WHAT'S GROWING ON

AGRICULTURE IN THE CLASSROOM • SPRING 2021 / VOLUME NO. 1

THIS ISSUE

Seed, sprout and grow!

School gardens encourage students to take an interest in where their food comes from, learn the importance of a healthy diet and develop learning skills while getting their hands dirty.

Gardening is an enjoyable activity for all ages, but especially for children, it's an opportunity to learn and grow while getting their hands dirty.

In gardens, students are given a space to reconnect with the world around them and learn important lessons about agricultural systems. By growing their own fruits and vegetables, students can discover where their food comes from, how it's produced and how it provides nourishment.

Students also can learn the importance of a healthy diet by growing their own food. Additionally, gardening promotes physical activity—a key component in fighting childhood obesity. Gardening encourages children to take pride in their work, and garden-based learning has been shown to positively impact students' behavioral and educational development.

As students continue to learn in the field, they'll also discover the differences between growing crops in gardens and raising them commercially on farms.

While farmers' efforts to produce their commodities often are assisted by heavy farming equipment and advanced technology, most gardening work is done by hand and is labor-intensive. Seeds typically are planted individually in small quantities in gardening plots. By contrast, farmers use drills and planters to plant seeds across hundreds or thousands of acres in their fields.

However, gardening doesn't come without its advantages.

Because gardens are much smaller than farms, gardeners can plant whatever they want in their plots, while most farms are limited in the number of commodities they can efficiently produce. With less land to manage, gardeners can focus on individual plants to ensure plentiful harvests, making self-sustenance an achievable dream for agriculturalists of any experience level.

Garden Spotlights

MARIE CULVER – Seatack Elementary School, Virginia Beach

Q How did your garden begin? How has it grown?

A Our garden began in May 2016 with six raised beds. It's now a community garden with 27 raised beds. We use the herbs and vegetables for school lunches, and the students' families also harvest fresh produce throughout the entire year.

Q What plants do you have in your garden? Which have worked especially well?

A Our garden includes apples, asparagus, basil, blueberries, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, celery, cilantro, collard greens, dill, figs, kale, lemon thyme, lettuce, mint, okra, oregano, parsley, peaches, pears, radishes, rosemary, rutabagas, strawberries, Swiss chard and tomatoes.

Our crops are doing well, and our students plant twice a year. Everything is growing despite occasional pests that we eliminate organically.

Q What has been your best teaching moment using the garden?

A The best teaching moments come when our students plant their crops and nurture their grades' raised beds independently. The students also are independently harvesting crops, collecting data and problem-solving, and are becoming confident gardeners.

Q What advice do you have for other teachers looking to start or expand a garden?

A My advice is to start small with a big vision. Our garden started as a big dream with six raised beds, and now it is the most important part of our school. The garden not only nurtures plants, but also dreams and memories for our school family. One first grader said, "Our garden is my best friend."

Seatack Elementary School students develop problem-solving skills harvesting fruits, herbs and vegetables from the school's community garden.

SHARON MOHRMANN – Orange County Elementary School

Q How did your garden begin? How has it grown?

A Our Peter Rabbit Gardens began 13 years ago in raised beds that grew more weeds than vegetables. Four years ago, we received a grant that has allowed us to purchase 300-gallon plastic stock tanks. We were able to find a matching grant, and now each kindergarten classroom has its own vegetable garden. This year we were awarded an additional grant to add a tub in which we'll plant native plants to attract pollinators.

Q What plants do you have in your garden? Which have worked especially well?

A We begin the planting process in early spring with everything that is found in Peter Rabbit's garden: cabbage, carrots, cucumbers, green beans, lettuce, onions, peas, parsley, radishes and spinach. Our lettuce is the first to crop up and is the last thing that we harvest in the fall. The lettuce reseeds itself well and provides us with fresh leaves for many months. We also grow miniature pumpkins starting in July, as soon as the salad veggies have reached their maturity. The pumpkins did beautifully this year, and each kindergarten student picked their own pumpkin while we are unable to visit pumpkin patches. The students also were able to use the pumpkins in the classroom for many learning activities.

Q What has been your best teaching moment using the garden?

A Harvest day is the highlight of each year. In late May, we are able to harvest all of the vegetables that have reached their maturity to make a salad for our afternoon snack. Watching the students get their little hands

in the soil, carefully clipping the lettuce leaves, picking the small peas and pulling up the bright red radishes—their eyes get as big as the radishes as they pull that surprise from the soil.

Q What advice do you have for other teachers looking to start or expand a garden?

A With many trials, I have learned that good soil and containers make a world of difference. Also, having a close water source is helpful. I have hauled many gallons of water on hot days. Finding a local garden club or master gardener to assist with obtaining plants or seeds or serving as an extra pair of hands is helpful. The combination of classroom lessons and hands-on experiences make for a very successful learning environment.

