Edible Schoolyard NYC Garden Curriculum

Second Grade

Sensory Hunt (September)*: Students do a scavenger hunt of the garden, following written directions and using the senses.

Roots and Measurement (October)*: Students study the roots of plants and use this information to measure space between seedlings and plant them in the garden.

Preserving the Harvest (October): Students listen to a read-aloud about a pioneer family preserving their harvest, then preserve their own harvest**.**

Water Cycle (November)*: Students examine water on blacktop vs. on soil and re-enact the water cycle.

Photosynthesis Lesson 1 (December)*: Students conduct the first part of an experiment to learn about how plants use sunlight for food.

Photosynthesis Lesson 2 (January)*: Students complete their experiment and make observations about how light or lack of light affects plants.

Soil Study (February)*: Students study soil samples to find the food for decomposers.

The Expert's Guide to Planting (March)*: Students plant seeds inside and begin to write instruction manuals about their garden expertise.

The Expert's Guide to Transplanting (April)*: Students move their transplants outside and continue to write their garden instruction manuals.

The Expert's Guide to Soil and Compost (May)*: Students will amend beds with compost and discuss the importance of healthy soils and compost in successful plant growth.

The Expert's Guide to Weeding and Watering (June)*: Students will demonstrate their expertise in watering and weeding and capture that gardening fluency in the final chapter of their Garden Expert's book.

Plant Life Cycle (June): Scavenger hunt to find plants at different phases of the life cycle.

* Part of current scope & sequence at Edible Schoolyard NYC at P.S. 216

Sensory Observation Scavenger Hunt

Aim
Students will orient themselves in the garden through a sensory observation scavenger hunt.

Summary
Students walk around the garden looking for signs which instruct them in various tasks, mostly sensory observations.

Standards
CCSS: ELA, Grade 2, SL 4: Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

CCSS: ELA, Grade 2, RI 7: use information gained from the illustrations and the words in a text to demonstrate understanding of the text.

NYS: Science, PS 3.1 b,c: Observe and describe physical properties of objects using all the appropriate senses.

Materials

- About 30 laminated cards coded with shapes (triangle, square, circle, heart, star) in each of these colors: red, green, orange, purple. See attached for examples
- Velcro stickers for attaching cards to stakes
- Garden stakes
- Clipboards
- Scavenger Hunt worksheets
- Pencils
- Tasting

Vocabulary

- senses
- observation

Adapted from ESY Berkley, http://edibleschoolyard.org/berkeley/

Procedure: Day One

Opening Circle (10 minutes)

- *Welcome back to the garden! Today, to begin our year, we are going to take a hike through the garden, exploring it with all five senses. You will definitely notice some changes since you were last here in June!*
- *Who can remind me what one of your five senses is?* Continue until you have listed all five.
- *Today, you will be walking and making your observations independently.*

Inquiry Activity One (30 minutes)

- Give each student a clipboard with the scavenger hunt paper – make sure to give out several versions with the order mixed up (so students go to different stations at different times)– and a pencil so that they can record their observations and/or answer questions as they go.
- *You are going to look for the card that matches the color and shape at the top of your sheet. Not all of you will start in the same place.*
- Model how you will find a sign that matches one of the shapes and colors on your paper (ie, a red square) and write the answer next to the red square on your sheet.
- *Ok, your turn! Get started. Have fun!* Circulate and help students read the cards and follow the instructions as they go.
- Have the questions for closing circle written up on a board for students who finish the hike first. These students can record their answers as they are fresh in their mind and then share once everyone has returned.

Closing Circle (10 minutes)

- Have students share some of their experiences from the card hike: *What was one thing you saw that you hadn't seen before? What was one thing you saw that you remembered from last year? What was one thing you found surprising? What was your favorite part of the card hike? What is one thing you are most excited about doing in the garden this year?*

Procedure: Day Two

Opening Circle (15 minutes)

- *Great job yesterday on our hike in the garden. Who can remind me of something they found on their hike yesterday?*
- Remind students of garden rules as they get ready to do garden work.

Garden Activity (25 minutes)

- *Yesterday you guys made some great sensory observations. Today we are going to be working in the garden doing _____, but we will also keep*

our senses alert as we work.

Closing Circle (10 minutes)

- Have students recap what they did in the garden.
- Have students share sensory observations.
- Have a tasting from the garden – tomatoes, ground cherries, plums, etc. Have students share one descriptive word about the tasting.

Common Core State Standard Extensions

ELA, Grade 2, Writing 3: Write narratives in which the students recount an elaborated event or short sequence of events. Include details to describe actions, thoughts and feelings. Use temporal words to signal event order, and provide a sense of closure.

- Students can write a story about a character who does some of the tasks they did during their garden jobs.

Other Extensions

Math: Teachers can take the scavenger hunt sheets back to the classrooms and students can go through their list and note which ones involved sight, which involved touch, which involved smell, etc. They can then count how many times they used each sense and rank them in order from most to least. They can also translate this information into chart or graph form.

