

What's Growing On IN VIRGINIA



AGRICULTURE IN THE CLASSROOM • SPRING 2022 / VOLUME NO. 1



From the crust to the toppings, every ingredient found on a pizza is grown by Virginia farmers.

The pizza process

A slice of heaven made possible by Virginia farmers!

If pizza is your favorite food, statistics show you're not alone.

Surveys indicate children between 3 and 11 years old prefer pizza over any other food, and the average American eats 23 pounds of pizza a year. That's the equivalent of about 46 slices per person!

Additionally, the average American family eats pizza at home 30 times a year, and as a country, we eat enough pizza every day to cover 100 football fields. That's nearly 350 slices per second. In all, pizza sales total more than \$20 billion a year. Now that's a lot of pie.

No matter if you love pizza for its savory sauce, gooey cheese,

crispy crust or tasty toppings, we all have Virginia farmers to thank for growing our favorite pizza ingredients.

QR Video

Watch Virginia tomatoes go from seed to harvest at Red Sun Farms in Pulaski County!



THIS ISSUE

Pizza in Real Time	3
Pizza Assembly Line	5
Teacher Feature	7



Tomatoes

Produce farmers grow vegetables that are popular toppings, such as mushrooms, onions and spinach, but maybe most importantly, they grow the tomatoes needed to make pizza sauce. Tomatoes are an important crop in Virginia, and according to the Virginia Department of Agriculture and Consumer Services, the state produces the 10th most tomatoes in the U.S. Though most of Virginia's tomatoes are grown on the state's Eastern Shore, farmers from Central Virginia are known for producing juicy, tasty tomatoes.



Pork

Virginia is known for its robust agricultural output across the board, but the Old Dominion is especially famous for its hog production in southeastern areas of the state. The

2017 Census of Agriculture showed hogs were raised on 1,461 Virginia farms. More than 310,000 animals were produced in the state in 2020, ranking 22nd nationally in hog production. Pork products derived from these hogs, including bacon, ham, pepperoni and pork sausage, are common toppings on many pizzas.



Cheese

Milk and other dairy products are Virginia's fifth largest agricultural commodity. Cheese is among the many foods that are made from milk, and very few pizzas are complete without a melted layer of this delicious topping. Before cheese can make it onto a pizza, dairy farmers work day and night to milk their cows, often milking two or three times a day. From there, the milk can be processed and turned into cheeses like Parmesan, mozzarella, Gouda or cheddar.



Peppers

Whether you enjoy your pizza toppings sweet or spicy, few ingredients can cover the bases like peppers. Peppers typically are grown in America's Sun Belt, though Virginia is one of just a handful of outlying states that grow them. Technically a fruit, bell peppers, chile peppers and other pepper varieties are grown on more than 750 farms in Virginia. Just over 91% of Virginia-grown peppers are sold directly to customers at farmers markets or farm stands.



Wheat

While dairy, livestock and produce farmers receive the praise for the wide variety of delicious pizza toppings they provide, Virginia grain

farmers also play an important role in pizza-making. Wheat growers generate the flour needed to create pizza dough, which is the base ingredient for most pizzas. Primarily grown in Virginia's Northern Neck and in pockets throughout the state, wheat is Virginia's 15th largest crop, two places behind hogs.



Beef, chicken and turkey

Even though pork products like pepperoni often steal the show when it comes to pizza toppings, many other meats also can be found atop a pie. Barbecued chicken, ground beef and beef and turkey sausage all make excellent pizza toppings, and each is produced by farmers here in Virginia. Chicken and cattle are Virginia's two largest agricultural commodities, but you may be surprised to learn the commonwealth ranks 6th in turkey production, with farmers raising 14.5 million gobblers in 2021.

Activities

Get a Rise Out of Yeast!

When warm water is added to yeast, it activates enzymes in the dough that convert starch into sugar. Carbon dioxide gas is created, and the gas bubbles cause the dough to rise. The gas bubbles remain trapped in the dough to give it a light, airy texture.

Try this experiment to see yeast in action, using a soda bottle, sugar, yeast, warm water and a balloon!



With a soda bottle, balloon and a few household ingredients, you can see firsthand how yeast activates.

- Mix a teaspoon of sugar and ½ teaspoon of yeast in a 2-liter soda bottle. Add 2-3" of warm water, and shake the mixture.
- Stretch a balloon over the top of the bottle.

What happened? What might happen to the balloon in the next 30 minutes? Would the yeast work faster if you used hot water, cool water or more sugar?