Orange County Elementary School students harvest vegetables each May, while miniature pumpkins are harvested in fall.

Students monitor the progress of leafy greens in Orange County Elementary School's Peter Rabbit Gardens.

ANGELA MILLS – Oakland Elementary School, Suffolk

Q How did your garden begin? How has it grown?

A Our garden began after students harvested pumpkin seeds from the class pumpkin and wanted to plant them. After we received a grant that funded a lighted, indoor growing station, students could choose to plant carrots, flowers, grass, lettuce or pumpkin seeds. Our seeds sprouted and grew very well in our indoor growing station. The balance of the additional funds is earmarked for benches to provide seating for outdoor learning in our garden when school reopens for students.

Q What plants do you have in your garden? Which have worked especially well?

A The grasses grew quickly and excited the students. The carrot, lettuce and pumpkin seeds also grew well, and one pumpkin was harvested.

Q What has been your best teaching moment using the garden?

A The ability for the students to harvest their own pumpkin seeds, plant them and see the life cycle of the plant was a very rewarding teaching experience.

Q What advice do you have for other teachers looking to start or expand a garden?

A The growing station is a wonderful way to grow plants indoors during the wintertime. Bringing the garden inside was amazing!

CONTENT AREA

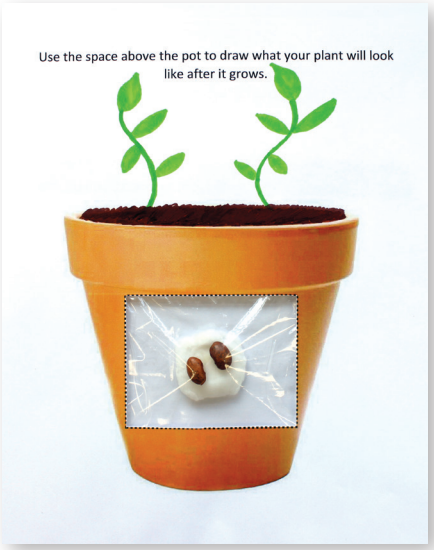
SOL: Science: Life Processes

Literacy: Vocabulary

Objective: for students to: Germinate a seed.

Materials

- Flower pot template: Download using the QR code below, or at **bit.ly/peek-a-boo-flowerpots**
- Plastic sandwich bags
- Cotton balls
- Water
- Seeds
- Tape
- Markers or crayons



Students will visualize how their plants will look as their seeds sprout and continue growing.

LESSON PLAN 1

Peek-A-Boo Flower Pot

Background Knowledge

The basic necessities for a seed to grow include light, food and water. Sunlight or an artificial lighting system provides the energy plants need to perform photosynthesis, the process they use to produce their own food. Seeds have built-in food supplies, and the food located inside them will feed plants once they sprout, or germinate, from the seeds. Once a plant reaches a certain size, it will begin to absorb nutrients from the soil through its roots to help with photosynthesis. Water is essential to all living things, and plants are no exception. Plants receive water through their roots and veins in the stems and leaves, absorbing water from the soil that surrounds them. When the area around their roots becomes dry, some plants' roots will continue growing to find a new source of water.

Ornamental plants and flowers, like the ones that typically are found in pots and other containers, are part of the horticulture industry. Horticulture is an important segment of agriculture and includes cut flowers, landscaping plants, turfgrass and many other plants.

Procedure

1. Cut a square in the middle of the flower pot to reveal a window for your seed.
2. Wet a cotton ball. It should be thoroughly wet, but not dripping.
3. Place two to three seeds on the cotton ball, and place it inside the plastic bag.
4. Close the bag, and tape it to one side of the flower pot.
5. Allow students to color and decorate their flower pots.
6. Tape flower pots to a window to allow students to monitor their seeds' germination and growth.

Extension

Once students' seeds begin to sprout, you may remove them from the plastic bags and replant them in a container. Be careful when removing seedlings from the cotton balls, as the roots may tear. Seeds and plants best suited for replanting are flowers such as daisies, marigolds and zinnias, or vegetables such as beets, peppers or radishes. Herbs such as basil, cilantro, parsley or rosemary also are excellent plants for preschool container gardens.

Download a Peek-A-Boo Flower Pot template, and discover additional gardening activities from Virginia Agriculture in the Classroom.

CONTENT AREA

SOL: Science: K.7, K.9, 2.4, 2.8, 3.4, 3.8, 4.4

Objective: for students to: Germinate a seed.

Materials

- Newspapers
- Seeds
- Planting soil
- Water
- Empty soup or vegetable cans

LESSON PLAN 2

Newspaper Garden Pots

Background Knowledge

Germination occurs when a seed sprouts and begins to grow. It's important for students to understand that this process begins when there is a bud present in seeds. Explain to students that their sprout will need some time to grow, and that every plant matures at different times. Ask students what their plant will need to grow. All plants need water, light, nutrients from soil, oxygen, time and space to fully mature. This is something you can teach your students as they plant their own seeds. The process their plants will undergo also is something that should be discussed and monitored for a few weeks.