PURPLE GROUP

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Adapted from ESY Berkley, http://edibleschoolyard.org/berkeley/

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Adapted from ESY Berkley, http://edibleschoolyard.org/berkeley/

GREEN GROUP NAME:_____


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Adapted from ESY Berkley, http://edibleschoolyard.org/berkeley/

ORANGE GROUP NAME:_____


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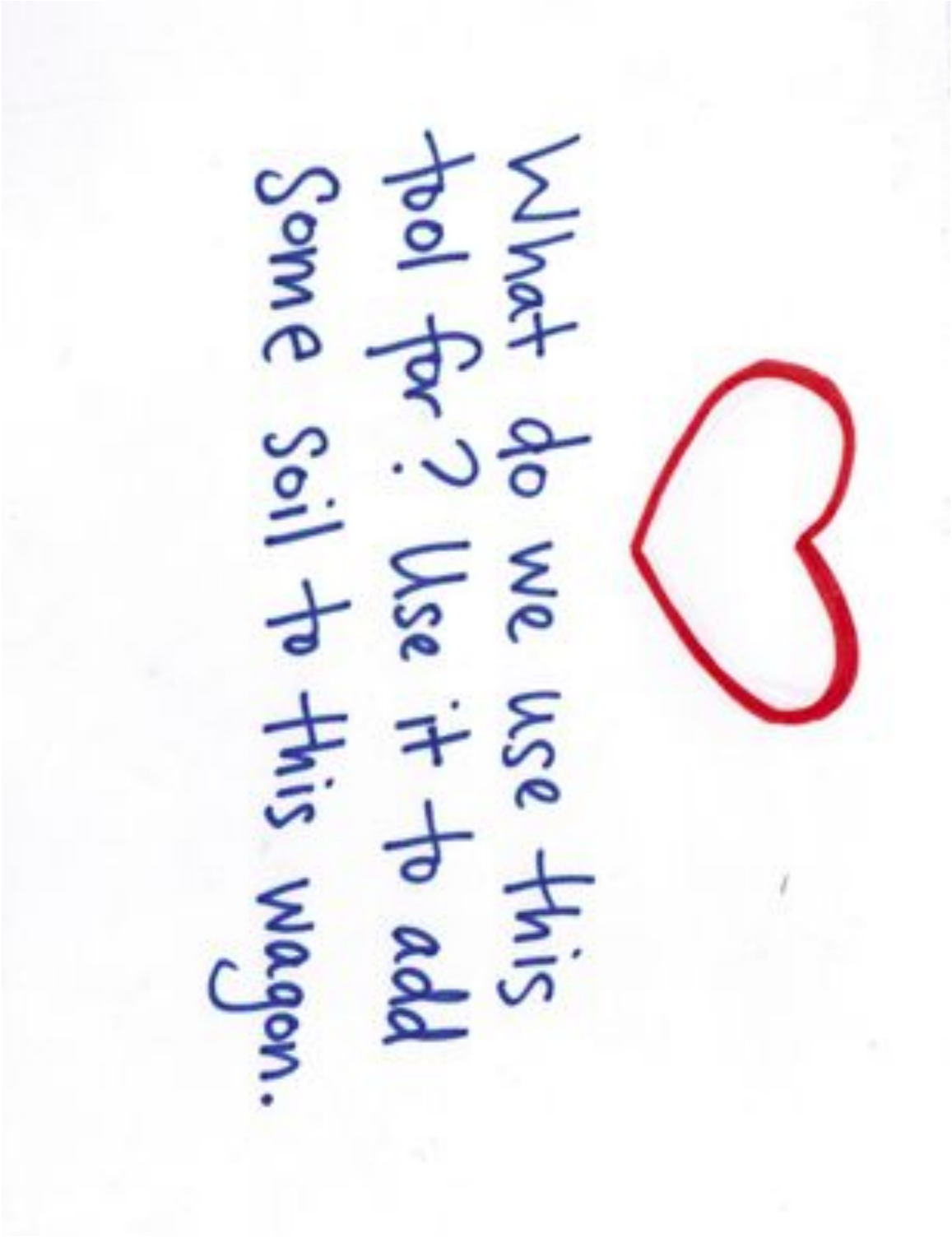
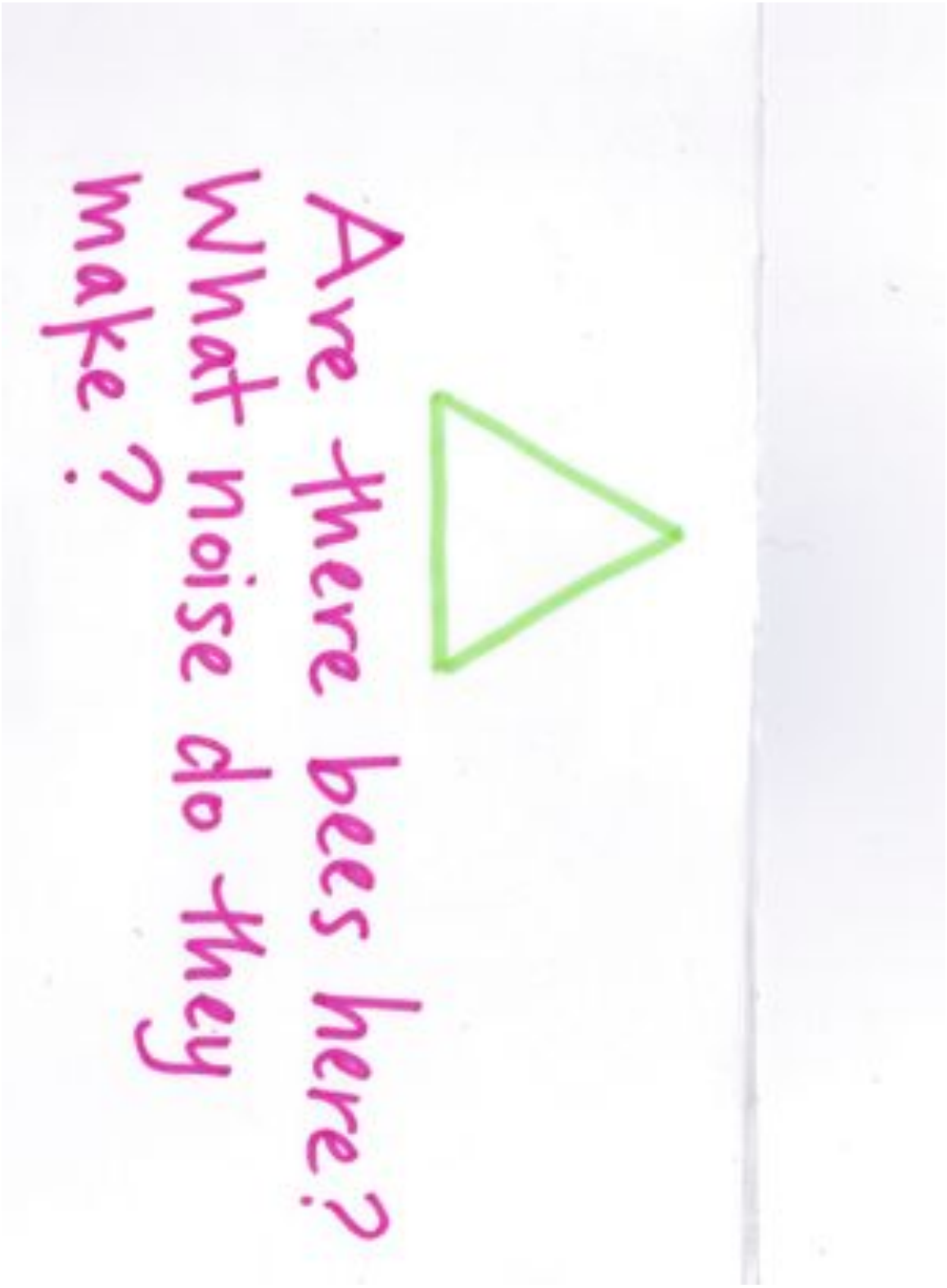
Adapted from ESY Berkley, http://edibleschoolyard.org/berkeley/

