FIND YOUR FUTURE CAREER

LESSON PLAN

Grade Level(s)

9 - 12

Estimated Time

Two 45-minute Sessions

Purpose

Students will discover the variety of agricultural careers available and consider their future career paths in terms of economics, interests, and suitability to their personal talents and characteristics.

Materials

Activity 1:

- Living Science Career Cards
- "Emerging Agricultural Technologies" (attached)
- "Career Activity Scenario" (attached)

Activity 2:

- 7 large resealable bags that contain equipment as listed on "Living Science Careers Equipment Kits" list* (attached)
- 4, 15-foot pieces of yarn; each a different color; ends tied together*
- 4 signs printed on cardstock (approximately 8 1/2" x 5 1/2"); labeled PLANT, SOIL, WATER, ANIMAL*

Activity 3:

- "Career Matching Activity" sheet, 1 per student
- "Agricultural Career Cluster Investigation" activity sheet, 1 per student (optional, attached)

*These items are included in the Living Science Careers Equipment Bags available from the Utah Agriculture in the Classroom e-store.

Suggested Companion Resources

- Careers in Agriculture Videos (Multimedia)
- Living Science Career Cards (posters or mini-posters) (Poster)
- Crop Science Career Profiles (Website)

Vocabulary

career: an occupation undertaken for a significant period of a person's life and with opportunities for progress

Interest Approach or Motivator

Ask your students the following questions:

- *What do you see yourself doing in the future?*
- *What are the possibilities?*
- *How much do you want to earn?*
- *How much training or school do you think you will need to achieve your career goals?*

Background Agricultural Connections

Explore agricultural and natural resources careers that go beyond the stereotypical farmer and rancher occupations. These careers focus on food, land, and people and significantly affect our quality of life and our environment. To assess student knowledge about agriculture and its impact on their lives, do the "Source Search" activity prior to this lesson. After the students complete this activity, it becomes obvious to them that there must be numerous careers in agriculture and natural resources because they learn that all the things we use every day (with the exception of services) are either grown or extracted from the natural world.

The careers highlighted in this lesson require post-high school training; many require bachelor of science degrees. The most important point to make with students concerning career education is that every industry or occupational endeavor has entry-level positions, mid-level positions, and highly skilled/educated positions. For example, most students can relate to cars. In the automotive industry you can be a car detailer (entry-level), sales person, auto plant worker, or mechanic (mid-level), or an automotive engineer who designs cars. What is the difference between these positions? Salary, yes, but what is the main factor that contributes to the differences in salary? Education! For the most part, you are paid for what you know. This isn't always the case, but training or education usually pays off. The other part of your salary may be determined by how much or how hard you work. Here is a table to compare entry-level wages with higher paying wages:

$7/hour $14,560 per year

$10/hour $20,800

$12/hour $24,960

$22.50/hour $45,000

$23,624 current poverty level in America
(family of 4 with two children, 2013)

$53,046 median US household income
(could be two wage earners, 2009–2013)

What is the median household income in your state?
(Check the US Department of Commerce website)

Employment Opportunities (2015–2020)
Your students are probably unaware of the career opportunities that make American agricultural and natural resource management systems work. Farmers and ranchers account for less than one percent of the US workforce, but the professionals supporting this industry increase that number to about nine percent, and if you count transportation and distribution, the number employed as a result of agriculture is about 20 percent. Think about a career in agriculture and natural resources.

Opportunities in jobs related to food, agriculture, renewable natural resources, and the environment are expected to grow more than five percent between 2015 and 2020 for college graduates. These occupations include agricultural inspector, food scientist and technologist, soil and plant scientist, and irrigation engineer (more information at https://www.purdue.edu/usda/employment/).

Procedures

Preparation:

Obtain the Living Science Career Cards (see Materials). Laminate the cards, punch a hole in the upper left corner, and organize them into 14 groups as suggested below. Not all the cards will be used in this activity. Use small book rings to keep the following groups together:

Group 1: Soil Scientist, Forester
Group 2: Hydrologist, Renewable Energy Specialist
Group 3: Virologist, Plant Geneticist, Fisheries Scientist
Group 4: Biotechnologist, Environmental Scientist
Group 5: Toxicologist, Forest Engineer, Food Safety Specialist
Group 6: Entomologist, Wildlife Biologist
Group 7: Food Process Engineer, Nematologist
Group 8: Weed Scientist, Plant Pathologist
Group 9: Plant Physiologist, Aquaculturist
Group 10: Remote Sensing Specialist, Horticulturist, Range Manager

Group 11: Food Scientist, Turf Scientist
Group 12: Nutritionist/Dietitian, Florist, Conservation Biologist
Group 13: Animal Nutritionist, Wood Scientist
Group 14: Veterinarian, Agronomist

Activity 1: Agricultural Career Scenario

1. Use a concept web to define *agriculture* and *natural resources* with your students.

2. Ask students to create a list of agricultural and/or natural resource careers on the board or add them to the previously created concept webs.

