EDIBLE SCHOOLYARD NYC

Sixth Grade—Seed-to-Table Pizza Unit

The Summer Garden (September): Students orient themselves in the garden using a map, noting how the garden has changed since they left it in the spring and learning about what vegetables are in season in late summer.

Soil is Where Food Begins (October): Students study how soil is created from a combination of organic and inorganic material and begin the long process of making their own soil—which will be used to grow their pizza ingredients--through a "lasagna bed" (layers of cardboard, compost and straw).

A Tale of Two Pizzas (December): Students compare the seed-to-table stories of an industrially produced pizza and one grown and made locally, noting the health and environmental impacts of each.

Spring Vegetables and Herbs (January, lesson 1): Students study the foods they can grow and harvest in their garden in the spring. They examine and select some of the seasonably possible herbs for their pizza toppings.

Choosing our Spring Vegetables (January, lesson 2): Students continue their study of seasonality, this time focusing on and selecting the spring vegetables that they can grow for their pizza toppings.

Pizza Museum (February, lesson 1): Students explore a pizza museum that has been set-up in their classrooms, learning about the history and geography of pizza.

Spring Kale Pesto (February, lesson 2): Students learn that pesto is a sauce made from whatever herbs or greens are available, and they make a seasonal version with kale, to be used on their pizzas.

The Summer Garden

Aim
Students will orient themselves in the garden using a map. They will notice how the garden has changed since spring.

Summary
Students explore the garden by identifying different summer crops on a map of the garden. Students then water the garden. The lesson ends with a tasting.

Standards
CCSS: ELA, Grade 6, SL 6.1C:
Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.

NYS: Science, PS 1.1i: The tilt of Earth's axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and season.

Science, PS 2.2j: Climate is the characteristic weather that prevails from season to season and year to year

Materials
- Garden map
- Pencils
- Clipboards
- Tasting

Vocabulary
- Summer solstice
- axis

Procedure: Day One
Opening Circle (10 minutes)
- *Welcome back to school! Welcome back to the garden! Raise your hand if you can remember what the garden looked like in the spring. What was growing in the garden? What did we harvest? What did we make with the food we harvested? Who remembers harvesting salad last spring? Who remembers one thing that went into our salad? Who remembers what we did with the salad we harvested?*

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- *It's now September and the garden has changed quite a bit. How might the garden have changed? What do you think is growing in the garden now that it is summer? Write down one prediction on the back of your map. You can write, "I think the garden has changed by…." or "Last time, the garden… but now I think…."*

Inquiry Activity One (30 minutes)

- *We're going to go on a garden hunt so that you can see how the garden has changed. We'll get to see if any of your predictions are true, and we'll see what's growing in the garden now that it's summer. You each have a map of the garden. What information do maps give us?*
- Explain how students will use the map of the garden: *As you walk through the garden, you will be looking for 15 different plants that are growing in the garden. You will write the name of the plant that's growing in the bed. You will know the name of the plant by reading the plant labels.*
- Review landmarks in the garden to help students orient themselves.
- Review the rules of garden.
- Students explore the garden and fill in their maps independently.

Closing Circle (5 minutes)

- *Were any of your predictions true? What were some of the plants growing in the garden? Why do you think we are growing these plants now at the end of summer?*
- *We know that summer is the hottest time of the year. Who can explain why?*
- Talk about summer solstice, why summer happens (the tilt of the earth's axis means our part of the planet is at it's closest position to the sun), and what it means for the garden.
- Introduce students to the guidelines for our tasting.
- Tell students that during the tasting, we wait for everyone to get one before we try it. While we wait, we can use our other senses: smell, touch, and sight. We also only take one piece of the tasting, and we take the first one that we touch.
- Remind students of these rules as you pass around the tasting. Once all students have one, try the tasting all together.
- *What do you notice about the taste? Give me a thumbs-up if it's sweet. Give me a thumbs-up if it's sour.*
- *Great job getting to know our summer garden. Fall is on its way, and our garden will be changing again very soon, as it will almost every season. Next time we see you, we'll spend more time talking about your garden project this year: the pizza garden!*

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Procedure: Day Two

Opening Circle (10 minutes)

- *Great job yesterday on our exploration of the garden. Who can remind me of something that's growing in our summer garden?*
- Remind students of garden rules as they get ready to do garden work.

Garden Activity (30 minutes)

- *As you know, summer is the hottest time of the year, and it's a time when we need to make sure that our plants are properly watered. Today we are going to review how to water. This is an important job that we will be doing throughout the year.*
- Students should know that they should water each plant for five seconds, but that they should stop watering if the water starts to puddle. Students should know that they need to water the soil at the base of the plant and not the leaves. They may need a partner to help move larger leaves to the side so that they can see and water the base of the plant.

Closing Circle (5 minutes)

- Have students recap what they did in the garden.

Common Core State Standard Extension

CCSS.ELA-LITERACY.W.6.7: Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

- Students research what the weather is like in September in other places—Australia, Northern Canada, and the Dominican Republic. What grows in these places in September? What are some reasons the weather and the crops are different in those places than they are in New York?