RED HEART



GREEN TRIANGLE



RED CIRCLE

PURPLE HEART

Measuring Distance in the Garden

Aim
Students will understand why plants need space and why different plants need different amounts of space.

Summary
Students go on a scavenger hunt to measure and compare the space between plants in the garden.

Standards
CCSS: ELA, Grade 2, SL3: Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

CCSS: Math, Grade 2, MD.A1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

NYS: Science, LE 1.1b, 1.2a, 5.1a: Describe the basic life functions of plants: take in nutrients.

Materials

- Dry erase board and markers
- Pencils
- Clipboards
- Rulers
- Measurement Scavenger Hunt worksheets
- Popsicle sticks
- Seeds or transplants
- Seasonal tasting

Vocabulary

- roots
- length
- width

Procedure: Day One

Opening Circle (10 minutes)

- *What does it mean to measure something? What are some tools that we use to measure?* Take student responses.
- Show students a ruler. *What is this? What do we use it for?* Tell students that we are going to be using our rulers to measure the distance between plants in our garden. *What is the unit of measure that we use on a ruler?*
- Have a student come up and practice measuring between two points, such as the width of the teacher's hand, or the distance between two plants drawn on the board.
- *Today, we are going to use our ruler to do some measurement, and answer the following question: do all plants need the same amount of space? Who wants to guess what the answer might be to that, and why?* Take student responses.

Inquiry Activity One (25 minutes)

- *Today, we are going on a scavenger hunt to measure the space between different plants in our garden. We are going to take measurements when we do this to see if all our plants need the same amount of space or not.*
- Pass out Measurement Scavenger Hunt worksheets. Ask students to read the first questions on the top left. Ask students to explain how they would measure the inches between the kale plants.
- *For each station, you have to measure the distance between two of those plants in the garden. You may have a different answer than another student, because you might not have measured the same two plants. But at the end, we'll see if all our plants had the same amount of space between them or not. You also have other questions to answer at each station, so be sure to read those questions, too.*
- *Some questions ask you to measure how tall a plant is. Which way do I hold the ruler to measure how tall it is?* Do the same demonstration for width.
- Remind students of rules in the garden before sending them out. Circulate to help students who need assistance.

Closing Circle (10 minutes)

- Have students return to the circle.
- Ask students to share back their answers on a few of the different stations, focusing on stations that will have distinct answers. Students will probably have a range of answers, but highlight trends when you see them. *It sounds like the cabbage was 7 or 8 inches apart, but like the onions were 2 or 3 inches apart.*
- *Do all plants need the same amount of space? Why do you think different plants need a different amount of space?* Take students responses.
- *Some plants have big roots or big leaves. They need a lot of space! But some plants have small roots and leaves, so they need less space.*
- Share a seasonal tasting.

