

# TECH: Exploring Living Science Careers (Ag)

## Summary

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

## Time Frame

2 class periods of 45 minutes each

## Group Size

Large Groups

## Life Skills

Employability

## Materials

- Living Science Career Cards
- Source Search Lesson Plan (*optional*)
- Agricultural Career Concept Map Lesson Plan (*optional*)
- [What is Agriculture? poster](#)  
(FREE from Utah AITC)
- [Employment Opportunities for College Grads in the U.S. Food, Agricultural, & Natural Resource Systems](#)  
(FREE from Utah AITC)
- Career Cluster Investigation Worksheet
- Career Matching Activity (*optional*)

## Background for Teachers

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 (this can be found on the Agriculture in the Classroom Website, [www.agclassroom.org/ut](http://www.agclassroom.org/ut)), 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 the things we use everyday (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

\$18,810 current poverty level in America

Average US household (could be two wage earners) \$43,318

Average in Utah is \$48,537

*US Department of Commerce (2005)*

Your students are probably unaware of the career opportunities that make American agricultural and natural resources management systems work. Farmers and ranchers account for less than 2% of America's workforce, but the professionals supporting industry increase that number to about 9% and, if you count transportation and distribution, the number employed as a result of agriculture is about 20%. Think about a career in agriculture and natural resources.

The agricultural industry is made up of four employment areas:

- Agricultural and Forestry Production - 16%
- Education, Communication & Governmental Services - 13%
- Management & Business - 46%
- Science & Engineering - 25%

### Intended Learning Outcomes

Students will explore eight Career and Technical areas and make connections with business, family and consumers, and technology.

### Instructional Procedures

#### **Preparation**

Obtain the ***Living Science Career Cards*** (if you are a Utah teacher, these career cards can be ordered from the Utah Agriculture in the Classroom Website; others should contact USDA Higher Education Programs, 202-720-1973). Laminate the cards, punch a hole in the upper left corner, and group them into 14 groups. Not all the cards will be used in this activity. Use a small book ring to keep the following groups together:

Group 1: Soil Scientist; Hydrologist

Group 2: Science Writer; Forester; Biological Engineer

Group 3: Geneticist; Environmental Scientist

Group 4: Agricultural Economist; Fisheries Scientist

Group 5: Climatologist; Logging Engineer; Plant Physiologist

Group 6: Entomologist; Wildlife Biologist

Group 7: Agricultural Engineer; Naturalist

Group 8: Weed Scientist; Animal Physiologist

Group 9: Plant Physiologist, Aquaculturist

Group 10: Remote Sensing Specialist, Horticulturist, Range Manager

Group 11: Food Scientist; Turf Scientist

Group 12: Nutritionist/Dietitian; Florist

Group 13: Animal Nutritionist; Botanist

Group 14: Veterinarian; Agronomist

#### **Activity Procedures**

Ask students to define "agriculture" and "natural resources." The concept web created in the previous lesson may be used with this activity.

Ask students to help you create a list of agricultural and or natural resource careers on the

board or add them to the previously created concept webs.

After your students have made their list on the board or on the concept webs, add the careers cited on the career cards or use the attached transparency to display the science-related careers in agriculture and natural resources you will be discussing. The careers are integral to productive agriculture and well-maintained natural resources, yet most students will not be familiar with the job titles.

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 back of the cards they have received to 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 listed on the back of the cards and the explanation emphasizes 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.

Read the **Career Activity Scenario** and ask students to raise their hand if they think they have 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?"

Share with students the **Emerging Agricultural Technologies** noted on the transparency.

### Additional Activities, What's Next?

Use the **Career Matching Activity** to check student understanding.

KEY:	2	3	6	8
	31	10	11	15
	14	17	18	26
	22	27	4	28
	30	9	5	16
	7	13	12	20
	1	24	19	29
	21	23	25	

Ask students to create PowerPoint slide presentations that show how agriculture has changed overtime by using pictures from the Growing a Nation photo gallery, [www.agclassroom.org/gan/classroom/photo\\_gallery.htm](http://www.agclassroom.org/gan/classroom/photo_gallery.htm).

Using the FFA Career Explorer ( [www.ffa.org/index.cfm?method=c\\_job.CareerSearch](http://www.ffa.org/index.cfm?method=c_job.CareerSearch)) ask students to select a career cluster and then complete the Agricultural Career Cluster Investigation worksheet.

Create your own "Career Activity Scenario" using the natural resource career cards (the story attached to this lesson focuses on agricultural careers).

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. Information to create these career cards can be found on the following websites:

*Lesson Plan adapted from New Mexico AITC*

### Authors

[WILLIAM DEIMLER](#)

[Debra Spielmaker](#)