Newspaper pots give students a biodegradable container to continue growing their plants outdoors.

Procedure

1. Discuss seed germination with students, and identify the conditions seeds need to sprout.
2. Take a sheet of newspaper and fold it horizontally, leaving a portion showing at the top.
3. Fold the remaining portion over the previously folded section to create a thicker top.
4. Place a can so that its edge is level with the top edge of the newspaper. With the newspaper on the outside, roll the can along with the newspaper to create a paper tube.
5. Then, place the can end-down, and fold the leftover newspaper inward to create the bottom of the pot.
6. Remove the can from the newspaper pot.
7. Fill the pot with soil, and plant seeds.
8. Record the plant's progress in a journal.

Extension

Once the plants have grown large enough to plant outside, the entire pot can be planted into the ground. The newspaper will decompose in the soil.

Watch a Virginia Agriculture in the Classroom demonstration of the Newspaper Garden Pots activity!

BONUS ACTIVITIES

Square Foot Gardens

Square foot gardens are ideal for raised beds and containers, offering a great way for students to take ownership of their own gardening sections. In your garden, mark off square-foot grids using twine or wood slats. Otherwise, use pots that are 12 inches in diameter.

Planting recommendations

Once your garden is marked off, you can decide which plants go in each square-foot grid. Depending on the plant, you can plant several seeds in each 12" x 12" square.

- **One plant per square-foot**, with one seed planted in the center of each square: broccoli, cabbage, cauliflower, head lettuces, kale, large sunflowers, Patio tomatoes, peanuts, peppers, potatoes and New Zealand spinach.
- **Four plants per square foot**, with seeds planted 6 inches apart inside each square: basil, coriander, dill, leaf lettuces, mustard greens, parsley, parsnips, shallots, small sunflowers, sweet corn (small varieties), Swiss chard and turnips.
- **Nine plants per square foot**, with seeds planted 4 inches apart inside each square: anise, bush beans, chervil, corn salad (mache), leeks, nasturtiums and spinach.
- **Sixteen plants per square foot**, with seeds planted 3 inches apart inside each square: beets, carrots, cumin, garden cress, onions and radishes.

Teachers and students can decide what to plant inside each 12" x 12" square.

SEED BALLS: Get your hands dirty by making these with your students!

To create a seed ball, you will need craft clay, potting soil and seeds. Seeds from native wildflowers make an excellent choice because they will attract pollinators, an essential visitor to any successful garden.

Combine craft clay, soil and seeds to make your own seed balls.

To make between 24-30 seed balls, begin by combining 10½ ounces of craft clay with 6 ounces of potting soil. If the mixture is too dry, you may need to add some water. The consistency of the soil mixture should be similar to cookie dough. Next, add 3 ounces of seeds to the mixture, and form into balls about the size of golf balls.

To plant the seed balls, simply find a plot in your garden or yard in need of extra greenery, and lay them on the ground. Flowers will begin to grow once the seeds have been watered or it rains.

Watch a Virginia Agriculture in the Classroom demonstration of the Seed Balls activity!

VIDEO LESSONS

Watch horticulturalist and floral designer David Pippin demonstrate helpful tips and tricks for successful container gardens.

Listen to a reading of Demi's *The Empty Pot*, narrated by actor Rami Malek.

BOOK CORNER

Farmer Will Allen and the Growing Table, Jacqueline Briggs Martin, Lerner Publishing Group, ISBN: 9781430130017

The Extraordinary Gardener, Sam Boughton, Abrams Books, ISBN: 9781849766043

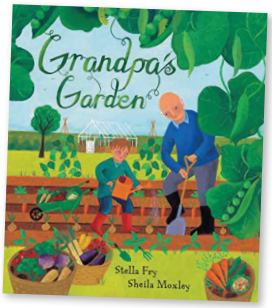
City Green, DyAnne DiSalvo-Ryan, Harper Collins, ISBN: 9780688127862

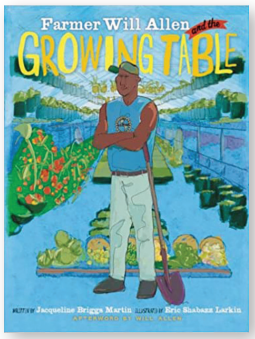
What's in the Garden?, Marianna Berkes, Sourcebooks, ISBN: 9781584691907