Procedure: Day Two

Opening Circle (10 minutes)

- *Today, we are going to plant. Can someone think back to what we learned yesterday and tell me why it is important to give seedlings space?* Use student answers to remember what they learned about roots the day before.
- Tell students: *Sometimes, rather than using a ruler out in the garden, a farmer/gardener will use their hand to measure the distance between seeds when they're planting. Let's use our rulers to figure out how wide our hands are.* Demonstrate to students how to measure the width of their hands, lining up the edge of the ruler with the edge of the palm. Hand out rulers, and help students measure. Collect rulers before continuing the conversation.
- Ask students to share their measurements. *Okay, so our hands are all about 3 inches wide. If I say that I need to measure my seeds 6 inches apart, and my hands are 3 inches wide, then how many times do I put my hands to measure the distance?* Write this math problem on the board. Continue with 9 inches, or other distances.
- Tell students: *When we go out in the garden today, we can now use our farmer's measurements to see the distance between plants.*

Garden Activity (30 minutes)

- Have popsicle sticks in the ground where you want students to plant seeds or transplants. Reference the lesson plans for planting seeds or transplants.
- Ask students to measure the distance between popsicle sticks, using their hands. *How many inches do these plants need between them, using your farmer measurements?*
- Switch to a less focused garden job afterwards, if needed.

Closing Circle (5 minutes)

- Ask students: *How many inches apart did you plant your plants? What do you think would happen if we planted the plants closer together?* Using their answers if possible, remind students of the need to allow space for roots.
- Ask students*: Who can share a sensory observation of what is going on in the garden now that it is spring? What did you see, hear, smell, feel?*

Common Core State Standard Extensions

ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

- Have students write a "how-to" manual explaining to their peers how and why to plant seedlings. In particular, they can discuss roots, what they do for a plant, and how to make sure you provide enough room for them.

Other Extensions

Math: Create math word problems about planting.

Measurement in the garden

NAME: _____

Find the Kale.
How many inches is it between the plants?

_____ inches

How many different colors can you see in the garden?
List three

1. _____
2. _____
3. _____

Find the tiniest leaf in the garden.
Draw it here:

How many inches long is it?

_____ inches

Go to the cabbage plants.

How many hands apart are two of plants?

_____ hands

Go to the pear trees.
How many steps between two trees?

_____ footsteps

Find the biggest leaf in the garden.
Draw it here:

How many inches long is it?

_____ inches

How many leaves are on the brussels sprouts plant?

_____ leaves

How tall is the leaf on the carrot plant?

_____ inches

Preserving the Harvest

Aim
Students learn about why and how food is preserved after the harvest.

Summary
Students hear a primary source read-aloud about food preservation in the 19th century and preserve different foods from the garden.

Standards
CCSS: ELA, Speaking and Listening 2: Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

NYS: Social Studies 1.4b: Explore different experiences, beliefs, motives and traditions living in their neighborhoods, community and state.

Materials

- Excerpt from *Little House in the Big Woods,* by Laura Ingalls Wilder (pp 4-13, 19-20) or another read-aloud about preserving food pre-electricity.
- Herbs
- Scissors
- String for herb bundles
- Labels for herb bundles
- Scale (optional)
- Colored pencils or crayons
- Tarp or tablecloth
- Amaranth, or other edible seed
- Seed envelopes
- Screens, cups, or bowls for winnowing and gathering seeds
- Tasting (preserved food, or other seasonal food)

Vocabulary

- preservation/preserve
- venison
- herb

Procedure: Day One

Opening Circle (10 minutes)

- *Who can tell me what season it is? What is happening with the weather these days?*
- *As you may have noticed, we have had lots of food to pick from the garden recently. Fall is when we harvest – it's when we pick the food that's ready to be eaten.*
- *But what happens in a month or two when it's winter? Will there still be lots of food growing in our garden?*
- *So, these days, we go to the grocery store to get our food. And in winter, our food comes from far away places where it is warm enough to grow food at this time of year.*
- *But let's pretend we lived 200 years ago – before there were airplanes to bring food from far away places, and before there were refrigerators and freezers to keep food fresh.*
- *How did people find enough to eat in the winter?*
- *200 years ago, people had to make the food they harvested in October last all the way until they could grow new food in the spring. They had to preserve their food. Can anyone tell me the definition of "preserve"?*
- *Does anyone know ways that food can be preserved?*
- *There are many ways. You can make pickles, you can make jams, you can put it in cans or jars, you can hang food to let it dry, you can keep it somewhere dark and cool.*
- *I'm going to read you a story about a little girl named Laura who lived about 150 years ago. She is going to describe the way her family PRESERVED meat and fish for the winter. Listen carefully and see if you can figure out how they did it. The main food Laura is talking about is called VENISON, which is another word for deer meat. How do you think her family got the deer meat?*
- Read the selection.
- Ask some questions for clarification: *What did Laura's family do to the meat to help it last all winter? Why did they need to preserve the deer meat—why couldn't Pa just keep hunting all winter? Did anyone notice how they PRESERVED the fish?*

Inquiry Activity One (30 minutes)

- *We don't have any deer in our garden, so we are going to preserve some plants. Half of you are going to work on preserving a kind of plant called an herb, and the other half is going to work on preserving a kind of plant called amaranth. Tomorrow you will switch.*

Inquiry Activity One, Option A

- Students harvest two or three different kinds of herbs.
- Students weigh the harvest (optional).
- Students come to the table to make bundles out of their herbs.