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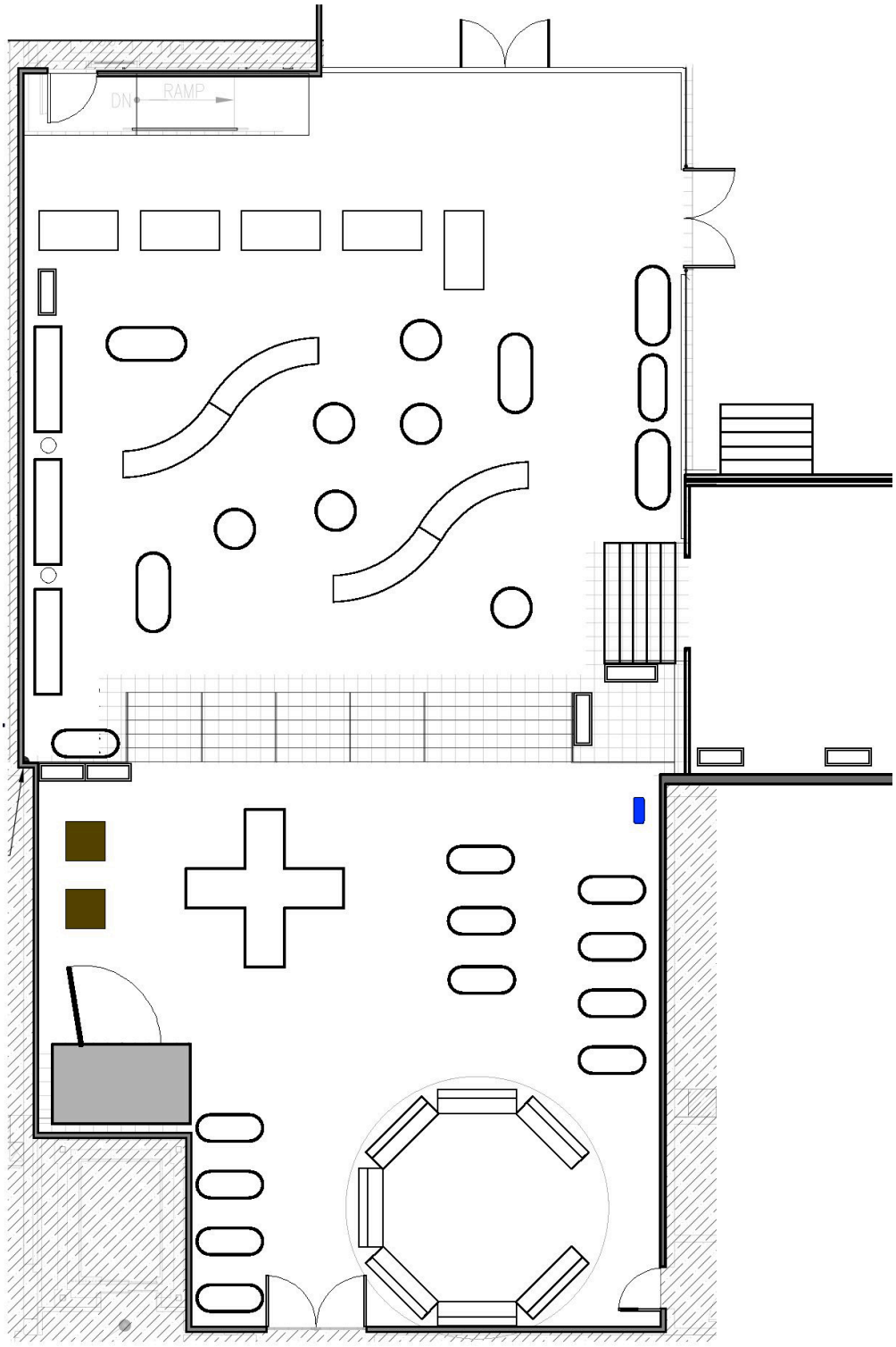
Sample Garden Map (from PS 7)



Soil Is Where Food Begins!

Aim
Students will discover how soil is created from organic material.

Summary
Students layer cardboard, compost, straw, etc. to create a “lasagna garden,” ie, layers which will decompose and turn into soil.

Standards
CCSS ELA. Grade 6. SL2
Interpret inform:ation presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

NYS: Science. LE. 1.2.a: Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.
Science. LE. 1.1c: Nonliving things do not live and thrive.
Science. LE. 1.1d: Nonliving things can be human created or naturally occurring.
Science. LE. 6.1d Decomposers are living things that play a vital role in recycling nutrients.

Materials
- tasting
- cardboard
- compost
- straw
- cocoa mulch
- newspaper
- soil amendments
- Lasagna Garden Recipe
- Do Now: What are some ORGANIC materials we can use to make soil in or garden?

Vocabulary
- organic
- inorganic
- decompose
- decomposers

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Procedure: Day One

- *Today we will be starting our pizza garden. Yay! What do you think the first step could be when we create our pizza garden? Why?*
- *Soil is the beginning. We need soil to be able to grow our pizza plants. We need to make about 12 inches of soil. How long do you think it takes to make just 1 inch of soil?*
- Take guesses.
- *It depends. If we make soil out of inorganic matter like rocks and minerals, it could take 500 - 1,000 years to make 1 inch of soil. If we make soil out of organic matter, it could take us about 5 months to build 12 inches of soil.*
- *So should we use inorganic matter like rocks to build soil or should we use organic matter? Right! We will make our soil out of organic matter—things that are living or that used to be living--and soil is actually alive! What does it mean to be alive? What do all living things need? What do all living things do?*
- *So now that we have decided to make our soil out of organic matter, what are we are going to use?*
- *When I say "organic," I am talking about things that are alive and also things that used to be alive but are now dead. Inorganic things, on the other hand, are things that were never alive.*
- Give examples and non-examples.
- If you think your students might be confused with the other way "organic" is used (ie, for food grown without chemicals), clarify that the word can have two meanings.
- *So for your "Do Now," write down some organic items that you think we might be using to make our soil. You may have already seen or used some of these things in the garden.*
- Students share out guesses.
- *We will be using cardboard, compost, straw, cocoa mulch, newspaper, and some soil amendments to make soil. All of these items need to decompose. How do you think this happens? FBI, water, sun.*
- *We know that soil is the beginning of our garden, soil is alive, soil can be made out of living things, that the FBI, with the help of the sun and water, will eat the cardboard, straw, newspaper, and cocoa mulch, which will decompose and become soil.*
- *So what's the first step? How will this all happen? We will be building soil by lasagna gardening.*
- *Raise your hand if you've ever made lasagna. How is lasagna made? First you put the noodle, then a layer of sauce, then a layer of cheese. Then repeat! Noodles, sauce, cheese. So similar to lasagna layers, lasagna gardening is a method to build soil in the fall by making layers of all these living things that will decompose throughout the winter and turn into rich, living soil by the spring.*
- *OK so let's take a closer look at what these lasagna layers actually are and how we are going to layer them. Distribute lasagna gardening recipe. Check for understanding of recipe steps.*

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- *There will be a bamboo stick in the garden bed, which will be marked off and labeled. Show the lines on the bamboo stick. You will work with your team to fill the bed up to the specified line. When your materials get up to the line, you can move on to the next ingredient. When you need an ingredient, you and your partner(s) will have to go to where the ingredients are located, scoop some into your bucket, take it back to the bed that you are working on, and spread it evenly. You might have to make several trips. Directions will be at the bed in case you forget what the layers are and what order they go in. Questions?*
- Split students into 2 teams that will be working on 2 different beds.

