

Grade: 3

Topic: PrePreserve

Class Title: Planting a Community

Class Overview: Students will establish the communal benefits that come from the garden.

Learning Objectives:

- Define goods and services
- Identify two services provided for the community by gardens
- Reflect on the importance of gardens
- Have fun!

School Standards:

- ✓ H.3.4 Demonstrate respect for each other, the community, and the world
- ✓ G83.4 Describe ways humans depend on and manage natural resources within their communities

Agenda:

Background

- Begin by defining the difference between a good and a service.
 - Good: Something that you can use or consume
 - Service: Something that somebody does for you
- Review with your students everything they have done today. What goods have they used? What services have they provided for others? Providing goods and services is one of the ways that we form a community.
- Explain to your students that they will be part of a year-long project to create a teaching garden at the Springs Preserve. Throughout the project, they will be recording what they have learned in their Springs Preserve Journal. Brainstorm together what goods come from a garden. Then brainstorm what services a garden provides.

Activity

- Have your students cut out a collage using pictures from a magazine, they may supplement with pictures they have drawn or words from newspapers. On one side should be goods that are important to the community, on the other side are services that are important to the community. Circle every picture that can be related to the garden.
- Be sure to fill out the first section of the Springs Preserve Journal!

Materials/logistics:

- Springs Preserve Journal
- Magazines and newspapers
- Scissors
- Construction paper
- Glue

Grade: 3

Topic: Garden Science

Class Title: A Mass-ive Pickle

Class Overview: Students will practice estimating and calculating mass while using fraction skills and scientific method to make pickles.

Learning Objectives:

- Define mass and understand how to calculate it
- Create connections between the plant growth and food
- Calculate fractions using liquid ratios
- Have fun!

School Standards:

- ✓ S5P1. Obtain, evaluate, and communicate information to explain the differences between a physical change and a chemical change
- ✓ CCSS.MATH.CONTENT.5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties

Agenda:

Background

- What is a pickle? Any food preserved by use of vinegar is a pickle, but we most commonly think of pickled cucumbers. Cucumbers were first pickled in their native India over 4,000 years ago. Throughout history they are referenced, with Cleopatra crediting her beauty to a diet of pickles, and Julius Caesar feeding them to his armies, believing it would make them stronger. In the year 900, dill was first added to pickling spices as it made its way from Sumatra to Europe. Shakespeare coined the term “in a pickle” in his play Hamlet, and Christopher Columbus brought the first cucumbers to the New World specifically to make pickles. Today, Americans eat five million pounds of pickles a year.
- Review mass, and the difference between mass and weight. Mass is how much matter an object has, and will always be the same. Weight is the force of gravity on the object, so the same object will have the same mass on the Earth and the moon, but not the same weight.
- How do we measure mass? We weigh it on a balance. Brainstorm with the class why we weigh objects to calculate mass.

- Show the class a variety of cucumbers in different sizes. How can we calculate the mass of each? What other measurements can we take? Answers may include length or circumference.
- Split the students into groups or pairs, provide each with a cucumber. Have the students record their observations about their cucumber: shape, color, smell. Also, have the students record their estimations for mass, length, and circumference.
- Measure cucumbers and compare results. How accurate were the students' estimations?

Activity

- We will be conducting a fraction based experiment to determine what amount of vinegar makes the best pickles.
- Assign each group to a fraction. That group will determine and measure how much water and how much white vinegar is determined by their fraction, using table spoons to measure. For example, a group with the fraction $\frac{1}{4}$ will need $\frac{1}{4}$ of white vinegar, and $\frac{3}{4}$ of water. 32 tablespoons will make 2 cups and should be enough to cover their cucumbers. Going back to the example of $\frac{1}{4}$, that group will need to divide 32 by 4 to determine how many tablespoons of vinegar to add.
- As a class, on your own, or with any early finishers create an all water and an all vinegar control jar.
- Place the cucumbers on a window sill for two weeks. Have the students record their observations for the cucumbers as they change, using their sense of smell, touch, and sight. Re-measure the mass, circumference, and length of the pickles. What changes do the students observe? Why do they not taste their own pickles? (Because there is a risk of mold or rot, even if we cannot see it.) What does your class recommend as the optimal fraction for making pickles?