- Students tie their bundles together.
- Students make and decorate labels for their herbs.
- Help students tie the labels on to the bundle.
- If time allows, have the students work together to tie their herb bundles onto a long piece of string or twine to make a garland.

Inquiry Activity Two, Option B

- Students harvest amaranth.
- Students weigh the harvest (optional).
- Students stand around a tarp to thresh amaranth.
- Students winnow amaranth, either with screens or bowls.
- Students gather winnowed seeds in cups
- Students decorate and label envelopes to store the amaranth.

Closing Circle (10 minutes)

- *Who can remind me why we made bundles of herbs, and why we stored our amaranth seeds?*

Procedure: Day Two

Opening Circle (10 minutes)

- *Yesterday we preserved food from our harvest.*
- *Who can remind me what it means to "preserve" food? Who can remind me of why we preserve food?*
- *What would happen to people 200 years ago, like Laura in the story yesterday, if they didn't preserve food in the winter?*

Inquiry Activity One (30 minutes)

- Switch garden jobs from the previous day.

Closing Circle (10 minutes)

- Recap tasks briefly.
- Taste an example of a preserved food.
- *What preserved foods do you eat at home or at school? Because we have electricity, we can preserve food in the freezer as well.* Examples could be canned fruits or vegetables, frozen fruit or vegetables, applesauce, pickles, etc.

Common Core Standard Standards Extensions

http://www.corestandards.org/ELA-Literacy/W/2/3/CCSS.2.W2: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

- Have students write a piece of historical fiction pretending that they live in 19th century New York, and that they have to preserve herbs and seeds for the winter.

The Water Cycle

Aim
Students will understand that water goes in a cycle, identify the different parts of the water cycle, and understand the role of plants and soil in the water cycle.

Summary
Students observe the difference between water on blacktop and water in the garden, play a game simulating the water cycle, and water plants in the garden.

Standards
CCSS:ELA, Grade 2, SL 2: Recount or describe key ideas or details from a text read aloud or from information presents orally or through other media.

NYS: Science, PS 2.1c: Water is recycled by natural processes on earth.

NYS: Science, PS 2.1d: Explore how erosion and deposition are the result of interactions between air, water and land.

Materials
- Water cycle necklaces
- Large cardboard cut-out of a water drop
- Water cycle poster, or visual on dry erase board
- Watering cans
- Seasonal tasting

Vocabulary
- water cycle
- absorb/
- run-off
- evaporate/evaporation

Procedure: Day One
Opening Circle (5 minutes)
- Tell the students that plants and people need some of the same things to survive. Ask the students to name some of these things.
- Using student answers, if possible, name: food, shelter, water.

Adapted from *Life Lab Science,* "Earth is Home," p. 57 and p.43

Inquiry Activity One (30 minutes)

- *Today we are going to talk about an important part of the garden—water. Who can tell me why water is important in the garden? Today we are going to examine where water comes from and where it goes and how it helps the garden along the way. I need your help to tell the story of how water travels. I'm going to need you to make some hand motions and some sounds to represent different parts of the story.*
- Point at the water cycle visual on the board as you go over the cycle.
- *Water starts out in the clouds. How does the water go from the cloud to the ground? Water goes to the ground as rain. When it rains in the we do this.* Mime rain falling from the sky.
- *Water gets ABSORBED into the ground through spaces in the soil. As the water goes deeper, we do this:* Make a mashing motion with your hands.
- *If it gets absorbed into the ground, how does it get absorbed into the plants? The plant sucks it up through the roots. When this happens, we make this motion:* Mime the roots absorbing the water, with finger pointing downward.
- *After it's in the plant, the water has to get into the air. The plant does an interesting thing here. Try breathing onto the palm of your hand, or your glasses. Can you see the water there?* Have students all try this.
- *The plant breathes out the water, similar to how we do. So, in the story, when the plant breathes out, we do this:* Mime spreading hands wide.*Now the water is back in the cloud!*
- Repeat the cycle again, until you get to the ground. *Let's say our water can't get sucked into the soil. Maybe it lands on a street or a sidewalk. If the water didn't get absorbed into the ground, it goes to the sea. How do you think that happens?*
- *When water goes to the sea instead of the underground, we call that run-off. When in the story, we have run-off, do this:* Mime a wave with your hand.
- *How does water go back to the clouds from the sea?When water heats up, it EVAPORATES and goes back to the clouds. Maybe we've seen that happen when we heat up water when we're cooking. When the water goes from the sea to the clouds in our story, we say do this:* Mime sizzling steam moving upward with your hands.
- *And then what happens? Did anyone notice that we started the cycle all over again? Now we are going to get in groups and help our friend Drippy the Water Droplet go through the water cycle.*
- *You are all going to be part of the water cycle. You need to figure out how water travels from one of you to the next!*
- Hand out water necklaces in order, one per student.
- Model for students how to get Drippy around the circle. *Let's say I am the cloud, and next to me is the ground. How does the water get from the cloud to the ground?* Have the whole class make the sound and motion for rain. Help model a few more rounds.
- Each student is responsible on their turn for doing the sound and motion for their step of the water cycle, but other students can join in with the sound and motions as well. Help out as necessary.

