AGRICULTURE IN THE CLASSROOM • FALL 2020 / VOLUME NO. 2

WHAT'S GROWING ON in Virginia

THIS ISSUE

The farming profession is comprised of many careers

All food starts on a farm, but it takes the work of professionals in many fields to get it to our tables.

Across the United States, farmers work tirelessly to provide the food and fiber we use every day. But behind each farmer are many people working in different fields to provide essential support to our food and fiber systems.

According to the U.S. Department of Agriculture, more than 22 million Americans have careers in agriculture, and only 2.6 million of those jobs are performed on farms. That means for every farmer in the U.S., there are more than eight other people helping to support agriculture.

For example, before farmers begin planting crops or raising livestock, agricultural scientists conduct research to help them grow the best crops and provide the best care for their animals. When it comes time for harvest, farmers can use high-tech equipment to work efficiently thanks to mechanical engineers.

Once products are transported from farms to food processing plants, there are workers who inspect farmers' crops and turn them into food and other products we consume. From there, it's the job of grocers and warehouse managers to stock the shelves of local stores.

At each stop along the commodity chain—the process in which agricultural goods are created and distributed—there's a career in agriculture for every education level and area of interest.

If you enjoy math, you may consider a career in agricultural finance or sales. If you prefer science, a career in agricultural research could provide job opportunities in biology, earth science, physics and many other scientific fields. Or, if you have an interest in social studies, you could become an advocate for agriculture by getting involved in public policy.

There are even careers in agriculture for creative students whose favorite subjects are art or English. Agricultural companies need artists to design packaging and promotional materials, and journalists are needed to keep the public informed about agricultural issues.

To excel in an agriculture career, you will need to acquire knowledge in many subjects. Most jobs require effective communication skills and a basic knowledge of math and scientific principles. Business skills also are important to achieve success, and many employers are looking for employees who can successfully multitask and work well with others.

With so many career possibilities to explore, it's important to learn these skills now to begin preparing for a future in agriculture!

Career Spotlight

Did you know that only about 12% of agricultural jobs involve cultivating the land? In fact, most agricultural careers are in diverse fields like economics, environmental science, marketing, technology and others.

To help you envision a future in agriculture, here's a list of careers to consider:

ANIMAL SCIENCE and MANAGEMENT

Agricultural engineer
Animal biotechnologist
Animal geneticist
Animal nutritionist

Animal veterinarian

Aquaculturist
Beekeeper
Biologist
Ecologist
Entomologist
Livestock buyer
Zoologist

HORTICULTURE and SEED and SOIL SCIENCE

Botanist
Environmental scientist
Florist

Forester

Greenhouse management
Landscape designer

Plant pathologist
Research technician
Seed scientist
Soil scientist
Turf manager
Viticulturist

AGRIBUSINESS and FOOD SCIENCE

Agricultural economist
Agricultural educator
Agricultural lobbyist
Agricultural sales representative
Executive chef
Food marketing manager

Food processing engineer
Food safety specialist
Grocer
Market analyst
Rural development specialist

Financial manager and planner

Agricultural professionals answer job-related questions

Agricultural professionals work in many different ways to support our food systems. Meet three professionals who work at **Cargill**, one of the world's largest agricultural production companies, and learn what they do each day to promote agriculture.

ROSALEE DEL CAMPO MARRERO

Quality Superintendent

Q Tell us about your yourself. Where are you from? Where did you go to school? What did you study?

A I'm from Puerto Rico. I graduated from the University of Puerto Rico at Mayagüez, where I majored in industrial microbiology and food science.

Q What does a typical day on the job look like?

A For me, a normal day at work is fast-paced and full of different challenges. I usually answer emails in the morning, and then attend our management meeting where we discuss employee safety, quality, food safety and other pressing topics. From there, I work on different tasks such as product specifications, labeling, shelf life and customer complaints. Once I'm all caught up, I go to the Quality Assurance office to talk with QA supervisors and technicians. Quality assurance employees' days are very hands-on, and they always offer good input and insight into what is happening at the plant. Talking to them gives me a different perspective of the daily tasks and challenges for other employees at the facility.