Tomatoes
7 months from seed
to tomato sauce



Garlic
9 months from planting
to harvest



Cheese
3 years from birth
to cheese



Beef
18 months from birth
to market



Wheat
6 months from seed
to harvest



Onions
5 months from seed
to harvest



Peppers
6 months from seed
to harvest



Pork
5 months from birth
to market

Directions: How long does it take to get a pizza? Three minutes, thirty minutes? How long does it really take? Build your favorite pizza using the ingredients on this page. Calculate in months or years how long it really takes to make a pizza.

Ingredients	Time
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Lesson Plan 1

Pizza Garden Fractions

Background Knowledge

Review the basic ingredients used to make a pizza—dough made from wheat; sauce made from tomatoes; assorted herbs such as basil, oregano and parsley; and cheese made from dairy cows. Other ingredients may include sweet or hot peppers, onions, mushrooms, spinach, pepperoni, sausage and others. Discuss which of these ingredients can be grown in a garden, and which are raised on farms. Make lists of plant ingredients versus other ingredients.

Procedure

1. Tell students they are pizza garden designers. Discuss which ingredients come from plants, and review what plants need to grow.
2. Give each student a paper plate to create their own pizza garden plan.
3. Ask students to fold the plate in half, and then open it back up.
4. Have them lay a ruler along the folded line, and mark the line with a pencil.
5. Ask students to fold the plate again, this time in fourths, and have them open the plate back up.
6. Have them lay a ruler along this line, and again mark the line with a pencil.
7. Now the plate is divided in fourths and is ready to be designed as a pizza garden.
8. Have the students draw or paste a picture of wheat on a fourth of the plate.
9. Have the students draw or paste a picture of tomatoes or tomato plants on a quarter of the plate.
10. Have the students draw or paste a picture of herbs on a fourth of the plate.
11. Have the students draw or paste a picture of another pizza ingredient in the remaining quarter of the plate.
12. Label each ingredient with the plant name and the proper fraction.
13. Older students can fold their plates into eighths or measure and draw lines for thirds or sixths. Additional ingredients may be added for each fraction of the plate.

Extension

- Herbs such as basil, oregano and parsley are well suited for growing in containers indoors. Have students germinate their own seeds inside the

classroom.

- Repeat the Pizza Garden Fraction lesson, and ask students to be chefs and create their own pizzas. Ingredients may be drawn on the plate after it has been folded into the desired number of pieces (fractions), or ingredients may be cut from construction paper or craft foam.
- Plant a pizza garden at school. Keep in mind that the majority of crops in a pizza garden will mature during summer when most students aren't in school. Therefore, it is not recommended to plant this type of garden unless someone will maintain it during summer.
- Celebrate fractions with a pizza party! Show students the whole pizza, and count the number of slices. Ask the students to tell you the fractions as you show portions of the pizza ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, etc.) Then eat, and enjoy!

CONTENT AREA

SOL: Math: 1.3, 2.3, 3.3

Objective: For students to:

Identify the parts of a set that represent fractions

Compare fractions

Name and write fractions represented by a model

Materials

- White paper plates
- Rulers
- Pencils, crayons or markers
- Photos of wheat, tomatoes, herbs and other vegetables that can be found on a pizza

Lesson Plan 2

Virginia Pizza Assembly Line

Background Knowledge

Producers use natural, human and capital resources to produce goods and provide other services. Producers depend on consumers to use their merchandise, and consumers depend on producers to make the goods they want or need. It would be impossible for every producer to make everything, and therefore producers must specialize in certain goods and services.

Farmers are a great example of producers. They grow and raise food and fiber to feed and clothe people. Like other producers, farmers typically specialize in creating goods such as meat, milk and fruits and vegetables. While most farmers diversify and raise more than one crop, they cannot possibly raise all types of food. Virginia's mild climate allows farmers to raise many diverse crops such as apples, corn, soybeans, tomatoes, wheat and much more.

Procedure

1. Explain to students that producers create goods or provide a service. Have students brainstorm examples of goods, and then have them identify the producers of each good. For example, carpenters make chairs and farmers grow apples. Ask students if one producer would be able to make several goods. Review the concept of job specialization.
2. Tell students that Virginia's climate allows many different products to be grown by farmers. However, as mentioned above, one farmer cannot grow or raise all different types of food. Discuss how many foods students eat that contain multiple ingredients.

3. Place students into six teams. Assign each team one of the following Virginia products: grain (pita bread or tortillas); tomatoes (pizza or tomato sauce); dairy (cheese); produce (bell peppers); poultry (chicken strips or cubes); and hogs (pepperoni).
4. Ask each team to count off by six, then regroup students into mixed groups. Each person in the groups is responsible for supplying one component of the pizza. Have each group line up and begin to make their pizza.
5. Discuss what would have happened if one person in the group didn't do their job. What would have happened if each student was responsible for the same ingredient?
6. Eat and enjoy the students' pizzas!