Closing Circle:
You guys did a fantastic job working together to build soil, which should be ready for us in the spring. Next month we will become pizza experts--we will learn everything there is to know about pizza!

Common Core State Standard Extensions

ELA. W.6.3: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- Students create an informational pamphlet: "How to Make Your Own Soil!" based on their experiences with their lasagna garden bed.

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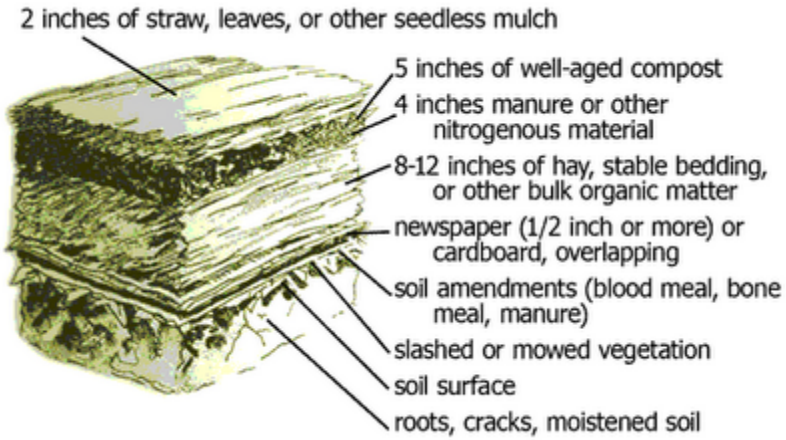
Lasagna Gardening = Soil Building

Lasagna gardening typically looks like this:



Ingredients:

- Amendments
- Shredded cardboard
- Compost
- Straw
- Cocoa mulch
- Shredded newspaper
- Water

Directions:

1. Spread amendments evenly on soil. Cultivate.
2. Spread shredded cardboard evenly on soil up to the 1st line.
3. Spread compost evenly on cardboard up to the next line.
4. Spread straw evenly up to the next line.
5. Spread cocoa mulch evenly on compost up to the next line.
6. Water.
7. Spread shredded newspaper evenly up to the next line.
8. Spread compost evenly on straw up to the next line.
9. Spread straw evenly on compost to the next line.
10. Water.
11. Clean up!

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Pizza Jeopardy and our Pizza Choices

Aim
Students will be exposed to the pizza-making process and will play a game that highlights pizza's place in the world.

Summary
Students will play Pizza Jeopardy, learning about how much money the pizza industry makes. Then students will compare and contrast two different types of pizzas, examining factors from the ingredients from which they are made to the workers involved in their production, and decide which pizza they prefer. The session ends with a seasonal tasting.

Standards
CCSS:
ELA.RI.6.1: Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Materials
- Dry erase markers
- White boards
- Prize for winning team
- Seasonal tasting
- Timer
- Pizza evaluation worksheets
- A Tale of 2 Pizzas fact sheet.
- Pizza A and Pizza B photos
- Pencils

Vocabulary
- Sodium
- Calories
- hormones

Opening Circle (5 minutes)
- *What did we do last time?* We learned about where pizza came from. *Last time we looked at pizza's past, but today we are going to think about pizza in modern times. Pizza is big business, and you have many options when it comes to buying and eating pizza.*

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Inquiry Activity One (15 minutes)

- *Pizza is a part of all of our lives here, but how much do we really know about it? We're about to find out!*
- *You will be working with your teammates to correctly answer 10 questions about pizza. Each team will have 20-seconds to talk to their teammates and write down the agreed-upon answer on your dry erase board. The team that answers the question correctly, or comes closest to the correct answer, receives a point. The team with the most points at the end of the game wins a prize.* Check for understanding.
- Move students into teams and distribute dry erase markers and white boards.
- Use the following Pizza Jeopardy questions or substitute your own depending on what you would like to emphasize about pizza.

1. We know that Americans love pizza. On average, how many slices of pizza does each American--man, woman, and child--eat in a year? (46 slices)

2. During what event are most of these pizzas being eaten? (Super Bowl week)

3. If you had to guess, what topping was most likely on these pizzas? What is the most popular topping? (Pepperoni)

4. What are the nine most popular toppings behind pepperoni? (2. Mushrooms, 3. Onions, 4. Sausage, 5. Bacon, 6. Extra cheese, 7. Black olives, 8. Green peppers, 9. Pineapple, 10. Spinach)

5. Who is more likely to order vegetable toppings on their pizza: men or women? (Women are twice as likely as men to order vegetable toppings.)

6. People all over the world love pizza, not just Americans. How many pizzas are sold each year in the world? (5 billion pizzas)

7. Of those 5 billion pizzas sold in the world, how many of them are sold just in the United States? (3 billion pizzas)

8. Because people all over the world buy so much pizza, the pizza industry, including pizza chains, restaurants, and frozen pizza, makes a lot of money each year. How much money in all do pizza companies make in a year? ($30 billion)

9. Who is the largest pizza chain in the world? (Pizza Hut is the largest pizza purveyor in the world, with 12,583 total restaurants and combination delivery/takeout units in the U.S. and over 90 other countries; 6,590 units are company-owned. Pizza Hut generated approximately $7.7 billion in sales in 1996.)

10. How many pizzerias are there in New York? (Over 9,000 pizzerias)

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- Tally the points and announce the winning team.
- *Were you surprised by any of the answers?* Take-aways could be that Americans consume the majority of the world's pizza and that selling fast food pizza is a big money maker for companies.