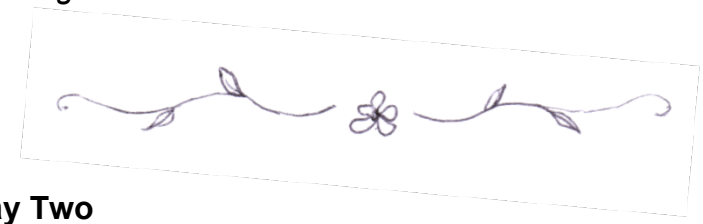
Adapted from *Life Lab Science,* "Earth is Home," p. 57 and p.43

Inquiry Activity Two (10 minutes)

- Take the students to an area with a blacktop. Demonstrate what happens when water falls on the blacktop. Ask students if they can figure out where the water will end up.
- Now take the students into the garden and pour some water on the ground. *What happened to this water? Where will it go? What will it do? Why is it good for us that it is going into our plants? How is the garden an important part of the water cycle?*

Closing Circle (5 minutes)

- *So, next time it's raining, think about how water goes in a cycle. Who can remind me what part of the water cycle rain is? Where does rain start? Where does it go? What happens after water hits the ground or the sea?*
- *Tomorrow, we will do some gardening and pay attention to the role of water in our garden.*



Procedure: Day Two

Opening Circle (10 minutes)

- *Who can remind me of one part of the water cycle we studied yesterday? How does water get from a cloud to the ground? Do the underground from the ground? From the underground into the plants?*
- *Today we'll be doing a garden job, thinking about water in the garden.*

Inquiry Activity (30 minutes)

- Lead students in a garden job with connection to water, such as: mulching, watering plants, composting, etc.

Closing Circle (10 minutes)

- If students were outside, ask for their sensory observations of what is going on in the garden. In particular, ask if they observed anything about water in the garden.Ask the students what parts of the water cycle they can observe by sight, by feel, by sound.
- Offer tasting. Ask students if they can taste water inside the tasting!

Adapted from *Life Lab Science,* "Earth is Home," p. 57 and p.43

Common Core State Standard Extensions

ELA Grade 2, W 3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe action, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

- Using vocabulary from the garden lessons, students write a story in which they are drops of water making their way through the water cycle. In their story, they need to describe how they travel from the clouds to the ground, to plants, back to clouds, to the sea, and back to clouds again.

Other Extensions

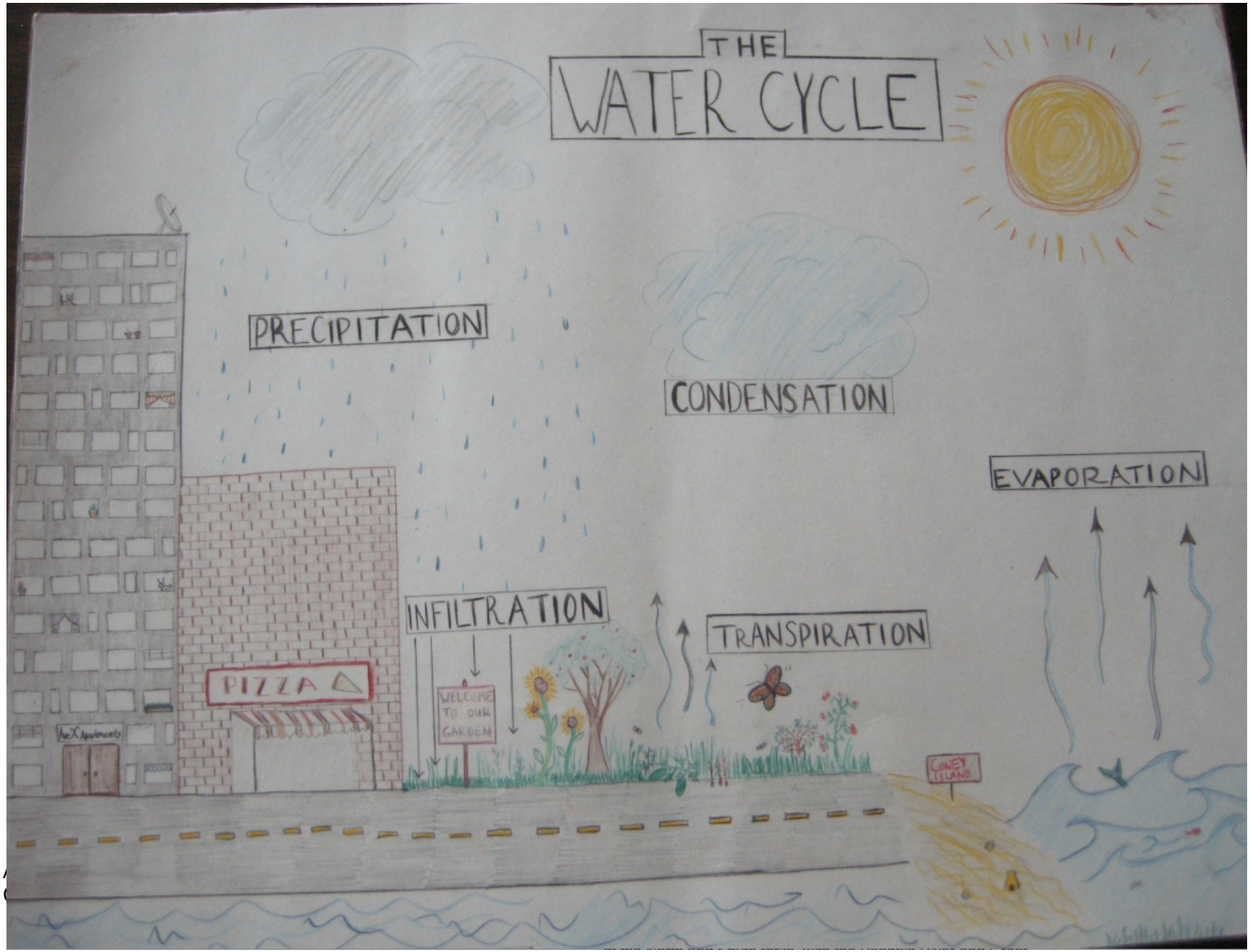
- Math: Students can collect rainwater fir a given length of time using a receptacle they keep one spot in the garden. They can measure and record (and graph?) the accumulation at given intervals.

