



What's Growing On In Virginia?

Virginia Foundation for Agriculture in the Classroom

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Virginia farmers, like this one in Orange County, typically harvest barley in the summer. (Photo by Elizabeth Nixon)



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.

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

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THIS ISSUE

- 3 Farm Life Cycles
- 5 Climate Maps
- 7 Seasonal Reading

AGRICULTURE IN THE CLASSROOM

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Farm work changes with locations and seasons

While farm scenes often are depicted during the sunny days of summer, Virginia farmers keep busy during all four seasons of the year.

In Virginia, the seasons are as diverse as the state's landscape, and farming practices hinge on both climate and location.

Spring: This is the season of new life and new growth. It's when farmers start preparing to plant crops. They purchase seeds and get the ground ready to plant by tilling the ground. Many farmers use no-till planting methods in which they leave the stalks from last season's crops in the ground and just plant right in the midst of them. This is a conservation method that helps keep nutrients in the soil and helps prevent erosion.

Crops typically are planted after the threat of the last frost. However, farmers have to depend on the weather. If spring is too wet or cold, they might not be able to plant when they want to. After seeds are planted, fertilizers, herbicides and pesticides may be applied to keep unwanted



"Agriculture is our wisest pursuit, because it will in the end contribute most to real wealth, good morals and happiness."

- Letter from Thomas Jefferson to George Washington (1787)

pests and diseases from interfering with the crops' growth. Eventually, the seeds sprout out of the soil and

continue to grow as long as they have the right amount of water and nutrients.
One example of a

spring-planted crop is cotton. About 84,000 acres of cotton were harvested in 2015 in Virginia. Cotton is planted in

rows during the spring. About two months later, flowers develop from the buds. When the flowers die and fall off, they leave behind pods called bolls. After the bolls ripen and break open, the cotton fibers emerge. After the cotton is picked, it goes through a long process of cleaning and milling before it can be used to make blue jeans.

At the end of spring and beginning of summer it is time to cut and bale hay so it can be stored and ready to feed animals in the winter. Spring is also the time when many farm animals are born.

Summer: Plants continue to grow and fruits and vegetables ripen in the summer sun. It's during this season that farmers work to protect the

budding, growing, sprouting crops from bugs and weeds. This is the time when farmers spray their emerging crops with crop protectants. They also make sure the plants have plenty of water with added irrigation if the rainfall is lacking. By the end of the summer, crops are beginning to mature and are getting ready for harvest. Sometimes hay is harvested during the late summer months so that another stand can be grown and harvested before winter.

Fall: This is harvest time on many farms. It's typically when corn and soybeans are harvested with large combines. Farmers work long days to harvest all of their fields before the first frost comes at the end of the fall.

During this time, they have to take advantage of dry days. It's important to harvest the crops when they are dry, because grains cannot be stored when they're wet. This can make harvesting stressful for farmers during the fall because again, everything is dependent on the weather.

Hay is another crop that's harvested during the summer and fall. Hay is cut and then baled. Some round bales are wrapped in plastic and left in the fields for outdoor storage. Some farmers create rectangular bales that are stacked inside a barn for use in the colder months.

Late fall is also when farmers prepare for winter by making sure fences and corrals are in good repair.

Winter: Once the harvest season ends and the cold sets in, farmers spend their time taking care of equipment and animals. They make sure that their animals are warm and healthy and that the water supply doesn't freeze up. Farm animals don't have as much chance to graze in the wintertime, so outdoor animals like beef and dairy cattle receive supplemental feed. Other animals that are mostly indoors, like chickens and pigs, are given the unlimited access to feed that they have year-round. When not tending to their animals, many farmers use the wintertime to perform maintenance and upkeep on their tractors and other equipment. Winter usually also entails some accounting and tax preparation work.

What's in Season?

A wide variety of Virginia-grown fruits and vegetables are available throughout the year. For a full calendar visit vdacs.virginia.gov/pdf/producechart.pdf.

WINTER

herbs
sweet potatoes



SPRING

asparagus
greens/spinach
strawberries



FALL

broccoli
peppers
apples
potatoes



SUMMER

squash
tomatoes
watermelon
sweet corn
peaches



These Virginia products are always in season: beef, chicken, turkey, eggs, dairy and pork!

Cycles on the Farm

Chicken Life Cycle

The chicken's life cycle has three stages—egg, chick and adult (rooster or hen). It takes 21 days for an egg to hatch after having been laid by the hen and then six weeks for the chick to grow to maturity. Hens lay an egg approximately every 25 hours.