Inquiry Activity Two (25 minutes)

- *With over 9,000 pizzerias in New York, we have a lot of choices when it comes to choosing a pizza. What should we consider when we're buying a pizza?* Students quickly brainstorm a list that may include taste, cost, prep time, etc.
- Tell students that they will meet two very different kinds of pizzas: Pizza A and Pizza B. They will learn some information about both pizzas and decide which pizza they prefer.
- Distribute pizza evaluation worksheet and check for understanding.
- Either give out A Tale of 2 Pizzas Fact Sheet and have students read it—aloud as a whole class, on their own, or in small groups. Or, have one student represent Pizza A and describe him/herself and another student represent Pizza B.
- Have students total their votes for Pizza A and Pizza B on their evaluation sheet. Which pizza did they prefer? Why?
- Tell students that Pizza A reflects information about Domino's pizza, but it is probably fairly accurate for most fast food pizza. Also, there is not a lot of information available online about the fast food pizza-making process or where fast food chains get their ingredients from. Why do they think that is?
- Tell students that they should also consider where their money goes. When you buy a pizza from Domino's, most of that money goes to a fast food chain whose headquarters is in Michigan. Some of that money goes to paying for milk and vegetables from industrial dairies and farms. When it comes time to buy our pizza dough, we are supporting a family-run bakery in the Bronx. When we buy our cheese, it supports a family-run farm in Wisconsin. Where would you like your money to go?
- Tell students that we are not saying that they should stop going to Domino's or eating fast food pizza. We want students to be educated and aware when they make food choices. When is it a good time to get a pizza from Domino's?

Closing Circle (5 minutes)

- *The pizza that we will make this year is pretty special. What makes it so special?*
- Seasonal tasting

Sources:
http://www.pizzafacts.net/pizza-facts/pizza-fun-facts/
http://www.thepizzajoint.com/pizzafacts.html
http://www.health.gov/dietaryguidelines/dga2010/DietaryGuidelines2010.pd

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Common Core State Standard Extensions

CCSS.ELA.W.6.1: Write arguments to support claims with clear reasons and relevant evidence.

- Have students write a letter to the editor from the point of view of either Pizza A or Pizza B explaining why s/he is the better choice of pizza. Use evidence from the text.

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A Tale of Two Pizzas

1. We're going to start by talking about the main parts of the pizza: the dough, sauce, and cheese. Let's start with the pizza dough.
Pizza A: The dough is made in a factory in Michigan (615 miles away)
Pizza B: The dough is made at Terranova Bakery in the Bronx (7 miles away) Consider how fresh the dough is. Consider the environmental implications: How does the dough get from Michigan to NYC? How much energy is used to transport the dough?

2. Next let's address the sauce that goes on top of the pizza crust.
Pizza A: Workers pick tomatoes to make the pizza sauce. The majority of tomato farm workers are paid less than minimum wage, getting paid $0.45 for every 32-pound bucket of tomatoes picked. A normal day begins at 6:30am and ends at 8pm. Farm workers work in fields that are routinely sprayed with chemicals (methyl bromide and methyl iodide) to kill insects. However, these chemicals contaminate the air, water, and are known to cause health problems and deformities in farm workers and their children.
Pizza B: The workers are student gardener-cooks who will make sauce out of the vegetables in the garden. Students work in the garden once or twice a month for 30 minutes. They are not paid. No chemicals are used in the garden.

3. Finally, let's talk about the mozzarella cheese, the most expensive part of your pizza.
Pizza A: The largest producer of mozzarella cheese is Leprino Foods, which probably supplies the cheese for Pizza A. Because Leprino Foods requires so much milk to make cheese, it buys milk from industrial dairies like Winchester Dairy. Industrial dairies hold hundreds of cows that are kept indoors in unsanitary conditions. Cows are given hormones so that they keep producing milk and are often killed off after four years because their bodies are too stressed out from constantly being pregnant and living in confinement and filth.

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Pizza B: The cheese-making plant is within 30-miles of several Wisconsin dairies. The cheesemaker pays its farmers for the quality of their milk rather than the quantity. Farmers pay the cheese-making plant a penalty for milk that contains antibiotics. Farmers are dropped if their milk contains hormones.

4. Taste and appearance have a lot to do with why we eat pizza. Freshness of ingredients also comes into play.
Pizza A: Deluxe pizza. At fast food chains, ingredients may be delivered once a week. Tomato sauce comes in bags of tomato concentrate that must be mixed with water. Vegetable toppings are delivered cold or frozen and stored in a walk-in refrigerator for the week.
Pizza B: Garden spinach, onion, and mushroom pesto pizza. All of vegetable ingredients will be harvested less than two hours before we eat our pizza. Our pizza sauce will be made fresh right before we assemble and bake our pizza.

5. Cost is always a factor when it comes to buying food.
Pizza A: 12-inch pizza with spinach, mushrooms, and onions that costs $18.50.
Pizza B: 12-inch pizza with spinach, mushrooms, and onions that costs $14.50. Ingredients that cannot be grown or produced--pizza dough, a lemon, fresh mozzarella cheese, and some parmesan cheese need to be purchased, which costs about $14.50. Toppings are all grown in the garden.

6. Nutrition is not always something we consider when we eat pizza, but we're going to consider calories and sodium. Our bodies need calories to function. The more active we are, the more calories our bodies burn. People who consume more calories than their bodies need are at risk for becoming obese and developing serious health-related diseases down the road. Our bodies need very little sodium to function. In general, the more sodium we consume, the higher our blood pressure. Keeping our sodium levels at a normal range reduces the risk of heart and kidney disease.
Pizza A: 1,555 calories and 3,110 milligrams of sodium
Pizza B: 1,430 calories and 2,100 milligrams of sodium

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Name: _____

Pizza A	Pizza B

Which pizza do you prefer? Why?

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Spring Vegetables and Herbs

Aim
Students will understand how seasonality affects the availability of pizza toppings.

Summary
Students will use Local Foods wheels and seed catalogs to research vegetables that can be harvested in the spring. They will smell, taste, and vote on dried herbs, which will be incorporated into the pizza dough recipe in June.

Standards
CCSS:
ELA.RST.6-8.7—Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
NYS:
Science.PS.1.1i—The tilt of Earth's axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and season

Materials

- Chart of students' suggested toppings from previous lessons
- Fresh herbs to show students
- Dry herbs, in bowls and labled
- Local Foods wheels, available at: http://www.localfoodswheel.com/northeast-region
- Or, make your own chart of seasonal food, using this Grow NYC resource: http://www.grownyc.org/greenmarket/whatsavailable
- Seed catalogs
- Marker
- Trays
- Topping worksheet
- Herb worksheet
- Pencils
- Bread, cut into small pieces for tasting
- Olive oil in bowls

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Vocabulary

- Local
- Herb

Opening Circle (5 minutes)

- *What did we do last time?* We played Pizza Jeopardy and learned about Domino's pizza ingredients, nutrition, and cost versus the pizza that we will make in class. *What are some facts that you remember about pizza?*
- *Today we are going to start choosing what toppings should go on our pizza and how we would like our pizza crust to be flavored.*

