑ Inside address is complete & accurate. ❑ Salutation is appropriate & complete. ❑ A subject line needed or added correctly. ❑ No spelling, capitalization, or punctuation errors.
Content Organization & Accuracy	❑ No organization pattern is apparent. ❑ Paragraph order does not follow suggested format. ❑ Message has enough missing or incorrect information to be ineffective in meeting the writer's goal.	❑ Organization is not appropriate to the writer's purpose. ❑ Paragraph order is close to the suggested model. ❑ Two pieces of information are missing or incorrect.	❑ Organization is appropriate to the writer's purpose. ❑ Paragraph order is close to the suggested model. ❑ One piece of information is missing or incorrect.	❑ Organization is appropriate to the writer's purpose. ❑ Paragraph order follows the suggested model. ❑ Message is complete and correct.
Closing, Signature, & other End Matter	❑ More than two pieces are missing or inaccurate.	❑ Two pieces are missing or inaccurate.	❑ One piece is missing or inaccurate.	❑ Closing is appropriate. ❑ Written & typed signatures are present. ❑ Reference initials & enclosure reminder are included if needed.
Word Choice	❑ Word choice is unprofessional.	❑ Word choice is inappropriate for audience. ❑ Writer sometimes uses action verbs. ❑ Too much use of passive voice.	❑ Word choice is mostly appropriate for audience. ❑ Writer uses action verbs. ❑ Use of passive voice ONLY as needed.	❑ Word choice is appropriate for audience. ❑ Writer uses action verbs. ❑ Use of passive voice ONLY as needed.
Sentences Fluency, Paragraphs, & Mechanics	❑ More than 2 sentence fragments. ❑ Message is lost in poor construction. ❑ Paragraphs do not follow suggested format. ❑ Spelling, capitalization, or punctuation errors make message unclear. ❑ Grammar & usage errors makes message unclear.	❑ Two sentence fragments. ❑ Message is there, but underdeveloped. ❑ Awkward paragraph construction clouds the message. ❑ 3-4 spelling, capitalization, or punctuation errors. ❑ 3 – 4 grammar & usage errors.	❑ Some variation in sentence length. One fragment. ❑ Paragraph divisions are somewhat effective. ❑ Main purpose of the message is clear. ❑ 1-2 spelling, capitalization, or punctuation errors. ❑ 1-2 grammar & usage errors.	❑ Complete sentences of varying length. ❑ Paragraph divisions are effective. ❑ Number of paragraphs fits suggested format. ❑ Main purpose of the message is clear. ❑ No spelling, capitalization, or punctuation errors. ❑ Grammar & usage are correct.

Source: http://rubistar.4teachers.org 7/6/03

Lesson - Looking into a Career in the Natural Resources Systems Pathway

Lesson Overview

In this lesson, participants will be introduced careers in the natural resources systems pathway. Participants will research a variety of information regarding work in areas such as conservation, forestry, mining, fisheries, soil conservation and more, considering whether any of these is of personal interest.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify the types of occupations that fall within the natural resources systems pathway
- Research and identify the qualifications, working conditions, job duties, advancement opportunities and occupational outlook

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Video clips about careers in natural resources pathway occupations	1. Choose the video clip(s) you wish to show about natural resources-related careers and have available online	10 minutes
LEARN	• Library and internet access • *Natural Resources Systems Pathway* handout	1. Print/photocopy the *Natural Resources Systems Pathway* handout – one for each pair	30-90 minutes
REVIEW	• Natural resources systems job listings	1. Have sample natural resources systems pathway related job listings available for students	10 minutes

Lesson - Looking into a Career in the Natural Resources Systems Pathway

FOCUS: What is the Natural Resources Systems Pathway?

10 minutes

Purpose:

Working in conservation, forestry, parks, mining, environmental services or soil conservation may be career opportunities that are unknown to many students. This activity will introduce students to natural resources systems pathway careers.