Adapted from *Life Lab Science,* "Earth is Home," p. 57 and p.43

Raindrop

Adapted from *Life Lab Science,* “Earth is Home,” p. 57 and p.43

November 2nd Grade

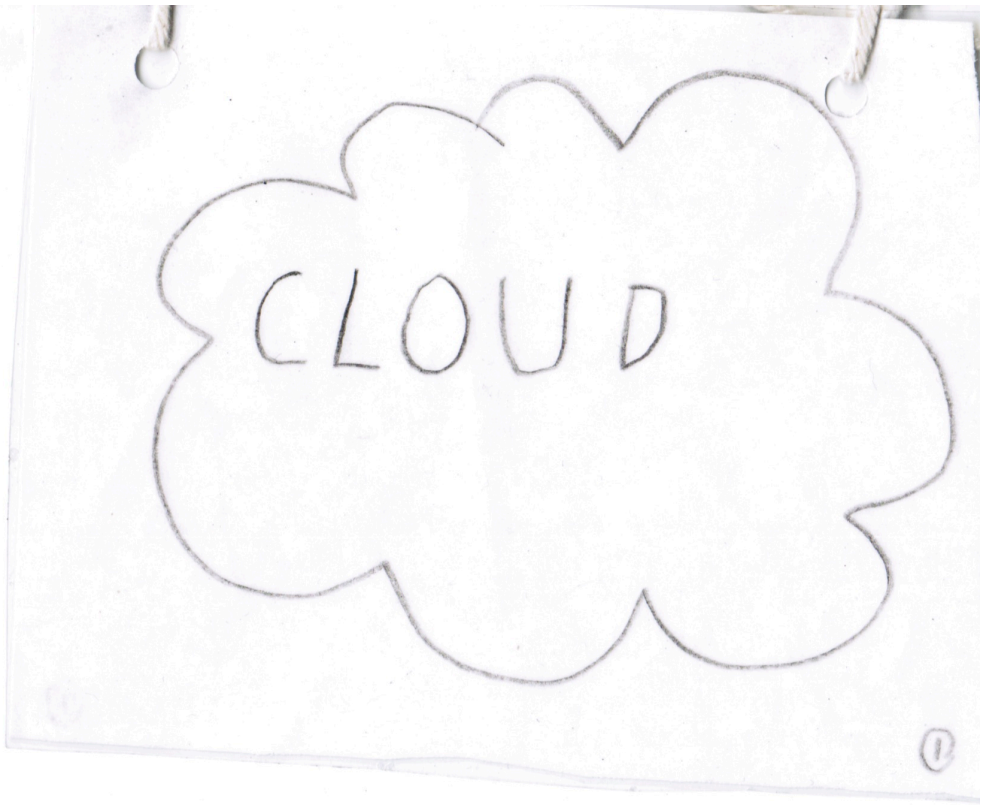



UNDERGROUND
3


SEA
6


GROUND


PLANT


CLOUD

Photosynthesis, Part 1

Aim
Students will understand that plants use sunlight to make food and that other animals rely on plants for their food.

Summary
Students set up an experiment to determine how sunshine affects plants.

Standards
CCSS: ELA, Grade 2, SL1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

NYS: Science, LE 1.1b: Plants require air, water, nutrients, and light in order to live and thrive.

Materials

- Dry erase boards and markers
- Food Chain cards
- Sun crown
- Light Experiment worksheets
- 6 plants
- Boxes to cover plants
- Pencils
- Leaf tasting

Vocabulary

- leaf
- photosynthesis

Procedure: Day One
Opening Circle (5 minutes)

- Start class with a leaf tasting.
- *So, why do we eat these leaves and other kinds of food? What would happen to people if they didn't eat food? Food gives us energy and keeps our bodies moving and healthy. Today, we are going to answer a hard question: where does our food get its energy from?*

Inquiry Activity One (15 minutes)