1. Give each student one whole paper plate and one half plate. Instruct them to cut a squiggly line across the middle of the whole plate. Staple the half plate to the back of one of the "squiggly" plates. Use a brad paper fastener to reattach the other squiggly plate so that it will look like a hatching egg with a pocket on the back.
2. Explain to students that first the egg hatches, then it is a baby chick and then it grows into a mature chicken. Color and cut out the template images (Find these in the "Lesson Plan Search" on **AgInTheClass.org**) that demonstrate these stages.
3. Sequence the pictures in the correct order and tape to a piece of yarn. Attach the yarn to the paper plate egg with the mature chicken farthest away. The pieces of the life cycle chain will then fit in the egg's back pocket.

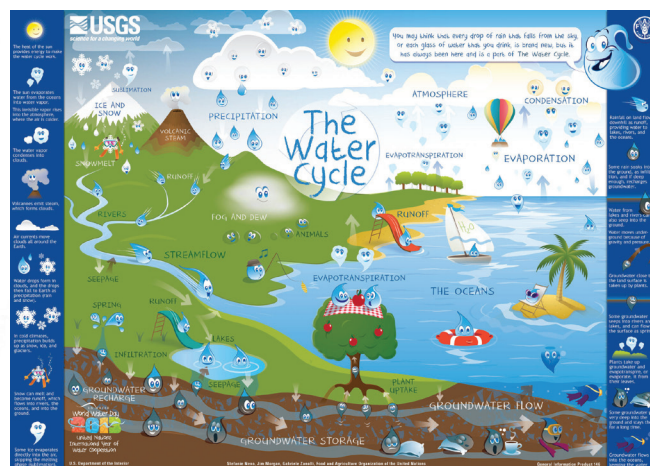


The Water Cycle

The water cycle is an essential cycle for farmers and other living things! Farmers rely on a clean, steady water source for their animals, as well as for their crops.

Visit this excellent site for an interactive water cycle diagram, available in beginner, intermediate and advanced versions, as well as printer-ready poster files:

water.usgs.gov/edu/watercycle-kids.html



LESSON PLAN >> PRESCHOOL

Pumpkin Life Cycle

Science:
life processes

Objective:
to create a model of the life cycle of a pumpkin plant.

Materials

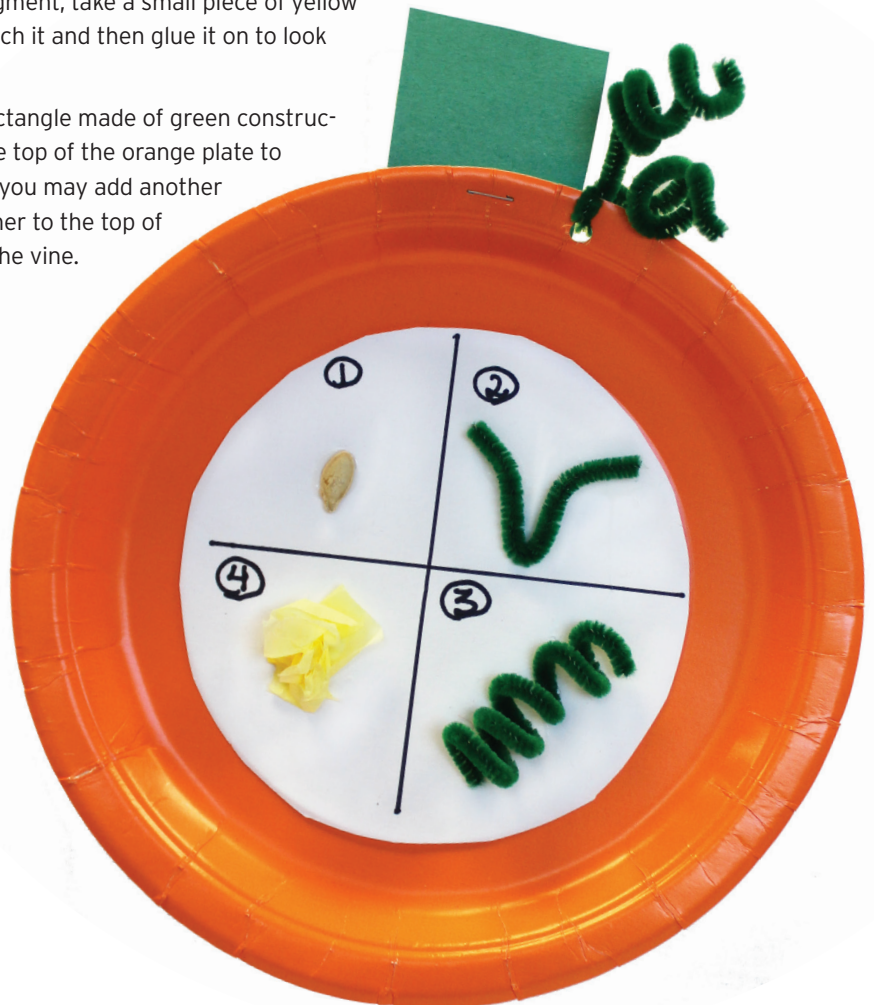
- Orange paper plates
- White construction paper circles
- Glue
- Pumpkin seeds
- Green pipe cleaners
- Yellow tissue paper
- Green construction paper