3. Next, add the careers cited on the career cards. These careers are integral to productive agriculture and well-maintained natural resources, yet most students will not be familiar with the job titles.

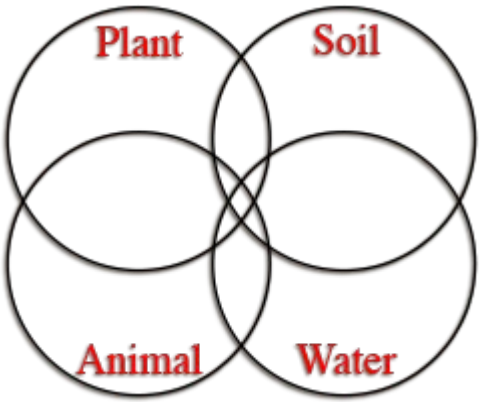
4. Divide the class into 14 groups; give each a set of the ringed career cards. Ask the students to take five minutes to read the cards they have received and familiarize themselves with the careers, what roles they play in the agricultural community, and what education is necessary for each profession. The education required for each career is included on the cards, and the explanations emphasize that students should study science, math, and English in high school in order to prepare themselves for similar subjects at the university level. Remind students that there will be entry- and mid-level occupations that support the highly skilled occupations.

5. Read the "Career Activity Scenario" sheet and ask students to raise their hands if they think they know the career that correctly fills the blank. After each profession is answered correctly ask, "What other cards are in your group? What courses do they need to complete to get their degrees?"

6. Share with students the "Emerging Agricultural Technologies" handout.

Activity 2: Where do I stand? What tools do I use?

1. Ask students to remove the Living Science Career Cards from their rings and distribute them so that each student has one. If there are not enough cards, you may choose to print additional cards from https://www.agriculture.purdue.edu/USDA/careers/index.html, or students may share.

2. 

Place the seven equipment bags around the classroom. Arrange the four pieces of yarn on the floor as intersecting circles (similar to a Venn diagram). Place one sign (PLANT, SOIL, WATER, and ANIMAL) in the center of each of the circles.

3. Ask the students to think about the tools and equipment they would need to perform the jobs as described on their assigned career cards.

4. Instruct students to find the bags that contain the equipment most likely to be used in their careers. *Note: several students will share each bag.*

5. Once students have correctly identified their equipment bags, ask students to stand on the circle that indicates the resource(s) with which they would most likely work. For example, a student holding the Veterinarian Card would stand in the ANIMAL circle. However, a student holding the Aquaculturist Card may stand in the intersection of the PLANT, ANIMAL, and WATER circles.

6. Ask each student to explain his or her career's role in interacting with the circles identified above. Also ask students to explain how these careers might interact with each other.

Activity 3: Formative Assessment

1. Use the "Career Matching Activity" to check student understanding.
   KEY:

   3 4 16 11

   13 9 21 7

   6 5 28 25

   1 15 20 29

   19 32 23 8

10 18 31 30

27 17 2 24

12 14 22 26

Essential Files (maps, charts, pictures, or documents)

- Exploring Living Science Careers Files

Enriching Activities

- Create your own "Career Activity Scenario" using the remaining Living Science Career Cards
- Using the FFA Career Explorer, ask students to select a career cluster and then complete the "Agricultural Career Cluster Investigation" activity sheet. https://www.ffa.org/resources/career-explorer
- Ask the students to brainstorm other agricultural careers that have been left out of the activity. Popular ones include mid-level jobs in processing, marketing, and distribution. Ask each student to create their own agricultural or natural resource career card.

Author(s)

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Organization Affiliation

Utah Agriculture in the Classroom

- Agricultural Literacy Outcomes
- Education Content Standards
- Common Core Connections

Agricultural Literacy Outcomes

Culture, Society, Economy & Geography

- Describe essential agricultural careers related to production, consumption, and regulation

Science, Technology, Engineering & Math

- Predict the types of careers and skills agricultural scientists will need in the future to support agricultural production and meet the basic needs of a growing population