Inquiry Activity One (25 minutes)

- *We have created a list of the toppings that you suggested in September and November. We will be considering two things to help us choose our toppings: Can we grow the topping in the garden? Can we harvest the topping in the spring? Since we will be making our pizza in the spring, we need our plants to be fully grown and ready to be harvested then.*
- *So let's answer the first question together: Can we grow the topping in the garden? Do you see any toppings that cannot be grown in the garden?* Students share answers. Cross them off the list.
- *To help us answer the second question—Can we harvest the topping in the spring?—we will be using a tool called a Local Foods wheel. What does "local" mean?* Help students define if necessary. *This wheel tells us what foods are available each season.* Explain how the wheel works and check for understanding.
- Distribute topping worksheet. *You will be using this wheel to figure out when toppings are available. Find the topping on the wheel, and in the second column, write the name of the season(s) during which it is available. You can also add spring toppings to the first column that could be delicious on a pizza. What would you write next to these new toppings in the second column? If you need some ideas for toppings, you can look through a seed catalog. Then use the wheel or read the information to find out if it can be harvested in the spring or all year long.*
- Students work independently or with partners. Have students share out which toppings should be crossed off the list and why, as well as add new spring or year round toppings to the chart.

Inquiry Activity Two (15 minutes)

- *Pizza cooks use a lot of spices to make pizza sauce, and we, the eaters, sometimes sprinkle herbs on our slices to increase the flavor. What are herbs?* Help students define if necessary. *We oftentimes use dried herbs in our cooking because they are available all year long and can last on the shelves longer than fresh herbs. We will be smelling and tasting dried herbs that are commonly used in Italian cooking. We will vote on the herbs that we would like to add to our pizza dough so that it is flavorful.*

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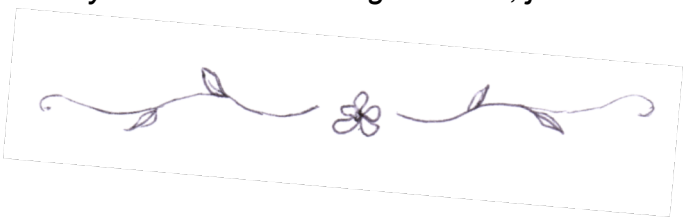
- *At your tables you will find your tasting worksheet and six herbs. You can dip a piece of bread in some olive oil, take a small pinch of the herb, smell it, and then sprinkle it on top of the bread. Taste it, write down one word that describes its taste, and rate it from 1 to 5. When you finish smelling and tasting all six herbs, we will vote on our top three herbs.*
- Introduce the six herbs and show students their fresh counterparts, if available. Students explore herbs independently. When they are finished, have students vote, by a show of hands, on their top three herbs.

Closing Circle (5 minutes)

- *You did a fantastic job researching spring pizza vegetables and choosing herbs for our pizza crust. Next time we will be tasting some of the spring vegetables that you found and voting on them, just like what we did today.*



Common Core State Standard Extensions

CCSS.ELA.W.6.2—Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- Students pretend to be the owners of a new, seasonal pizzeria. Their job is to create a pizza for each season, explaining to customors which ingredients the pizza contains and why.

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Herbs

In each box, write one word on the line to describe the herb's taste. Then rate each herb from 1 to 5 by circling its score. Circle your 3 favorite herbs.

Basil

_____

1 2 3 4 5

Oregano

_____

1 2 3 4 5

Rosemary

_____

1 2 3 4 5

Sage

_____

1 2 3 4 5

Parsley

_____

1 2 3 4 5

Thyme

_____

1 2 3 4 5

Name: _____

Can we harvest the pizza topping in spring?

Use the Local Foods wheel to determine which season(s) each pizza topping is available. Write the name of the season(s) in the second column.

Pizza Topping	Season(s) Available

Choosing our Spring Vegetable Toppings

Aim
Students will use their sense of taste to choose the vegetables that they will propogate, care for, and harvest for their spring pizza.

Summary
Students will be introduced to eight vegetables that are ready for harvest in the spring. They will taste and rate each vegetable and then vote on their three favorites. Students will submit their votes, and the top vegetables in the class will be selected for the spring pizza.

Standards
CCSS:
ELA.SL.6.4: Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

Materials

- Seasonal spring vegetables
- Trays with vegetables labeled
- Worksheet
- Pencils
- Vegetable information sheet

Opening Circle (5 minutes)

- *What did we do last time?* We used the a Local Foods wheel and seed catalogs tp research possible pizza toppings and the season(s) they can be harvested. We also tasted and voted on herbs that we will add to the pizza dough to give it more flavor.

Inquiry Activity One (25 minutes)

- *We have looked at your suggestions for spring vegetable toppings from our last class. Today you will taste eight vegetables, and you will record your thoughts about them and then decide on three of them that will go onto the pizza. By the time we leave here today you will vote, and we will reveal which plants will go on our pizza.*
- *At your tables you will find your tasting chart and the plants to taste. At the bottom of the worksheet, make sure you clearly state why you want that*

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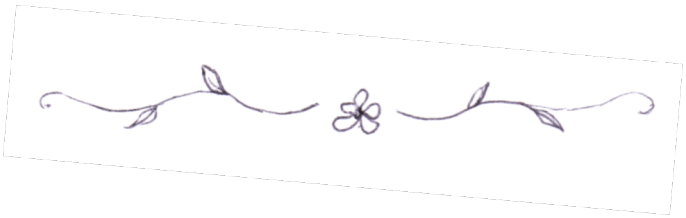
specific plant in your salad. You should consider plant parts, color, taste, and texture.

- Circulate to make sure students are tasting their plants and recording. If students finish early, they can read information about the vegetable choices. They can include information that they learned as reasons why they chose their vegetables, if applicable. When students are finished tasting, have them advocate for, and then vote on their three favorite vegetables

Closing Circle (10 minutes)

- *You did a fantastic job researching these spring veggies and choosing the ones that your class will grow, take care of, and harvest for your spring pizza.*
- Reveal the class' pizza choices.
- *Next month we will be starting to grow these seeds indoors.*



Common Core State Standard Extensions

CCSS.ELA.W.6.1: Write arguments to support claims with clear reasons and relevant evidence.