Background Knowledge

There are flowering and non-flowering plants, as well as edible and non-edible plants, that are grown in Virginia. The pumpkin plant is both a flowering and edible plant, which is important for your students to know. A pumpkin plant starts with a seed; then the roots sprout underground; the leaves sprout from the soil, and a vine begins to grow; the flowers blossom on the vine; and the fruit, or pumpkin, is formed.

Procedure

1. Glue the white circle onto the middle of the orange plate. Use a marker to divide the white circle into four segments, and number them 1 through 4.
2. In the first segment have students glue a pumpkin seed.
3. In the second segment, take a 2-inch piece of green pipe cleaner, bend it to look like a sprout and glue it on.
4. In the third segment, take another piece of green pipe cleaner and twist it into a spiral around your finger or a pencil. After loosening it, glue it down as the vine.
5. In the fourth segment, take a small piece of yellow tissue paper, pinch it and then glue it on to look like a blossom.
6. Finally, add a rectangle made of green construction paper to the top of the orange plate to be the stem. Or you may add another green pipe cleaner to the top of the plate to be the vine.



LESSON PLAN >> ELEMENTARY SCHOOL

Understanding Climate Maps

Background Knowledge

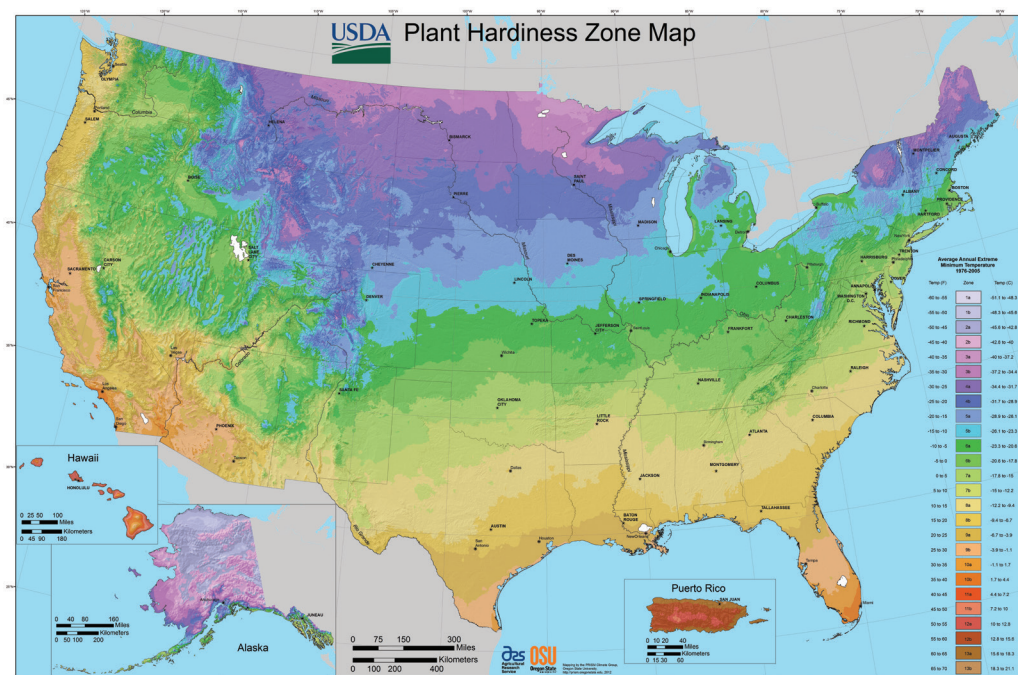
An understanding of climate and weather patterns is essential to farmers and gardeners since it tells them when to plant and harvest and guides their choices of what to plant. "Weather" refers to the temperature and conditions at any given time for a location, while "climate" refers to the pattern of weather for a location over a period of years. The USDA Plant Hardiness Zone Map is based on the average annual winter low temperature and is divided into 10-degree Fahrenheit zones. Landscapers and growers often use this chart to determine the correct plants for their areas. Many plants are labeled with their zone either on the packaging or in the catalogue.