Extension: Pickle Taste Test

- Allow the students to taste several varieties of store bought pickles to compare and contrast.

Materials/logistics:

- Jars
- Vinegar
- Water
- Cucumbers

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| <ul style="list-style-type: none">• Balance, weights, rulers, other measuring implements• Springs Preserve Journals |
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Grade: 3

Topic: STEM for Stems

Class Topic: The Great Soil Ball Challenge

Class Overview: Students will identify components of soil, and the properties of each component.

Learning Objectives:

- Identify the components of soil
- Use critical thinking to compose the optimum soil for a given purpose
- Measure and compare a spherical object
- Have fun!

School Standards:

- ✓ 2.3.1 Describe objects in terms of their observable properties (e.g., state of matter, size, shape, color, texture)
- ✓ 10.3.1 Investigate and describe how the Earth is composed of different kinds of materials (e.g., rocks and soils, water, and the atmosphere)

Agenda:

Background

- Begin with your students by brainstorming what they know about soil. What color is it? What is it made from? What does it feel like?
- Explain that soil has four main ingredients:
 - Weathered rock: that is rock that has been broken into small pieces. Depending on the size of the pieces we give it different names: clay, silt, or sand.
 - Organic material: this could include dead plants or animals, microscopic organisms, and living creatures. Organic material adds nutrients to the soil that is necessary for a garden.
 - Water
 - Air
- Ask your students what role water and air might play in the soil? Why would having these components be particularly important for a garden?

Activity

- Explain to the students that they will be competing in a relay to create the best possible soil ball. You will determine the winning soil based on the one with the largest circumference. Split the students into teams and give each team an aluminum pan. They will use this pan to create their soil

ball, however, for their soil ball to be eligible the students must be able to lift it out of the pan. This activity should be done outside.

- A distance away from the pans, there should be four buckets. One will contain sand, one will contain topsoil, one will contain unscented kitty litter, and one will contain water. These represent different components of soil. How tightly the soil ball is packed together will represent the air. Do not tell the students what is in each bucket, simply that they represent components of soil.
- Give each team a Dixie cup (or a small plastic cup is sturdier, however a standard solo cup will be too large.) Each team may send one representative to bring back a cupful of one ingredient. The other students should be working on molding the ingredients into a ball. Remember, they must be able to pick the ball up. Be sure to have the teams rotate which member they send. As the ball forms, the students will begin to realize some ingredients are better than others at forming a ball.
- At a certain time, cut the students off from gathering ingredients and give them three minutes to finish constructing their ball. Then line the balls up and measure the circumference of each to see who has created the greatest soil ball. You may also have the teams form a line and pass the ball back and forth down the line to see which ball lasts the longest before completely disintegrating.
- Discuss with your students the results of their balls. Which ingredients worked best? Which did not? Reveal the topsoil, which contains many organic materials, the sand which is weathered down rock, and the kitty litter which is actually made out of clay. What does that teach us about the makeup of soil?
- Have the students complete the soildoku challenge in their Springs Preserve Journals.

Materials/logistics:

- Bucket
- Sand
- Topsoil
- Unscented kitty litter
- Aluminum pan
- Cups

<ul style="list-style-type: none">• Measuring tape• Springs Preserve Journals

Grade: 3

Topic: PostPreserve

Class title: Happily Ever After

Class Overview: Students will establish a fictional narrative using sequence of events and temporal phrasing based on their experiences at the Springs Preserve Teaching Garden.

Learning Objectives:

- Use temporal words to designate sequences
- Combine information from multiple sources into a cohesive narrative
- Reflect on the importance of gardens
- Have fun!

School Standards:

- ✓ CCSS.ELA-LITERACY.W.3.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

Agenda:

Background

- Review with the students what you have learned through the course of your teaching garden program. What was their favorite experience? What did they find surprising?

Activity

- Your students will be writing a short story about a fictional character in the Springs Preserve Garden using their Springs Preserve Journals as a story board.
- Emphasize that each story must have a beginning, middle, and end. Brainstorm together some words that indicate time and sequence. Answers may include, first, next, after, later, finally, or other sequence phrases.
- After completing the storyboard, have each student write their story and share the stories out loud.

Materials/logistics:

- Springs Preserve Journals