- Students pretend to be advertising executives and create ads for the vegetables they chose, using persuasive language and imagery.

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Spring Vegetable Toppings

In each box, write one word on the line to describe the vegetable's taste. Then rate each vegetable from 1 to 5 by circling its score. Circle your 3 favorite vegetables.

Spinach

_____

1 2 3 4 5

Peas

_____

1 2 3 4 5

Onions

_____

1 2 3 4 5

Swiss chard

_____

1 2 3 4 5

Garlic

_____

1 2 3 4 5

Kale

_____

1 2 3 4 5

_____

1 2 3 4 5

_____

1 2 3 4 5

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Where Does Pizza Come From?

Aim
Students will begin to understand some of the historic and geographic origins of the food they eat.

Summary
Students are visitors in a pizza "museum." They use pictures and captions in the museum to understand that pizza has a geography and a history.

Standards
CCSS:ELA, Grade 4, RI 3: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

NYS: Social Studies, 2.1c: Study about different world cultures and civilizations focusing on their accomplishments, contributions, values, beliefs and traditions.

NYS: Social Studies 1.2a: Gather and organize information about the traditions transmitted by various groups living in their neighborhood and community.

Materials
- Pizza Museum exhibit slides
- Pizza Museum worksheets
- Pencils
- Clipboards
- World map
- Potato Museum reading (optional)
- Pizza tasting (or other seasonal tasting)
- Photo of Greek lagana
- Dry lasagna noodle

Vocabulary
- geography
- origins
- mozzarella
- flatbread
- ancient
- B.C.

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Opening Circle (10 minutes)

- *What did we do last time we were together?* We made a lasagna garden. *Where do you think lasagna comes from? We think of lasagna as an Italian food, but lasagna may have a connection to ancient Greece. The ancient Greeks had a flat, thin bread, which they called lagana.* Show photo of lagana. *The Italians learned about lagana, which may have inspired them to create a flat, thin noodle that we call lasagna.* Show lasagna noodle.
- *But enough about lasagna. Today we're going to figure out where pizza came from. Where do you think pizza came from? New York is very famous for its pizza, but before it could get here, it had a long journey. Where did it come from before its arrival here in New York? Italy also has an important place in pizza history.*
- *Today, you will visit the pizza museum where you can explore the places that pizza came from. Just like lasagna, you may find that pizza has connections to several places around the world. Here is your pizza museum guide. Answer these questions as you look at the exhibits, and soon you will be experts on the geography and history of pizza!*

Inquiry Activity One (30 minutes)

- Give students the pizza museum guides on clipboards. Tell students that they do not need to visit the exhibits in order. However, for certain exhibits, they must read the slides in order; point out these exhibits. Tell students that when they have completed the museum guide, they can turn it over and either list or draw/label their favorite pizza toppings.
- Circulate and help as needed.
- When all students are done, gather them to discuss the answers to the museum guide.
- Have students come to the World Map to show all the places that contributed to pizza: Persia/Iran, Greece, Uzbekistan, Egypt, South America, Italy, North America.
- You can also point out that five of the seven continents contributed to pizza as we know it today: Europe, Asia, Africa, North America, and South America.
- *So where is pizza from, in the end?* You can emphasize that there is no right answer to this, that really pizza turns out to be from many different places in the end.
- *What are some pizza toppings that we could grow in the garden?*

Closing Circle (10 minutes)

- Share a pizza or tomato, basil, mozzarella tasting.

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Common Core State Standard Extensions

ELA, Grade 4, W 1: Write opinion pieces on topics and texts, supporting a point of view with reasons and information.

- Write a restaurant review of a pizzeria.
- Where is pizza from? State your opinion and support it with facts from the pizza museum.

ELA, Grade 4, W 7: Conduct short research projects that build knowledge through investigation of different aspects of a topic.

- Students create a museum for another type of food of their choice, researching its origins and other interesting facts and creating exhibits.
- Students write a research paper about the origin of another type of food of their choice.

Other Extensions

- Math: Pizza fractions. You have three equal-sized pizzas. One is cut into four slices. One is cut into six slices. One is cut into eight slices. Draw the three pizzas and show the slices. Which pizza has the biggest slices? Which pizza has the smallest slices? What fraction represents 3 slices out of the 8-slice pizza? What fraction represents 5 slices out of the 6-slice pizza? What fraction represents 2 slices out of the 4-slice pizza? Shade in these fractions on the pizzas. Write the fractions in order from smallest to largest.

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Name: _____

Pizza Museum: Where Does Pizza Come From?

Flatbread (#1-4): Flatbread is like an early pizza crust. ***Where*** did it come from?

Tomato Sauce (#1-4): ***Why*** was pizza sauce invented?

Pizza History (#1-7): ***What*** are the 3 main ingredients in a Pizza Margherita?

Pizza in the U.S.A. (#1-4): ***Who*** brought pizza to America?

Growing a Pizza: List or draw/label your favorite toppings in the pizza on the back of this page.

Asia

By onourownpath.com [CC BY-SA 2.5 (http://creativecommons.org/licenses/by-sa/2.5) or CC BY-SA 2.0 (http://creativecommons.org/licenses/by-sa/2.0)], via Wikimedia Commons

A man in Burma makes a kind of flatbread called “chapati.”

Africa

By Peter van der Sluijs. (Own work) [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons

An Egyptian woman makes flatbread. Egyptians have been eating this bread since the time of the pharaohs – for thousands of years.

Iran—The Middle East

By پووی (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0) or GFDL (http://www.gnu.org/copyleft/fdl.html)], via Wikimedia Commons

People in Iran, also known as Persia, have been eating flatbread for more than 2,000 years. Persian soldiers used to bake flatbread on their shields and cover the bread with cheese and dates. Persia is in the Middle East, where Africa, Europe, and Asia all come together.

Europe—Ancient Greece

[CC BY 2.5 (http://creativecommons.org/licenses/by/2.5)], via Wikimedia Commons

This ancient Greek figure is putting flatbread in the oven. Ancient Greeks covered their flatbread with herbs, or ate it with cheese or honey. The people of Greece have been eating flatbread for at least 2,500 years.

Luis Egidio Meléndez [Public domain], via Wikimedia Commons

The first pizzas in Italy were not made with tomato sauce.

In fact, the people of Italy and the rest of Europe had never even seen a tomato until after Christopher Columbus landed in America in 1492.