Materials:

- Natural resources pathway occupations video clips

Facilitation Steps:

1. Begin by sharing this information with students:

   If spending time outdoors interacting with nature is a favorite pastime for you, a career in Natural Resource Systems could be a good fit. These careers may involve working to develop, maintain and manage forests and natural environments, as well as acquiring various types of marine life for human utilization, animal feed, bait and other purposes. Individuals choosing to work as conservation scientists or foresters may manage, develop, use and help protect forests and rangelands.

   Careers as conservation scientists and foresters are available all over the United States and may include managing, developing and helping to protect the country's range lands and 737 million acres of forests.

   Nearly two-thirds of conservation scientists and foresters are employed by federal, state, or local governments – many by the U.S. Department of Agriculture (USDA). Private sector jobs can be within consulting firms or scientific research groups. Employment of foresters is concentrated in the western and southern states, where many national and private forests and parks and most of the lumber and pulpwood-producing forests are located. But working in this pathway doesn't mean you can't live in a city. Some find careers protecting wildlife that seek refuge in cities or maintaining urban parks and green areas.

2. Show a short video, if possible, about the natural resources systems pathway. Go to YouTube and use keywords to search. Here are links to a few examples:

   - https://www.youtube.com/watch?v=tenSClu7-SU
   - https://www.youtube.com/watch?v=ZkkUeu8L8E8
   - https://www.youtube.com/watch?v=qufsCmHoAgk
   - https://www.youtube.com/watch?v=vApuhek--To

3. Tell students that today they are going to learn more about this interesting career pathway within the Agriculture, Food and Natural Resources Career Cluster.

Lesson - Looking into a Career in the Natural Resources Systems Pathway

LEARN: Scavenger Hunt

30-90 minutes

Purpose:

The purpose of this activity is to have participants work in pairs to discover various facts about the careers in the natural resources systems pathway. Each pair will share their findings to enable others to learn more about these interesting occupations.

Materials:

- Library and internet access
- *Natural Resources Systems Scavenger Hunt* handout

Facilitation Steps:

1. Give students the *Natural Resources Systems Scavenger Hunt* handout.
2. Divide the class into pairs of students. Depending on the number of students, assign each pair one occupation within the natural resources systems pathway to research until all questions have been answered or as many as possible in the time given.
3. Give students 10-15 minutes on the internet to research and find answers to the questions. Students should write down the answers and be ready to share them.
4. Call the class back together. Have each pair share the results of their research.

Natural Resources Systems Scavenger Hunt

Each pair should be assigned one natural resources systems related occupation to research. Do your research on-line to find the answers to the questions you have been given below. Good Luck! Possible sources to consider could Bureau of Labor Statistics website, Occupational Outlook Handbook website, FFA, USDA, Forestry Service website, other career-related websites on the internet.

Occupation assigned: _____

1. Define this occupation. What is it? Give a short description.

2. What degree or education and training is required?

3. What licenses or certifications are required, if any?

4. What is the average length of time it takes to complete training or earn degrees?

5. What is the average starting salary?

6. What is the average workday like in terms of hours?

7. What is the projected job outlook for in the next decade?

8. What tasks would you include in job description for this occupation?

9. What skills should a person have to be successful in this career?

10. What is the work environment like?

11. What equipment is used on the job, if any?

12. What are the rewards or benefits of this career?

13. What are the opportunities for advancement?

14. Is this occupation available locally (in your city, in your state)?

Lesson - Looking into a Career in the Natural Resources Systems Pathway

REVIEW: What have you learned…

10 minutes

Purpose:

To review what participants have learned about career opportunities relating to the Natural Resources Systems pathway.

Materials:

- Sample job listings for related occupations

Facilitation Steps:

1. Give each student a few minutes to find a real job listing for an occupation that falls under the natural resources systems pathway.
2. Have students share their listings. Is there anything in the listing that surprises them? Are the qualifications similar to what they learned about in the scavenger hunt exercise? Do the job duties line up with their understanding of what these workers do? Is the pay range what they expected to find?

