

# Lesson 6: Careers for 2050 and Beyond!

## Time

30 minutes



## Activity Expectations

Students will:

- Explore careers related to agriculture;
- Identify personal interests within agriculture or a related field; and
- Discuss how agricultural professionals can impact world food sustainability.

## Materials

- Career PowerPoint
- Large piece of poster paper, 1 per group
- Markers, 1–2 per group
- Career Game Level 6



## Key Terms

Career, Agronomist, Information Technology, Welder, Equipment Sales Manager, Environmental Consultant, Veterinarian, Nurse, Agriculture Teacher, Human Resource Specialist, Agricultural Engineer, Bank Loans Officer, Farmer, Photographer, Chef, Geospatial Data Specialist, Graphic Artist, Dietician

## Background Information

Over 1.3 billion people are employed in agriculture throughout the world, generating income for communities and economies as well as providing food, fiber and fuel for a growing world.<sup>1</sup> The agricultural industry varies widely from country to country. In North America, farmers and ranchers represent 2 percent of the population.<sup>2</sup> Technological and scientific advancements have increased the efficiency of food production in developed countries, meaning fewer workers are required to grow food and raise livestock. In contrast, developing countries employ up to 50 percent of the population in farming. Very poor nations employ even more.

The story of agriculture is bigger than just farming. There's a vast network of interconnected jobs, people and industries working together to make agriculture successful. Each of these jobs is integral to building a sustainable world. For every farmer who grows crops and raises livestock there are numerous others working in careers connected to the production of food and fiber that sustain our world. The expansive web of agricultural jobs includes careers related to sales and services, engineering, mechanics, communications, marketing, economics, education, agronomy, soil science, animal science, government relations, food science, food processing and packaging, transportation and more.

## Did You Know?

- Farmers and ranchers represent 2 percent of the population in North America.<sup>2</sup>
- In 2014, 17.3 million jobs were related to agriculture in the United States. This accounts for 9.3 percent (roughly 1 in 11 jobs) of all U.S. employment and includes jobs outside of the farm.<sup>3</sup>
- Canada is the 5th largest agricultural exporter in the world, and the agriculture and agri-food industry employs 2.2 million Canadians (that's 1 in 8 jobs).<sup>4</sup>
- On average, women comprise just over 40 percent of the agricultural labor force in the developing world (statistics vary by country but women make up almost 50 percent in Africa<sup>5</sup>).

## Interest Approach

1. Display the *Career* PowerPoint on the board.
2. Divide your students into groups of two to three. Give each group a piece of poster paper and some markers.
3. Slide 2: Assign each group one food item from the grocery list.
4. Inform the students that they will have five minutes to brainstorm all the careers that played a role in producing their assigned food item. Instruct students to draw a career web on their sheet of paper. Their food item should be in the middle, and each career they think of will be connected to create a concept map. (See example on slide 2.)
5. Start a five-minute countdown timer and allow students to go to work.
6. After five minutes is up, have each group count how many careers they came up with.
7. Have each group share their web with the class. (If time is limited, only ask the group with the most careers to share their web with the class.) Discuss with students that there are many careers that play a hand in providing our food supply. Some careers work directly on the farm, but many other jobs related to agriculture do not.

## Lesson Procedures

### Activity 1: Careers in Agriculture

1. Display slide 3 of the *Career* PowerPoint on the board.
2. Ask students the following series of questions.
  - What is the primary ingredient of cheese? (*milk*)
  - What kind of farm is milk produced on? (*dairy farm*)
  - Beginning on a dairy farm where the milk is produced and ending at your home where cheese is consumed, how many careers played a role in providing cheese for our diet? (*allow students time to begin thinking about the answer to this question.*)
3. Slide 3: Display the cheese career web. Explain that there is an interconnected web of careers that depend upon each other to produce the food we eat. Using the notes below, briefly describe how these careers are connected to the dairy farm and are necessary to produce the milk that is used to make cheese. Be sure to also explain that the web could be much larger. This is only a small sample.
4. If students need more familiarity with the farm-to-fork process of cheese production, show the 11-minute video clip [Consider the Source—Cheese](https://www.youtube.com/watch?v=AARTC-aUzKc) (<https://www.youtube.com/watch?v=AARTC-aUzKc>, 11:17 min). This video will help students better visualize the process of cheese production. Stop the video intermittently to discuss various careers as they are highlighted.
  - **Dairy Farmers:** Raise and care for cattle on farms where milk is produced.
  - **Veterinarians:** Assist farmers in maintaining the health and well-being of animals.
  - **Animal Geneticists:** Research how genetic traits impact the health and productivity of animals and help farmers make the best decisions regarding the genetics and breeding of their animals.
  - **Animal Nutritionists:** Formulate the diets of animals to meet their nutritional needs. Nutritionists help dairy farmers provide a healthy diet for their cattle at each stage of their life.
  - **Inspectors:** Monitor the transportation of livestock animals and verify livestock ownership.
  - **Salesmen:** Help in many areas of agriculture by providing the right kinds of tools and equipment to accomplish a variety of jobs.