That's because tomatoes are originally from America.

When tomatoes were first brought back to Europe in the 1500's, people did not eat them because they believed that they were poisonous. Tomatoes belong to a family of poisonous plants called nightshades.

David Hawgood [CC BY-SA 2.0 (http://creativecommons.org/licenses/by-sa/2.0)], via Wikimedia Commons

Bittersweet nightshade

By Jon Sullivan [Public domain], via Wikimedia Commons

Cherry tomatoes

But soon, poor people in Italy began to eat tomatoes because the plants produced so much food and were so easy to grow. Italians quickly realized that tomatoes are not poisonous after all!

By McKay Savage from London, UK [CC BY 2.0 (http://creativecommons.org/licenses/by/2.0)], via Wikimedia Commons

A tomato plant can produce a lot of tomatoes in one season. It would be difficult to eat all of the tomatoes from the garden fresh – you would be very full!

So to prevent tomatoes from spoiling and going to waste, Italians started preserving the tomato harvest by making tomato sauce.

Near the end of summer, tomatoes were harvested, cooked, and stored in jars.

This way, tomato sauce could be used throughout the winter.

Giorgio Sommer [Public domain], via Wikimedia Commons

Before pizza was invented in Italy, Italian workers would buy pasta on the street and eat it with their hands.

By Civica Raccolta delle Stampe « Achille Bertarelli » 1830 (http://pizzagrandtour.posterous.com/il-pizzajuolo) [Public domain], via Wikimedia Commons

Pizza was born almost 300 years ago in Naples, a city in southern Italy. The pizza back then was flatbread with simple toppings like olive oil, tomatoes, cheese, garlic, and anchovies.

Pizza was only eaten by the working, poor people who needed a cheap food that could be eaten quickly. Pizza was sold by street vendors or in casual restaurants.

Unknown author [Public domain], via Wikimedia Commons

The pizza that we know and love today was inspired by Italy's Queen Margherita in 1889.

When visiting the Italian city of Naples, the queen heard that poor people were eating a food called pizza. She asked chef Raffaele Esposito to make a pizza for her.

By see below [Public domain], via Wikimedia Commons

Chef Esposito decided to create a pizza that looked like the Italian flag.

These are the toppings that Chef Esposito chose:

By Paul Goyette (http://www.flickr.com/photos/pgoyette/201492949/) [CC BY-SA 2.0 (http://creativecommons.org/licenses/by-sa/2.0)], via Wikimedia Commons

Basil

By Jon Sullivan [Public domain], via Wikimedia Commons

Mozzarella cheese

By Xufanc (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons

Tomato sauce

By Lombroso (Own work) [CC BY-SA 4.0 (http://creativecommons.org/licenses/by-sa/4.0)], via Wikimedia Commons

The pizza that Chef Esposito made for Queen Margherita is known today as a Pizza Margherita.

By GabboT (TIFF 2010 378 Uploaded by McZusatz) [CC BY-SA 2.0 (http://creativecommons.org/licenses/by-sa/2.0)], via Wikimedia Commons

Pizza continues to be a cheap and quick street food for people on the go, especially in New York City.

MULBERRY BEND, THE ITALIAN QUARTER.

[Public domain], via Wikimedia Commons

Italians began immigrating to the United States in large numbers in the early 1900's. The very first pizzeria to open in America was Lombardi's in New York City, which still exists today, in the part of town known as "Little Italy," which is pictured above.

Before the 1940's, only Italian immigrants and their ate pizza.

By VinnieRattolle (Own work) [CC BY-SA 4.0 (http://creativecommons.org/licenses/by-sa/4.0)], via Wikimedia Commons

But soon, American soldiers started returning home World War II, and they were hungry for the pizza tha had enjoyed in Italy. Pizza's popularity skyrocketed throughout America!

Our love for pizza began to grow, and pizza began to change:

By Janine from Mililani, Hawaii, United States (do you like...pineapple? Uploaded by Fæ) [CC BY 2.0 (http://creativecommons.org/licenses/by/2.0)], via Wikimedia Commons

The “Hawaiian pizza,” topped with pineapples and ham, was created in Canada.

By Bobak Ha'Eri (Own work) [CC BY 3.0 (http://creativecommons.org/licenses/by/3.0)], via Wikimedia Commons

Deep-dish pizza, which looks more like a pie than a flatbread, was born in Chicago.