Lesson - Exploration of Other Agriculture, Food and Natural Resources-Related Careers

Lesson Overview

In this lesson, participants will be introduced to various careers relating to agriculture, food and natural resources that haven't already been studied. Participants will research and explore two career pathways.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify several occupations related to the two pathways: Power, Structural and Technical Systems, and Environmental Service Systems
- Consider if any of the occupations covered in class are appropriate for them and of interest

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• *Career Exploration Brainstorming Web* handout	1. Print/photocopy *Career Exploration Brainstorming Web* handout (one for each group)	10 minutes
LEARN	• List of ag-related careers from brainstorming activity • *Career Exploration Graphic Organizer* handout • Lists of careers – 2 handouts	1. Have the list of careers available from the brainstorming activity as well as the list in this lesson 2. Print/photocopy the *Career Exploration Graphic Organizer* handout – one for each participant 3. Lists of careers – 2 handouts (one set for each participant)	30-90 minutes
REVIEW	• Questions for panel - optional	1. Contact 3-5 local professionals inviting them to participate in the panel discussion 2. Set-up the room with panel seating in the front with audience facing the panel	45 minutes

Lesson - Exploration of Other Agriculture, Food and Natural Resources-Related Careers

FOCUS: Brainstorming Activity

10 minutes

Purpose:

There are many occupations that involve power, structure and technical systems and environmental service systems in some capacity. Participants may be unaware of the many career opportunities that exist. This activity will get participants to begin thinking about careers that are available and may be of interest.

Materials:

- *Career Exploration Brainstorming Web* handout

Facilitation Steps:

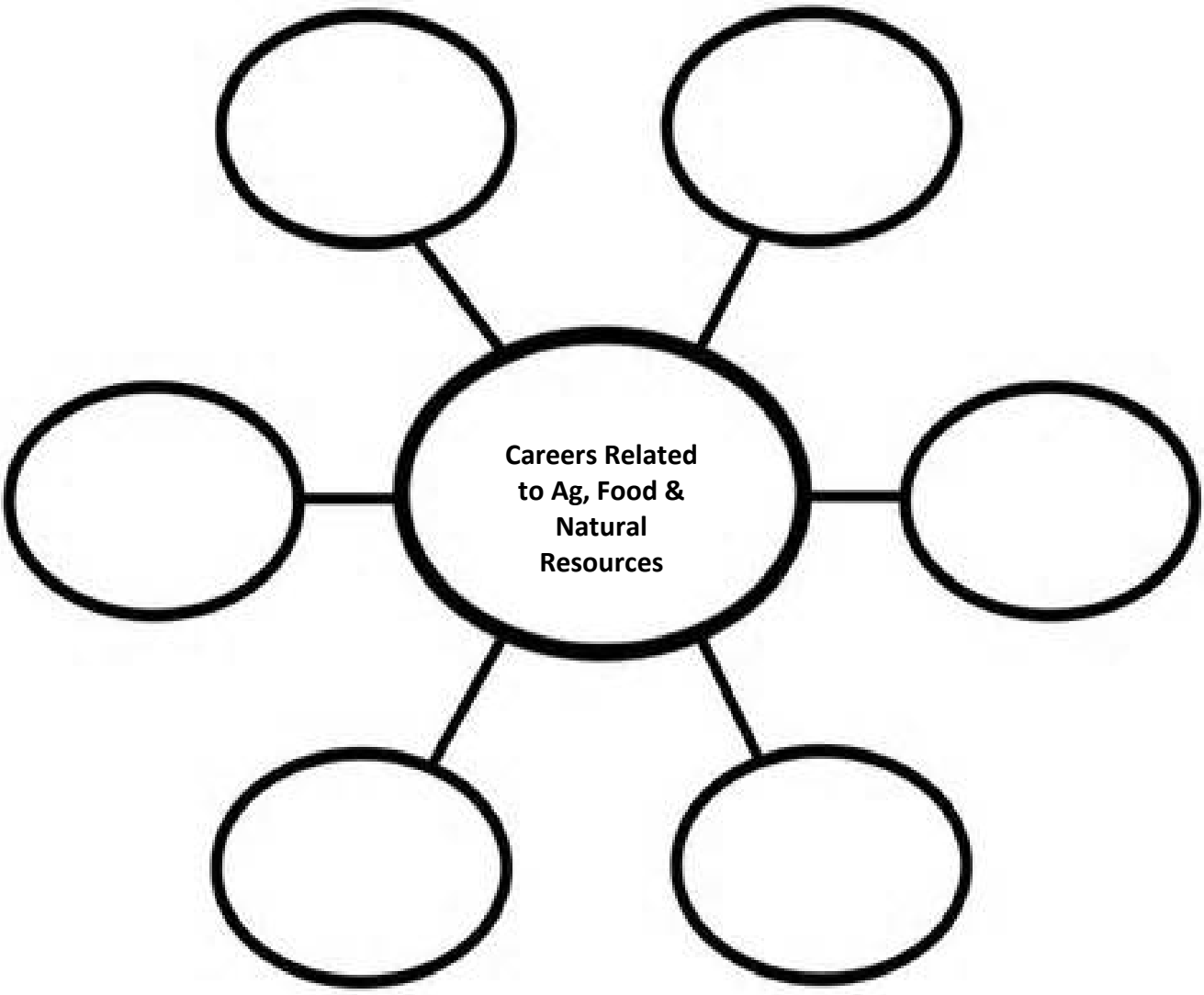
1. If your students enjoy the thought of working in power, structural and technical systems or environmental service systems in a career capacity, they need to be aware of the many opportunities available.
2. Divide the class into five groups. Pass out the *Career Exploration Brainstorming Web* handout to each group. Assign some of the groups the Power, Structural and Technical Systems Pathway and the other groups the Environmental Service Systems pathway. Explain the purpose of the activity, distribute it and give participants five minutes to complete it.
3. After five minutes, call the groups back together. Ask each group to share one of the careers they identified as relating to these two pathways within the Agriculture, Food and Natural Resources Career Cluster in their brainstorming session. Write a master list on a white board or similar item for each pathway. Continue calling upon each group until all careers that were brainstormed are written down on the master list.