JACIE GRANT

Employee Experience Specialist

Q Tell us about your yourself. Where are you from? Where did you go to school? What did you study?

A I am originally from Bloomington, Indiana. I went to school at Purdue University, where I studied animal sciences and food and agribusiness management. I also attended graduate school at Purdue, where I studied animal sciences and cultural education.

Q What is your favorite part of your job?

A My favorite thing is the opportunity I have to be on farms and plants with our employees and animals, and also getting to go out and speak to students and community members about the agriculture industry.

Q What could students do to prepare for a job in your field?

A Try different experiences within the industry and don't narrow in on one thing. Learn to work with people that don't have the same background as you. If you are able to successfully work and connect with people from various backgrounds, you will be more effective in your role in the agriculture industry.

MADISON SLAVEN

Food Safety, Quality and Regulatory Professional

Q Tell us about your yourself. Where are you from? Where did you go to school? What did you study?

A I grew up in Weyers Cave, Virginia, and attended college at Virginia Tech. While in college, I majored in animal and poultry sciences with a minor in international trade and development. I also worked at the Virginia Tech Meat Science Center.

Q What does a typical day on the job look like?

A My job revolves around ensuring my plant is producing safe and wholesome food products for customers. I coordinate with different employees to make sure we are following our procedures and that our processes are being managed appropriately to protect our products and customers. I also work with our food safety programs to keep the plant compliant with regulations and corporate policies.

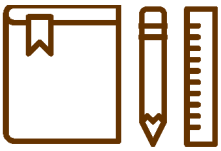
Q What is your favorite part of your job?

A I love that my job keeps me on my toes and encourages problem-solving to make sure we are putting out the best possible product at all times. I also love that I can walk into any grocery store to see that all of our work has paid off as our products feed families locally and globally.

Every day is an ag-filled day!

7:30 a.m. – You wake up and start the day by kicking off your bed sheets. Those sheets likely are made of cotton. A **commodity procurement manager** purchased the cotton from a farmer on behalf of a manufacturing company that made the sheets.

8:20 a.m. – You and your classmates take the bus to school. There's a chance the bus runs on biodiesel fuel. Some **product development managers** work with biofuel chemists and farmers to develop the fuel.



9:15 a.m. – At school you open your backpack to take out your schoolbooks, notebooks and a pencil. All three items are made from trees, but did you know that a **hydraulics technician** works on the equipment that helps turn wood into paper and other school supplies?

10:35 a.m. – In gym class you play football with friends. One of the materials used to make a football is leather. A **sales representative** participated in selling that commodity to the company producing footballs.

12:20 p.m. – You enjoy a tasty turkey sandwich and a carton of milk at lunch. Turkeys and dairy cows are raised by farmers, and the meat and milk were inspected and tested by a **food safety specialist**.

4 p.m. – After school, you go grocery shopping with your family. **Grocers** and **inventory managers** make sure the shelves are stocked with food items for consumers.

5:45 p.m. – Your family gathers at the table to eat dinner. An **industrial designer** helped design the wooden table and chairs in your family's dining room.

9:30 p.m. – Before bed you brush your teeth. The mint in your toothpaste was grown on a farm. **Chemists** work to make sure the proper ingredients are used in your toothpaste to promote healthy and clean teeth.

CONTENT AREA

SOL: Science: K.6, 1.5, 3.5

Social Studies: 2.7

Objective: for students to:

- Sort and classify plants, animals and jobs found in rural and urban communities.

Materials

- Shower curtain with a farm scene drawn on it
- Shower curtain with an urban scene drawn on it
- Pictures of various plants, animals and people, mounted on construction paper or cardstock

o Photos are accessible in the digital version of the newsletter at **AgInTheClass.org**

Students will practice categorizing agricultural subjects found in farming and urban communities using hand-drawn scenes and cutouts of plants, animals and careers.

