



Lesson 1 of 8

Introduction to Careers With Plants

Created: 06/2025 by the National FFA Organization

Description of Lesson: *This activity introduces students to the wide variety of careers in plant science. Through the lesson, students will explore the different stages in the plant science industry, from research and development to production and marketing. The goal is to spark curiosity about the plant science field and inspire students to consider the diverse career paths available.*

Student Learning Objectives:

After completing these activities, students will ...

1. Explore different careers in plant science and agriculture.
2. Recognize the different stages of developing a new product in the plant science industry.
3. Identify at least three plant science careers that align with personal interests.

Suggested Grade Level:

Grades 9 and 10 (This lesson is written so instructors can scale up or down based on class needs.)

Suggested Time: 60 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Video: "Life at Syngenta," <https://www.youtube.com/watch?v=Xhojdm6BibY>
2. Website: AgExplorer (2023), AgExplorer.FFA.org

Related Resources:

1. AgExplorer Implementation Guide, <https://FFA.box.com/s/w3o6ep5l2509qtw1fsgrkc7l8o3d143m>
2. Who Is Syngenta?, <https://FFA.box.com/s/rn1aabyi6ndcils1lmp4x4ewkiw340j>

Equipment and Supplies Needed:

1. A copy of the "Plant Systems Careers" worksheet for each student
2. Internet access to play the video in real time or embed it in a PowerPoint ahead of time
3. [Career cards](#): cut out ahead of time, one card per student
4. [Bingo card](#): one per student
5. Timer

Vocabulary:

1. Innovation
2. Plant Systems
3. Syngenta

Cross-Curricular Connections:

English/Language Arts	Technology
• Research careers and complete a career profile.	• Explore the different roles within Plant Systems.

Name: _____

SAE and FFA Connections

1. Agronomy CDE, [FFA.org/participate/cdes/agronomy/](https://ffa.org/participate/cdes/agronomy/)
2. Floriculture CDE, [FFA.org/participate/cdes/floriculture/](https://ffa.org/participate/cdes/floriculture/)
3. Nursery/Landscape CDE, [FFA.org/participate/cdes/nursery-landscape/](https://ffa.org/participate/cdes/nursery-landscape/)
4. SAE Idea Cards, <https://ffa.box.com/v/saeideacards>

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

<https://ffa.box.com/s/qi0uio4ybotdn6z5xnsiu5pb9xdmz4r6> (Word)

<https://ffa.box.com/s/xr5kpst2pc443n3c3a0d0jvys4ue52ul> (PDF)

<https://docs.google.com/document/d/1WkNR4KUoj33bcTtbS6xvW7qPZi2eiZF6vr-5lbdw1GY/copy> (Google)

These Activities Are Aligned to the Following Standards:

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PL-C.Vision: Visualize the future and how to get there.
- FFA.PL-E.Awareness: Understand personal vision, mission and goals.
- FFA.PL-F.Continuous Improvement: Accept responsibility for learning and personal growth.
- FFA.PG-I.Professional Growth: Assume responsibility for attaining and improving upon the skills needed for career success.
- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.
- FFA.CS-N.Decision Making: Analyze a situation and execute an appropriate course of action.

AFNR Cluster Skills

- CS.05. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources career pathways.

Common Core – Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-Literacy.SL.9-10.2 Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

Common Core – Science & Technical Subjects

- AG5 Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.

AFNR Career Ready Practices

- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.07. Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.
- CRP.08. Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.
- CRP.10. Plan education and career path aligned to personal goals. Career-ready individuals take personal ownership of their own educational and career goals, and they regularly act on a plan to attain these goals.

Partnership for 21st Century Skills

- Communication
- Critical Thinking and Problem Solving
- Initiative and Self-direction
- Leadership and Responsibility

Name: _____

Lesson Plan:

1. **Bell Ringer:** Looking at the plant systems careers on AgExplorer, what is one career in the plant systems focus area that you are interested in learning more about?
2. **Introduction:** *In this lesson, we will dive into the world of plant science and explore the variety of careers that help us understand, grow and manage plants. From farmers and botanists to agriculture engineers and researchers, plant science careers play a crucial role in feeding the world. Whether you are interested in working in the field, the lab or even designing new tools and technologies, there's a plant science career for everyone. By the end of this lesson, you will have a better understanding of the broad range of opportunities available in this exciting and vital field. Let's begin by discovering how different plant science careers contribute to the world around us!*
3. **Activity:** Each student needs a copy of the worksheet "Plant Systems Careers."
 - a. **Part 1:** Students will get into groups of three or four to learn about and to research a stage of the AFNR value chain. Assign each group a different stage of the AFNR value chain: research and development, pre-production, production, supply chain, end product, sales, service, and support and consumers. They should answer the questions on their student activity sheet and then create a poster to present to the class.
 - b. **Part 2:** Students will present their posters of their segment of the AFNR value chain. As groups present, students should fill in the chart on their student activity sheets.
 - c. **Part 3:** Show the Syngenta "day in the life" video: <https://www.youtube.com/watch?v=Xhoidm6BibY>. As students watch, they will complete an activity sheet and answer discussion questions when done.
 - d. **Part 4:** Students will be given a career bingo card and a career card with a plant science role and description. Students will complete a "speed dating activity." **Note: The bingo card is designed for class sizes of 30 students. If you have more or less than 30, you will have to modify.
 - Round Setup:
 - Students will start by sitting across from each other. Each round will be two or three minutes long, and during that time, one student will describe their career to their partner using the description on their card.
 - After two or three minutes, a timer will signal that it's time to switch. Students will rotate to a new partner and share their career with the next person.
 - How It Works:
 - Student A will introduce the career on their card. For example, "I'm a farmer, and I grow crops and raise animals for food and other products. My work involves managing land and sometimes working with machines or animals."
 - After Student A finishes their description, Student B will share their career. They'll read the career description from their card and explain it in a similar fashion.
 - After two or three minutes, a bell rings or the timer goes off, and students rotate to a new partner.
 - Repeat the process: Continue rotating and sharing new careers with new partners until each student has met with several different careers.
 - Students will complete their bingo card as they do the activity. The first student to receive a bingo will win a prize.
 - e. **Part 5:** Each student will utilize their student activity sheet and [AgExplorer](#) to explore various plant science careers. Students will research at least two plant science careers they find interesting and create a career profile for each career.
4. **Follow-up:** Have students share one career they researched and what surprised them about it. Discuss how different careers in the Plant Systems pathway connect to each other.
5. **Optional – Extended Learning Opportunities (Not factored into time requirement):**
 - a. Invite a guest speaker from the local plant systems industry, such as a florist, agronomist, greenhouse owner/operator, etc. to share their career story.

Name: _____

6. **Exit Ticket:** Which plant science career did you find most interesting today? Why? What do you think the impact would be if this career did not exist?

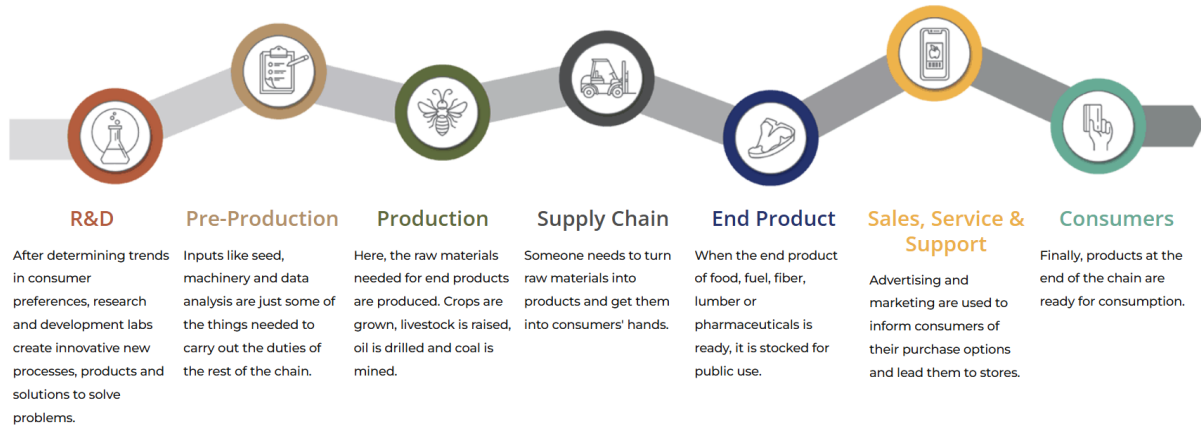
Name: _____

Plant Systems Careers

Part 1

Directions:

In your group, research one stage of the AFNR Value Chain, as assigned by your teacher, and fill out the research sheet below. When done, create a poster utilizing the information and provided rubric. You will use this to teach your classmates about your portion of the value chain.