- **Crop Farmers:** Produce feed for dairy farmers, such as corn, alfalfa, soybeans, etc.
  - **Soil Scientists/Agronomists:** Analyze the quality of soil and help farmers balance the nutrients to enable the growth of healthy crops.
  - **Plant Geneticists:** Study the genetic traits of plants and use methods of crossbreeding and hybridization to perpetuate desirable traits in plants.
  - **Feed or Seed Store Managers:** Provide farmers with access to the feed, seeds and other farm supplies necessary to their farms.
  - **Truck Drivers:** Transport agricultural goods from production to processing and then to be distributed to consumers.
  - **Engineers:** Design new technology to improve productivity and sustainability (for example, automated sprinkler systems, robotic milking equipment, etc.).
  - **Food Scientists:** Study the science of food preparation and formulate recipes (for example, developing different types of cheese making methods).
  - **Mechanics:** Repair and maintain equipment such as trucks, tractors and farming implements.
5. Slide 4: Open the *Career Game* Level 6 on each student's computer or device. Explain the following:
    - In this level, you will create an avatar and answer questions based on your personal interests, favorite subjects in school, work environment preferences, etc.
    - Once the information is entered, the program will generate an agricultural career that relates to your interests. This career is just one example of many options that you may be interested in.
    - Once you are given a career, open the career profile and read about it. Keep in mind that all the people profiled in the game are real people who work in agriculture. Next, write your own response within the game to describe what your career involves and how it helps feed the world.
  6. After students have finished the game, have them tell you about the different careers they chose. Be sure to ask them how their careers relate to agriculture, sustainability and feeding the world. Continue asking about different careers until no more are left, or as time permits.
  7. Slide 5: Ask students, "Did you know that less than two percent of North American's farm?" (To give a frame of reference, explain that in the early 1900s it was 38 percent.<sup>6</sup>) Yet, in developing countries like Kenya the majority of the population (75% work in agriculture) works directly in producing food. Explain, "Even though less than two percent of North Americans farm, 9.3 percent<sup>7</sup> (1 in 11) of Americans and 12.5 percent (1 in 8) of Canadians work in a field related to agriculture. Careers in agriculture spread from farm to fork and beyond.

### Wrap-Up:

1. Slide 7: Review and summarize with the following key points:
  - Many diverse careers are found in agriculture.
  - People working in agriculture play a hand in feeding the world sustainably.
  - Off-farm agricultural careers are important and integral to sustainability. The people in these careers do many things such as:
    - Improve efficiency in food production.
    - Discover and help implement new best management practices to be used in agriculture.
    - Educate and communicate to the public about the source of our food.
    - Help minimize food waste and hunger.

### Enriching Activities

- Slide 9: View the video *Your Life - Your Agriculture* (<https://www.youtube.com/watch?v=rXmyFcqhd2c>, 4:23 min), produced by Canada Agriculture in the Classroom.
- [National FFA Ag Explorer \(https://www.agexplorer.com/\)](https://www.agexplorer.com/) website shows a variety of careers and breaks down the salary, education and job descriptions and much more.
- Refer students to the [Careers in Agriculture](#) YouTube playlist. Ask students to choose three careers they might enjoy and watch the associated videos.
- The following websites can provide further information about careers in agriculture:
  - [Careers for Green Thumbs](#)
  - [Crop Science Career Profiles](#)

- [Feed, Nourish, Thrive](#)
- Interview someone in an agricultural career.
- Slide 9: Watch the [Where in the World](#) (<https://youtu.be/ZvdtHNe8zGw>) , 5:06 min) video, and discuss how culture impacts the demand for jobs in agriculture.
- Utilize the [Living Science Career Cards](#) to introduce 50 science careers within the scope of agriculture and natural resources.
- Meet the Bug Chicks by watching the three-minute video clip [You're Hired!](#) (<http://thebugchicks.com/video/youre-hired/>, 3:59 min). Students will be introduced to several careers and jobs in the industry of agriculture through live footage of a variety of individuals busy at work.

## Sources

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<sup>1</sup> <http://www.momagri.org/UK/agriculture-s-key-figures/With-close-to-40-%25-of-the-global-workforce-agriculture-is-the-world-s-largest-provider-of-jobs-1066.html>

<sup>2</sup> <http://www.fb.org/newsroom/fast-facts>

<sup>3</sup> <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58282>

<sup>4</sup> <http://www.agr.gc.ca/eng/about-us/publications/we-grow-a-lot-more-than-you-may-think/?id=1251899760841>

<sup>5</sup> <http://www.fao.org/docrep/013/am307e/am307e00.pdf>

<sup>6</sup> [www.agclassroom.org/gan/timeline](http://www.agclassroom.org/gan/timeline)

<sup>7</sup> <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy.aspx>