Extension Activity: If your students are interested in learning if they are a good match for working in these pathways, find a career skills inventory or survey on the internet. Here is an example of a general career interest inventory:

- http://www.iseek.org/careers/clusterSurvey

Career Exploration Brainstorming Web

Directions: With your group, brainstorm as many occupations related to either the Power, Structural & Technical Systems Pathway or the Environmental Service Systems pathway as you can in five minutes. Write each career identified in a circle. Draw additional circles as needed.



Lesson - Exploration of Other Agriculture, Food and Natural Resources-Related Careers

LEARN: Compare and Contrast Careers Project

30-90 minutes

Purpose:

The purpose of this activity is to have participants take a closer look at ag-related career options. Participants will research and compare/contrast two careers of interest, from two different pathways. Information learned from the research will be shared with the class via a brief presentation.

Materials:

- List of related careers (from the brainstorming session)
- Library and internet resources
- *Career Exploration Graphic Organizer* handout

Facilitation Steps:

1. Review the list of related occupations from the brainstorming activity. Have students choose two of the careers to explore further. They should choose one relating to the Power, Structural & Technical Systems Pathway and one from the Environmental Service Systems Pathway. Depending on how many participants are in your class, you can decide whether to allow multiple students to compare and contrast the same careers. You may also decide whether to allow students to research a career already taught in a previous lesson.
2. Give students the *Career Exploration Graphic Organizer* handout. Tell them that they can use the internet or other sources in the library for their research. Here are a few helpful websites:
    - www.bls.gov
    - http://www.bls.gov/ooh/
    - www.careerinfonet.org
    - www.careervoyages.gov
    - http://careerplanning.about.com/od/occupations/a/car
    - http://www.myplan.com/careers/index.phpeer_briefs.htm
    - http://www.onetonline.org/find/career?c=10&g=Go
3. Give students one or two class periods to complete their research. You can also assign this as homework. Students should prepare a short five-minute presentation about these careers including the information on the graphic organizer.
4. Have each student present their two careers to the group.
5. Here is a suggested grading rubric for the class presentation:

    50 points – Completed all information on the *Career Exploration Graphic Organizer* handout

    10 points – Prepared for the presentation

    10 points – The presentation content was clear, concise and gave a good understanding of the chosen careers

    20 points – Demonstrated the ability to think critically, taking information from other sources to create something new

    10 points – Demonstrated time management skills by delivering a well-planned five minutes presentation

Name: _____ Date: _____

Career Exploration Graphic Organizer

Compare and contrast two careers working in the AFNR career cluster. Possible sources for information include your school library, public library, Bureau of Labor Statistics website, Occupational Outlook Handbook website, FFA or other career-related websites on the internet.

	Power, Structural & Technical Systems Career -	**Environmental Service Systems Career -**
Degree or licenses required		
Length of time to complete training or earn degrees		
Average starting salary per year		
Average hourly wage		
Job outlook		
5 skills needed for this job		
Describe the job setting		
What are the primary job duties?		
Do you work alone or with people?		
What needs or wants does this occupation fill?		
What is one thing an employer would expect from someone in this position?		
What kinds of people will be successful in this career?		

List of Power, Structural & Technical Systems-Related Occupations

This is a list of potential careers relating to working in the world of power, structural and technical systems. Add any additional careers that participants may have brainstormed during the activity that are not on the list. Some similar/same occupations may be listed under different titles.

- Machine Operators
- Electronics Systems Technicians
- Agricultural Engineers
- Agricultural Extension Engineering Specialists
- Heavy Equipment Maintenance Technicians
- Recycling Technicians
- Waste Water Treatment Plant Operators
- Equipment/Parts Managers
- Welders
- Machinists
- Communication Technicians
- Agricultural Applications Software Developers/Programmers
- Database Administrators
- Computer Service Technical Support Technicians
- Information Lab Specialists
- GPS Technicians
- Remote Sensing Specialist
- Agricultural Educator

List of Environmental Service Systems-Related Occupations

This is a list of potential careers relating to working in the world of environmental service systems. Add any additional careers that participants may have brainstormed during the activity that are not on the list. Some similar/same occupations may be listed under different titles.

- Pollution Prevention and Control Managers
- Pollution Prevention and Control Technicians
- Environmental Sampling and Analysis Scientists/Technicians
- Health and Safety Sanitarians
- Environmental Compliance Assurance Managers
- Hazardous Materials Handlers
- Hazardous Materials Technicians / Managers
- Water Environment Managers
- Water Quality Managers
- Waste Water Managers
- Toxicologists
- Solid Waste Disposers / Recyclers
- Solid Waste Technician
- Solid Waste Managers
- Solid Waste Specialists
- Agricultural Educator

Lesson - Exploration of Other Agriculture, Food and Natural Resources-Related Careers

REVIEW: Career Panel Discussion

45-60 minutes

Purpose:

To hear from professionals who work in the Power, Structural & Technical Systems or Environmental Service Systems-related career pathways.

Materials:

- Panel of 3-5 local professionals who work in a variety of related careers

Facilitation Steps:

1. Contact professionals from a variety of settings such as machine operators, waste water treatment plants, welders, pollution prevention specialists, hazardous materials managers, water quality professionals and so forth, inviting them to attend a panel discussion in your class.
2. The day of the panel discussion, set-up your space so that there is a table with seating for all panel members at the front of the room. If sound is an issue, have a microphone available.
3. Invite participants in the audience to ask questions to panel members. Remind participants ahead of time to keep questions relevant to work. You may ask participants to submit questions in advance if desired.