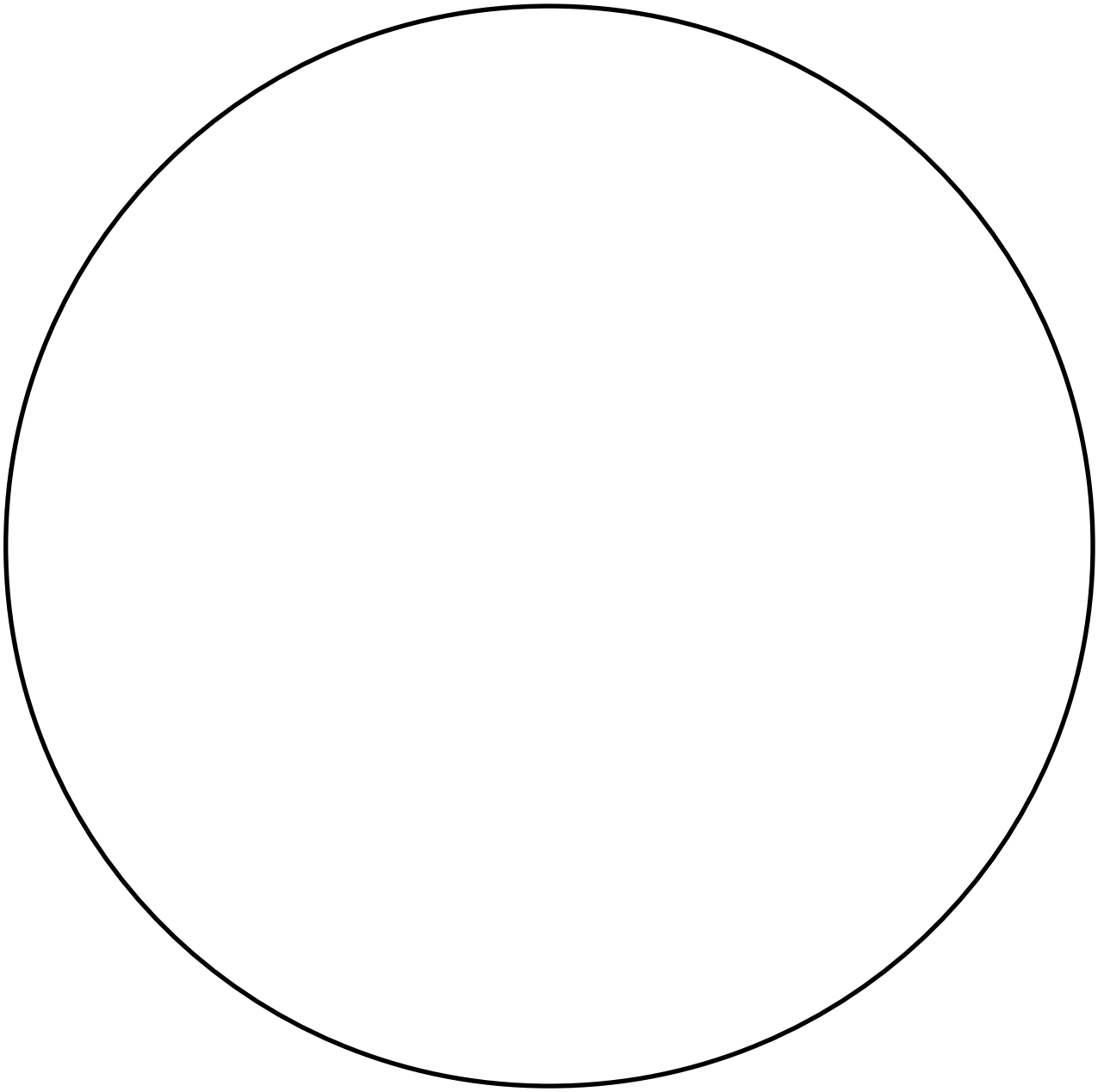
Pepperoni is an Italian-American sausage that became very popular in America.

Today, it is the most popular topping in America.

By Pogrebnoj-Alexandroff (Attridution) [CC BY 2.5 (http://creativecommons.org/licenses/by/2.5)], via Wikimedia Commons

We can grow many pizza ingredients in our garden: wheat for the crust, tomatoes for the sauce, and lots of yummy herbs and vegetables for the toppings. This pizza is topped with peppers, eggplant, basil, and summer squash – all of which grow in a garden.

Growing a Pizza: List or draw/label your favorite toppings in the pizza.



Spring Lemony Kale Pesto

Aim
Students will learn how to make kale pesto as a seasonal alternative to tomato sauce.

Summary
Students will learn about pesto. They will work in teams to make pesto using task cards. Students will taste the pesto at the end of class.

Standards:
CCSS:
ELA.SL.6.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

Materials

- Cheese graters
- Zesters
- Mortars and pestles
- Scissors
- Small bowls
- Measuring cups and spoons
- Cutting boards
- Knives
- Pre-washed baby kale
- Bread
- Pumpkin seeds
- Parmesan cheese
- Olive oil
- Salt
- Lemon
- Task cards (3-4 red cutting boards and 3 black cutting boards, per table)

Vocabulary

- Pesto

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Opening Circle (10 minutes)

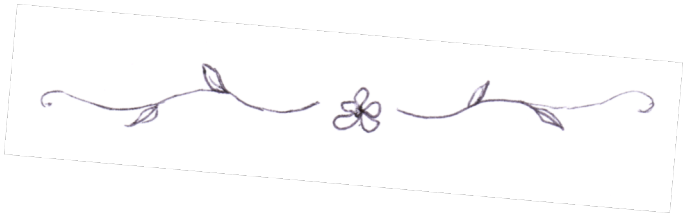
- *Welcome back to garden class! What did we do last time we were together?* We chose the spring vegetables that will go on our pizza. *One of my favorite pizza toppings is tomatoes. Why can't we put tomatoes on our pizza? And what are we going to do about pizza sauce? Pizza sauce is made out of tomatoes!*
- *The sauce we will be making today is called pesto. Has anyone had pesto before? It is another sauce that comes from Italy, and you can eat it with pasta like spaghetti sauce. Usually the main ingredient in pesto is basil, but we won't be using basil; we will be using kale instead. Why are we substituting kale for basil?*

Inquiry Activity One (25 minutes)

- Introduce ingredients, tools, and task cards. Students are then split up amongst the three tables. Teachers circulate.
- Students follow task cards.
- Students spoon pesto into 2 bowls per table. Each student gets a spoon to scoop pesto from the bowl onto bread.

Closing Circle (5 minutes)

- *Raise your hand if you liked the pesto. We will be growing kale in addition to our pizza toppings.*
- *The next time we have class, we will start growing our pizza toppings.*



Common Core State Standard Extensions

CCSS.ELA.W.6.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- Students write a "how to make a spring pizza" guide, describing the process of making pesto and explaining why pesto is a spring sauce.

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RED CUTTING BOARDS

1. Remove **stems** from **kale** leaves. Put stems in the bowl to compost.
2. Using **scissors**, cut **kale** into little pieces. Put kale in measuring cup until full.
3. Using the **mortar and pestle**, take turns grinding the **kale** and **a pinch of salt** into a paste.

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BLACK CUTTING BOARD: *CHEESE & BREAD*

1. Using the **grater**, grate **¼ c**. **parmesan cheese**. Set aside.
2. Using a **knife**, slice the **bread** into pieces of equal size. Set aside.
3. **After** all the kale has been ground in the **mortar**, stir in the **parmesan cheese**.

BLACK CUTTING BOARD: *GARLIC & SEEDS*

1. Using the **pestle**, grind **2 garlic cloves** and **1 pinch of salt** into a paste in the **mortar**. Put garlic scraps in bowl to compost.
2. Measure **1 TB pumpkin seeds**. Grind in **mortar**.

BLACK CUTTING BOARD: *LEMON*

1. Using the **zester**, zest the **lemon**. Measure **½ tsp lemon zest**. Set aside.
2. **Squeeze** the lemon juice into a bowl. Set aside.
3. After all the kale has been ground in the mortar, measure **1 ½ tsp. lemon juice**. Stir the **lemon zest and juice** in the **mortar**.

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