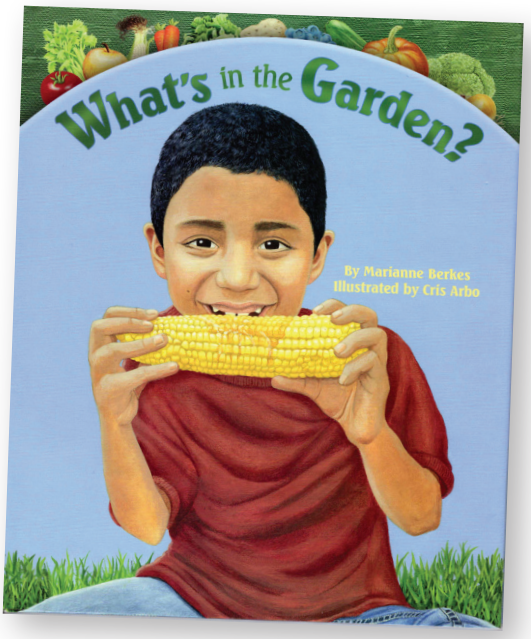
First Peas to the Table: How Thomas Jefferson Inspired a School Garden, Susan Grigsby, Albert Whitman & Company, ISBN: 9780807524558

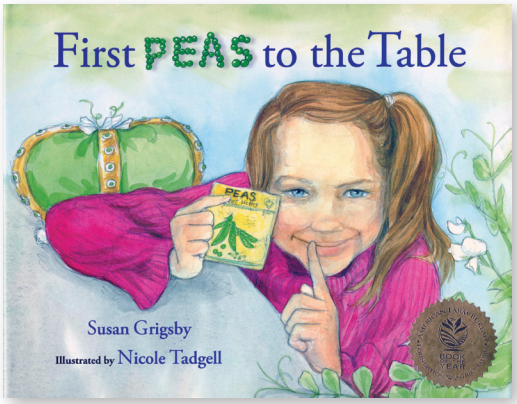
First Garden: The White House Garden and How it Grew, Robbin Gourley, Houghton Mifflin Harcourt, ISBN: 9780547574042

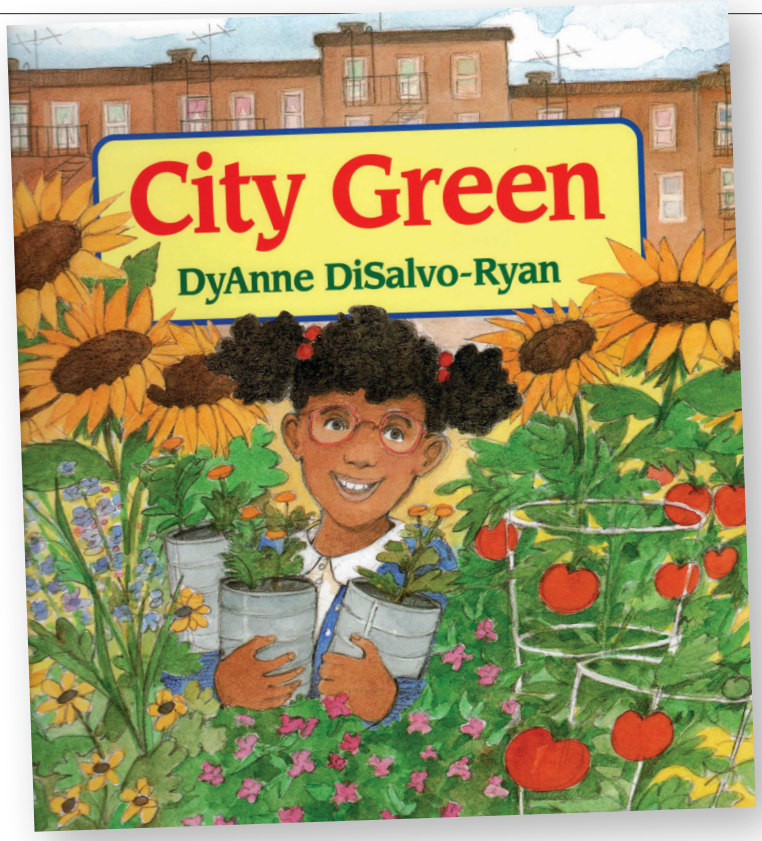
Grandpa's Garden, Stella Fry, Barefoot Books, ISBN: 9781846860522











Garden theme suggestions

Books make great garden themes! Depending on the size of your plot, you can draw inspiration from popular stories to implement in your own classroom garden. Fun examples are *The Tale of Peter Rabbit*, *Jack and the Beanstalk*, *Tops and Bottoms*, *The Tiny Caterpillar* and *Growing Vegetable Soup*.

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

Gardening teaches students to take pride and ownership in their work.

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**

Agriculture in the Classroom extends a special thank you to Cargill, the U.S. Poultry & Egg Association and Virginia Poultry Federation for their generous support. To learn more about AITC's mission, including how to support us, visit **AgInTheClass.org**.