Extension

Have students identify the region of Virginia where each of the pizza products is grown. Examine Virginia Agriculture in the Classroom's agricultural products and commodities map online at virginia.agclassroom.org/teachers/map.
 What other combinations of toppings can you come up with for a Virginia-themed pizza?

CONTENT AREA

SOL: Social Studies 2.9, 3.8, VS. 10

Objective: For students to:

- Identify Virginia products and resources
- Define producers and understand the necessity of job specializations

Materials

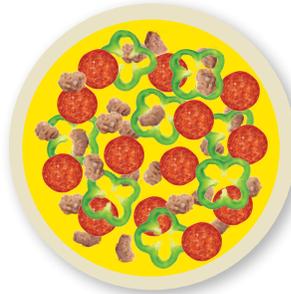
- Pita bread or tortillas
- Pizza or tomato sauce
- Cheese
- Chicken strips or cubes
- Pepperoni
- Bell peppers

Activities

Pizza Probability

Imagine you are making pizzas with pepperoni, sausage and green peppers for toppings. How many different pizzas can you make with these toppings if no two pizzas have the same toppings as the others?

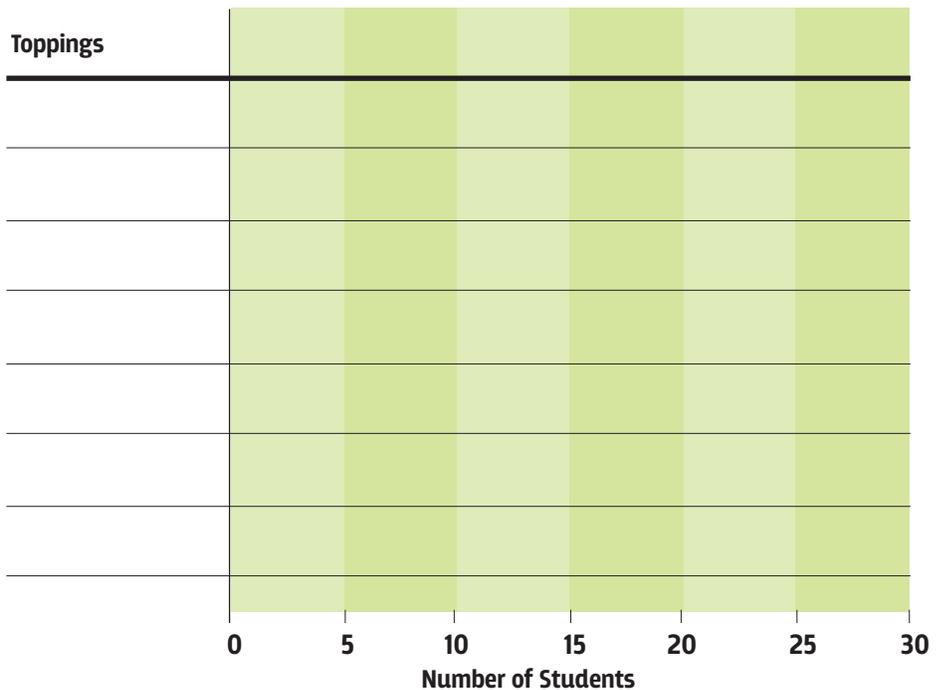
Fill in the circles until you run out of pizza topping combinations. The first pizza is completed for you.



A 3x3 grid of circles for recording combinations. The top-left circle contains the completed pizza image. The other eight circles are empty.

Pizza Puzzlers

Most Americans prefer pepperoni on their pizzas, but did you know toppings such as tuna and goat cheese are popular toppings in Europe? Survey your classmates to see who prefers which topping, and use this graph to chart the results.



Teacher Feature



Students at Northumberland High School get active in the kitchen by making their own pizzas.

Check out Tammy Wilkins' class in Northumberland County as they make pizzas, learn about the ingredients and prepare to plant their own pizza garden!

QR Video

Watch AITC's demonstration of how to make a tortilla pizza for an easy way to get your students involved in the kitchen.



Pizza gardens are a great idea for summer or year-round school programs!

Do you want to be our next Teacher Feature?

Email us at aic@vafb.com, and show us how you're connecting your students to agriculture. If you're picked to be featured in the next newsletter, we'll send your class an AITC book bundle!



What's Growing On In Virginia

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No matter what your favorite pizza ingredient is,
there's a Virginia farmer to thank for it!

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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