LESSON PLAN

Comparing Communities

Background Knowledge

Use the shower curtain communities to help students practice sorting and classifying agricultural subjects. Possible classifications for each shower curtain community:

- For pre-K and kindergarten: Living versus nonliving and plant versus animal.
- For first grade: Body coverings, animal movement and wild animals versus domesticated animals.
- For second grade: Natural, human and capital resources.
- For third grade: Producers, consumers and decomposers; predators versus prey; and herbivores, carnivores and omnivores.

Procedure

1. Lay shower curtain communities on the floor. Explain that students will fill each community with its inhabitants. Next, pass out pictures of plants, animals and people to students, and have them place the photos in the community where they belong. Discuss with students that some pictures could go on either curtain.
2. Tell students they will now classify the pictures in each community. You may choose to have the class brainstorm their own classifications or give them the predefined classifications above.
3. Draw columns and headings on a whiteboard or chalkboard for the classification groups. Have students take turns taping their pictures into the correct columns.

Extension

A third shower curtain may be used for a community representing the neighborhood in which your school is located. Have students decide which pictures should go in their community. Students also can brainstorm additional pictures.

CONTENT AREA

SOL: Science: 3.1, 3.2, 4.1, 5.1

Objective: for students to:

- Work cooperatively to use household items and simple machines to create a "harvester."

Materials:

- Plastic cups
- Rubber bands
- Paper towel rolls
- Ice pop sticks
- Plastic straws
- Pipe cleaners
- Paper clips
- Scissors
- Construction paper
- Tape
- Small hard candies
- Graph paper

LESSON PLAN

Engineering a Sweet Harvest

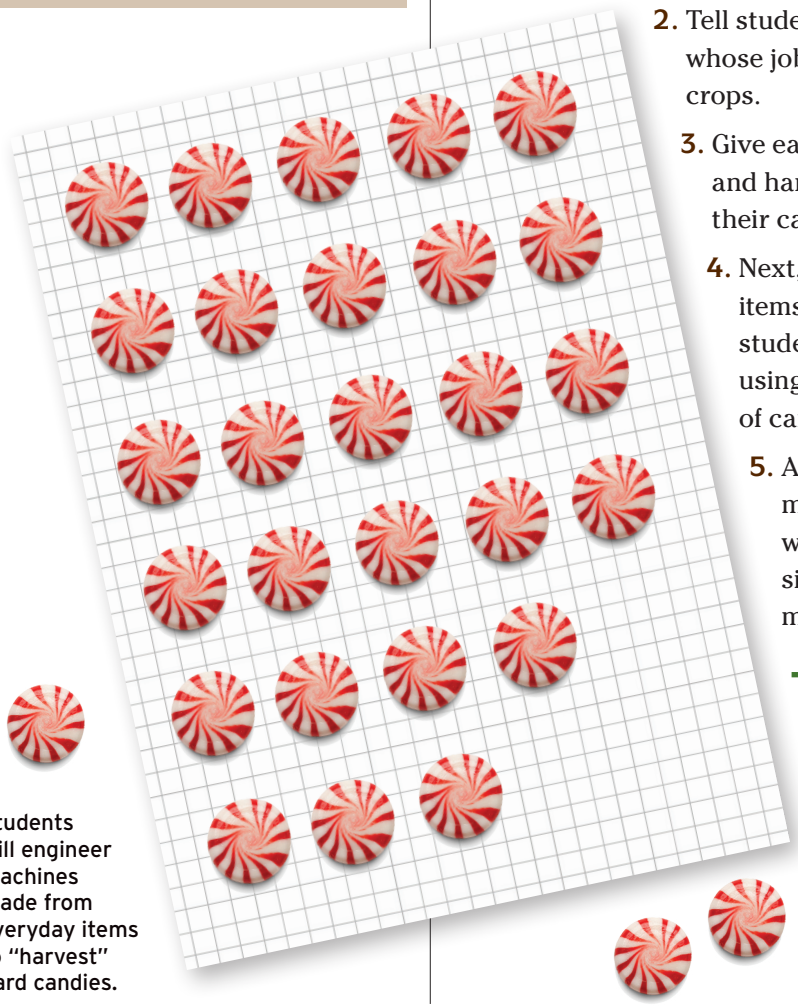
Background Knowledge

An engineer is someone who uses math and science to solve a problem. An agricultural engineer applies these concepts to farming, and may design machinery or facilities that maximize a farm's efficiency.