Your assigned value chain stage: _____

Use the questions below to guide your research:

1. What happens during this stage of the value chain?
2. Why is this stage important to agriculture or the Plant Systems pathway?
3. List two or three real-world examples from plant science that happen during this stage.
4. What three or four careers are connected to this part of the value chain?
 -
 -
 -
 -

Name: _____

5. What problems could happen if this stage fails or is skipped?

POSTER RUBRIC

Area	4 Points	3 Points	2 Points	1 Point
Content	All content is accurate. There are no factual errors.	Most of the content is accurate, but there is one piece of information that seems inaccurate.	The content is generally accurate, but one piece of information is clearly inaccurate.	Content is confusing or contains more than one factual error.
Clarity and Neatness	The poster is easy to read and all elements are clearly written, labeled and drawn. Creativity was used.	The poster is easy to read and most elements are clearly written, labeled and drawn. Some creativity was used.	The poster is hard to read with rough drawings, labels and color. Little creativity was used.	The poster is hard to read and one cannot tell what goes where or what the illustrations represent. No creativity was used.
Presentation and Preparedness	The presentation is clearly rehearsed and delivered with no mistakes. Student spoke slowly and clear.	One mistake is heard in the presentation.	Two mistakes are heard in the presentation.	Three or more mistakes are heard in the presentation. Student spoke very fast and was unclear.
Time	Student stayed in the three to five-minute time frame.			Student was either under or over the allotted time frame.

Comments:

Name: _____

Part 2

Directions:

As your classmates present each stage of the value chain, fill in the chart below:

Value Chain Stage	What Happens Here?	Example in Plant Systems	Career Spotlight	What Happens If This Step Were Skipped?
Research and Development				
Pre-Production				
Production				
Supply Chain				
End Product				
Sales, Service and Support				
Consumers				

Name: _____

Part 3

Directions:

Watch the Syngenta "day in the life" video (<https://www.youtube.com/watch?v=Xhojdm6BibY>), and answer the questions as you watch.

1. Syngenta is an innovative company rooted in _____.
2. Syngenta believes in _____ and _____.
3. What examples from the video illustrate Syngenta's approach to innovation?
 -
 -
4. What do you think is important to the company and the people who work there?
 -
 -
5. Based on the video, would you want to work for Syngenta? Why or why not? Explain in two or three sentences.

Name: _____

Part 4

Directions:

1. You are going to play Plant Systems Careers Bingo! You'll start by sitting across from someone in the class.
2. Take turns sharing your career.
 - You'll each get about two to three minutes to talk.
 - Read your career card and explain what that job is like.
 - Then your partner will do the same with their card.
3. Switch It Up!
 - When the timer goes off, everyone rotates and finds a new partner
 - You'll bring your same card and repeat the process with someone new.
4. Mark Your Bingo Card
 - If your partner's career is on your Bingo card, mark it off!
 - The first person to get five in a row (across, down or diagonally) shouts BINGO!

Discussion Questions:

1. What Plant Systems career stood out most to you? Why?
2. Which career do you think best matches your own interests, strengths or hobbies?
3. What surprised you most about the types of jobs that exist in this career pathway?

Name: _____

Part 5

Directions:

1. Visit AgExplorer.FFA.org/focus/plant-systems/
2. On that page, click on different Plant Systems careers and complete the career profiles below for two of the careers you are most interested in.

Name of Career:

Career Category:

Sketch a Photo of the Career

Job Description

Education Needed

Main Responsibilities



Recommended High School Courses



Name: _____

Name of Career:

Career Category:

Sketch a Photo of the Career

Job Description

Education Needed

Main Responsibilities

★

★

★

Recommended High School Courses

★

★

★

1. What about these two careers interested you and why?

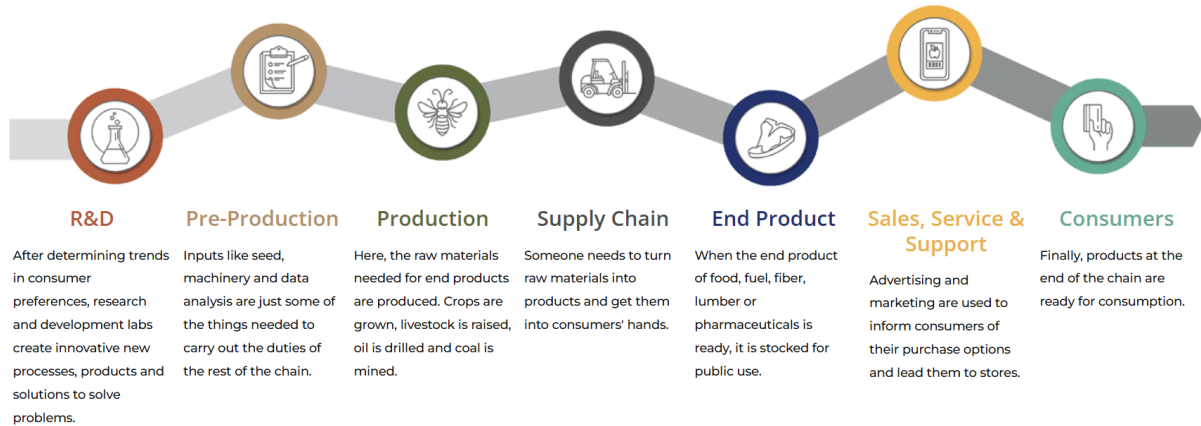
Name: _____

KEY: Plant Systems Careers

Part 1

Directions:

In your group, research one stage of the FFA Value Chain, as assigned by your teacher, and fill out the research sheet below. When done, create a poster utilizing the information and provided rubric. You will use this to teach your classmates about your portion of the value chain.