Virginia is a geographically diverse state with coastline to the east and mountains to the west; this results in several different climate zones within the state. The diverse climate and geography also means that a wide variety of crops are grown throughout the state.

This lesson uses the USDA Plant Hardiness Zone Map, as well as maps of the average first and last frosts. You may choose to download and print each of these maps for students, or they can access the maps digitally.

Procedure

1. Review with students the elements that plants need in order to grow—sunlight, space and nutrients from soil and water. Explain that plants also need the appropriate weather and climate in order to flourish. Some plants, such as citrus trees, prefer a very warm, humid climate. Others such as apple trees prefer warm days and cool nights. For this reason, you would not expect to find oranges growing alongside apples in the Shenandoah Valley.
2. Display the Interactive Virginia Agriculture Map, pointing out that different crops are grown in different regions. Explain that climate and geography play a very large role in determining where crops are planted.
3. Instruct students to use the Plant Hardiness Zone and frost maps to answer the worksheet questions.



SOL:

Science: 4.1, 4.6

Objective:

to read and interpret maps to determine the most suitable plants for their area as well as the optimal planting time.

Materials

- USDA Plant Hardiness Zone Map, planthardiness.ars.usda.gov/PHZMWeb/Maps.aspx
- Average First and Last Frost Maps, bonnieplants.com/library/first-and-last-frost-dates
- Worksheet, available with lesson on AgInTheClass.org
- Interactive Virginia Agriculture Map, agintheClass.org/Teachers/InteractiveVirginiaMap.aspx

Reading Climate Maps Worksheet

Directions: Use the maps below to correctly answer each question.

USDA Plant Hardiness Zone Map, planthardiness.ars.usda.gov/PHZMWeb/Maps.aspx

Average First and Last Frost Maps, bonnieplants.com/library/first-and-last-frost-dates

1. How many different hardiness zones does Virginia have? _____
2. In which zone do you live? _____
3. What can you tell about the climate of Virginia by looking at the map? Where is it warmest?
Where is it coolest? _____

4. Using what you know about Virginia's geography, why do you think the temperatures and zones change from east to west in the state? _____

5. Based on the frost maps, when is the best time for gardeners in your area to plant their gardens? _____

6. Why do you think the first and last frost dates are important to farmers? _____

7. What similarities do you see between the hardiness map and the frost maps? _____

LITERARY CORNER

A Year at a Farm by Nicholas Harris,
First Avenue Editions, ISBN: 1580137989

Growing Seasons by Elsie Splear and
Carolyn Splear Pratt, Putnam Juvenile,
ISBN: 0399234608

Harvest Year by Cris Peterson, Boyds
Mill Press, ISBN: 1590787838

Seasons on a Farm by Nancy
Dickmann, Heinemann, ISBN: 143293953X

The Year at Maple Hill Farm by
Alice and Martin Provensen, Aladdin,
ISBN: 0689845006

A Year on the Farm by Holly Dufek,
Octane Press, ISBN: 1937747565

A Chicken's Life by Nancy Dickmann,
Heinemann, ISBN: 1432941488

Down Comes the Rain by
Franklyn Branley, Harper Collins, ISBN:
0064451666

Pumpkin Circle by George Levenson,
Tricycle Press, ISBN: 1582460787

AITC Program Highlights

Mini-grants help schools fund ag education

Ten thousand Virginia school children will have an opportunity to experience hands-on agricultural activities, thanks to Virginia Agriculture in the Classroom \$500 mini-grants. The AITC program awarded grants to 32 schools in the 2015-2016 school year. Among recipients this spring was The Steward School in Henrico County, where junior kindergarteners incubated chickens in their classroom.

The grant program is ongoing, so look for details and an application at: **AgInTheClass.org**.

Seasonal series makes good all-year reading

Check out our new favorite agriculture-themed seasonal series by Felicia Chernesky! Written in lyrical rhymes, these books use agricultural settings to explore numbers, shapes, colors and opposites.

Cheers for a Dozen Ears: A Summer Crop of Counting, Felicia Sanzari Chernesky, Albert Whitman & Company, ASIN: B00IS9B36A

Pick a Circle, Gather Squares: A Fall Harvest of Shapes, Felicia Sanzari Chernesky, Albert Whitman & Company, ASIN: B00FGIAFFQ

Sugar White Snow and Evergreens: A Winter Wonderland of Color, Felicia Sanzari Chernesky, Albert Whitman & Company, ASIN: B00PTIKUDO

Sun Above and Blooms Below: A Springtime of Opposites, Felicia Sanzari Chernesky, Albert Whitman & Company, ASIN: B00S5OJTRS