The development of agricultural machines has made work easier for farmers, and advanced technology continues to improve equipment efficiency. Regardless of the complexity, all parts of agricultural equipment consist of variations of the six kinds of simple machines—levers, inclined planes, wedges, screws, pulleys and wheels and axles.

Procedure

1. Review the six types of simple machines, and discuss how complex machines are made up of multiple simple machines. Have students identify machines that they use daily, and discuss what it would be like if there were no machines. Explain that machines help make jobs easier and more efficient, and that this is true of both household and farming machines.
2. Tell students that they will be agricultural engineers whose job it is to create a harvester to collect their crops.
3. Give each group of students a piece of graph paper and hard candies to serve as crops. Have them "plant" their candy crops in rows on the paper.
4. Next, tell students that they will be using everyday items to create a machine to harvest the candy. Tell students their task is to create a complex machine, using the listed materials, that can pick up a piece of candy.
5. After giving students time to create their machines, have them share their creations with the class. Ask students to point out the simple machines that are part of their complex machine.



Students will engineer machines made from everyday items to "harvest" hard candies.

Extension

Have students pretend to be graphic designers and salespeople. Tell students they must create a poster to advertise their machines and present a sales pitch to the class.

PROGRAM HIGHLIGHTS

Additional activities, video lessons and virtual field trips will be added to AgInTheClass.org throughout the fall to aid distance learning.

AITC's latest online resources include virtual field trips and videos

As this school year presents unique challenges and changes, Virginia Agriculture in the Classroom wants to help. The program has substantially increased its online content to meet the current needs of students, including those who will be learning at home. AITC has launched weekly video lessons and virtual field trips on social media, and will continue to offer even more engaging learning opportunities throughout the year. Visit **AgInTheClass.org,** or find us on Facebook and YouTube by searching for Virginia Agriculture in the Classroom.

Online professional development

Agriculture in the Classroom is excited to announce the debut of our new virtual teacher workshop. The full course consists of five 1-hour modules, and can be completed online any time or anywhere. To learn more, visit **AgIntheClass.org**.

RESOURCE HIGHLIGHTS

Find great career activities and videos online!

Virginia Agriculture in the Classroom

Check out the Virginia Agriculture in the Classroom YouTube page to learn how agronomists use science to help farmers grow healthy crops. A full video playlist offers 42 segments highlighting various agricultural careers.

Trevor Simmons, who works as an agronomist for Southern States, uses science each day to help farmers grow their crops.

Feed, Nourish, Thrive: Ag careers in science, technology, engineering and math

Feed, Nourish, Thrive is an online portal to educational resources that encourages young people to explore careers in food production and agriculture. By engaging with the website and delving into its interactive resources, young people will learn that careers in agriculture can help sustainably feed the 9 billion people predicted to inhabit Earth by 2050. Students also will learn that jobs in agriculture provide great careers and offer competitive pay.

Visit **feednourishthrive.com** to learn more.

WHAT'S GROWING ON IN VIRGINIA
Virginia Foundation for Agriculture in the Classroom
P.O. Box 27552, Richmond, Virginia 23261

NON-PROFIT ORG.
U.S. POSTAGE PAID
RICHMOND, VA
PERMIT NO. 2162

Planting seeds for a career in agriculture is *What's Growing On in Virginia!*

About the Newsletter

What's Growing On in Virginia? is a semiannual publication for Virginia educators and those who want to connect children with agriculture through education.

Program Coordinators: Tammy Maxey, Lynn Black
Editorial Staff: Adam Culler, Kathy Dixon
Graphic Designers: Maria La Lima, Patricia Hooten

For additional information and activities, visit our website at **AgInTheClass.org** or call **804-290-1143**

Proudly sponsored by

Cargill®