Your assigned value chain stage: ____ **Answers will vary.** _____

Use the questions below to guide your research:

1. What happens during this stage of the value chain?

Answers will vary.

2. Why is this stage important to agriculture or the Plant Systems pathway?

Answers will vary.

3. List two or three real-world examples from plant science that happen during this stage.

Answers will vary.

4. What three or four careers are connected to this part of the value chain?

Answers will vary.

Name: _____

5. What problems could happen if this stage fails or is skipped?

Answers will vary.

POSTER RUBRIC

Area	4 Points	3 Points	2 Points	1 Point
Content	All content is accurate. There are no factual errors.	Most of the content is accurate, but there is one piece of information that seems inaccurate.	The content is generally accurate, but one piece of information is clearly inaccurate.	Content is confusing or contains more than one factual error.
Clarity and Neatness	The poster is easy to read and all elements are clearly written, labeled and drawn. Creativity was used.	The poster is easy to read and most elements are clearly written, labeled and drawn. Some creativity was used.	The poster is hard to read with rough drawings, labels and color. Little creativity was used.	The poster is hard to read and one cannot tell what goes where or what the illustrations represent. No creativity was used.
Narration and Preparedness	The presentation is clearly rehearsed and delivered with no mistakes. Student spoke slowly and clear.	One mistake is heard in the presentation.	Two mistakes are heard in the presentation.	Three or more mistakes are heard in the presentation. Student spoke very fast and was unclear.
Time	Student stayed in the three to five-minute time frame.			Student was either under or over the allotted time frame.

Comments:

Name: _____

Part 2

Directions:

As your classmates present each stage of the value chain, fill in the chart below:

Value Chain Stage	What Happens Here?	Example in Plants Systems	Career Spotlight	What Happens If This Step Were Skipped?
Research and Development	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Pre-Production	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Production	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Supply Chain	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
End Product	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Sales, Service and Support	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Consumers	Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.

Name: _____

Part 3

Directions:

Watch the Syngenta “day in the life” video (<https://www.youtube.com/watch?v=Xhojdm6BibY>), and answer the questions as you watch.

1. Syngenta is an innovative company rooted in _____ **team-oriented culture** _____.
2. Syngenta believes in _____ **professional development** _____ and _____ **personal growth** _____.
3. What examples from the video illustrate Syngenta’s approach to innovation?
 - **Answers will vary.**
 - **Answers will vary.**
4. What do you think is important to the company and the people who work there?
 - **Answers will vary.**
 - **Answers will vary.**
5. Based on the video, would you want to work for Syngenta? Why or why not? Explain in two or three sentences.

Answers will vary.

Name: _____

Part 4

Directions:

1. You are going to play Plant Systems Careers Bingo! You'll start by sitting across from someone in the class.
2. Take turns sharing your career.
 - You'll each get about two to three minutes to talk.
 - Read your career card and explain what that job is like.
 - Then your partner will do the same with their card.
3. Switch It Up!
 - When the timer goes off, everyone rotates and finds a new partner.
 - You'll bring your same card and repeat the process with someone new.
4. Mark Your Bingo Card
 - If your partner's career is on your Bingo card, mark it off!
 - The first person to get five in a row (across, down or diagonally) shouts BINGO!

Discussion Questions:

1. What Plant Systems career stood out most to you? Why?
Answers will vary.
2. Which career do you think best matches your own interests, strengths or hobbies?
Answers will vary.
3. What surprised you most about the types of jobs that exist in this career pathway?
Answers will vary.

Name: _____

Part 5

Directions:

1. Visit AgExplorer.FFA.org/focus/plant-systems/
2. On that page, click on different Plant Systems careers and complete the career profiles below for two of the careers you are most interested in.

Name of Career: Answers will vary.

Career Category: Answers will vary.

Sketch a Photo of the Career

Answers will vary.

Job Description

Answers will vary.

Education Needed

Answers will vary.

Main Responsibilities

★ Answers will vary.

★ Answers will vary.

★ Answers will vary.

Recommended High School Courses

★ Answers will vary.

★ Answers will vary.

★ Answers will vary.

Name: _____

Name of Career: Answers will vary.

Career Category: Answers will vary.

Sketch a Photo of the Career
Answers will vary.

Job Description
Answers will vary.

Education Needed
Answers will vary.

Main Responsibilities

★ Answers will vary.

★ Answers will vary.

★ Answers will vary.

Recommended High School Courses

★ Answers will vary.

★ Answers will vary.

★ Answers will vary.

1. What about these two careers interested you and why?
Answers will vary.