- *We are going to play a game to show how energy travels to us through the food chain. Up here at the top of our board we have a picture of the sun, the king of the food chain.* On the top of the board have already drawn a picture of the sun.
- *Can I have a volunteer to share what they had for dinner last night?* Draw up a food chain on the board, using student answers, eventually leading back to the sun. Continue to elicit responses from students until you have shown that plants eat sun, animals eat plants, and we eat animals and plants. If it comes up, then you can show that some animals only eat other animals who then eat plants, but that isn't a necessary complexity unless it comes up. All answers should be diagramed in a straight food chain leading straight back up to the sun.
- *Great, now we are going to build a food chain. What is a food chain? It is how things are connected by what they eat. For example: humans eat chickens, chickens eat grass, and grass eats the sunlight. That is how humans, chickens, grass and sunlight are connected. In this food chain game, I will be the sun. I am wearing a crown since the sun is the king of the food chain.*
- Students are broken into groups of three. Each student gets a Food Chain card with their specific role on it. Students are instructed to grab hands with the person who they eat/are eaten by and to form a line. All lines should eventually connect to the sun in the center.
- Ask students to describe who was in their food chain. *What do all groups connect to? Everyone is connected to the sun. What would happen if there was no sun? All the energy on our planet originally comes from the sun.*
- *Plants are special because they make their own food from the sun. The name for this is "photosynthesis*." Write "photosynthesis" on the board. *Plants mix the air, water, and sunshine to make food. Photosynthesis happens in the plant's leaves.* Have students pretend to be plants soaking up sunlight in the leaves and turning it into food.

Inquiry Activity Two (15 minutes)

- *Now we know how plants use photosynthesis to make their own delicious food. But, scientists, I have a question for you: What do you think would happen if a plant didn't have the light from the sun? What do you predict would happen to our plants? Today, we are going to investigate these questions.*
- *We are going to grow some plants in our greenhouse, under the light of the sun. And we are going to grow some of our plants under a box without light. Both plants will get enough water and air, so you don't have to worry about that. The next time we have you again, we will come and check back in on our plants and see how they've changed.*
- Each student gets a clipboard with a Light Experiment worksheet. Divide students into 6 groups. 3 groups get "sunshine plants" and 3 groups get

"darkness plants." At each of the stations, students will use the worksheet to write their predictions and draw the plants as they currently are.

Closing Circle (10 minutes)

- *I am looking forward to coming back in a month and seeing what is happening with our plants. Now you know that when you are eating a leaf, you are actually eating a complicated food-making machine.*

Common Core State Standard Extensions

ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

- Have students write a complete hypothesis about what they think will happen to the plant if it gets light or if it does not get light. Have them describe what they think it will look like in a month.

Other Extensions

Science: Conduct another series of experiments in which plants are deprived of water, space, soil, or other factors necessary for growth. Have students hypothesize what will happen to plants that lack these other factors. Compare the results to see how each impacts the plant. Do the plants that got no sun look different from the plants that got no water?

Name: _____ LIGHT EXPERIMENT

Before

Will your plant be in the sun or in the dark? _____

What do you think will happen to your plant?

_____

Draw in the box what your plant looks like now.

After

Draw in the box what your plant looks like now.

What happened to your plant? Why?

_____

_____

FOOD CHAIN CARDS

1.

You are grass. You eat sunlight.

You are a deer. You eat grass.

You are a wolf. You eat deer.

2.

You are leaves on a plant. You eat sunlight.

You are a mouse. You eat leaves.

You are an owl. You eat mice.

3.

You are fruit growing on a tree. You eat sunlight.

You are a fruit fly. You eat fruit.

You are a spider. You eat fruit flies.

4.

You are a tree. You eat sunlight.

You are a squirrel. You eat nuts from a tree.

You are a red tailed hawk. You eat squirrels.

5.

You are plankton growing in the sea. You eat sunlight.

You are a fish. You eat plankton.

You are a bear. You eat fish.

6.

You are grass. You eat sunlight.

You are a grasshopper. You eat grass.

You are a rat. You eat grasshoppers.

7.

You are a plant. You eat sunlight.

You are an earthworm. You eat plants.

You are a chicken. You eat earthworms.

8.

You are a leaf on a plant. You eat sunlight.

You are a giraffe. You eat leaves.

You are a lion. You eat giraffes.

9.

You are grass. You eat sunlight.

You are a cow. You eat grass.

You are a human. You eat cow.

10.

You are a plant. You eat sunlight.

You are an antelope. You eat plants.

You are a tiger. You eat antelope.

Photosynthesis, Part 2

Aim
Students will understand that plants use sunlight to make food and that other animals rely on plants for their food.

Summary
Students examine the results of their experiment to determine how sunshine affects plants.

Standards
CCSS: ELA, Grade 2, SL1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

NYS: Science, LE 1.1b: Plants require air, water, nutrients, and light in order to live and thrive.

Materials
- Dry erase boards and markers
- Light Experiment worksheets
- Six plants
- Boxes to cover plants
- Pencils
- Blank paper
- Green leaves
- Leaf tasting

Vocabulary
- photosynthesis
- chlorophyll

Procedure: Day One
Opening Circle (5 minutes)
- Welcome students back to garden class.
- *We set up an experiment last time. What was our experiment? How did we set it up? What do you think will happen?*

Inquiry Activity One (15 minutes)

- Pass back out students' Light Experiment worksheets from the last class. Show students what they have to do on the worksheet to complete their study of the experiment.
- *Remember, students, we gave these plants the same amount of water and soil. The only difference was how much light they had!*
- Send students back to their stations to make observations of their plants.
- Bring students back to the large group. *What happened to the plants that were in the sun? What happened to the plants that were in the dark? What do you think this experiment tells us about how plants use light?*
- Summarize the results of the experiment with students.

Inquiry Activity Two (15 minutes)

- *Without sunlight, plants can't make food. There is a special kind of chemical called "chlorophyll" inside of leaves. This is what plants need to make food from sunlight. It's also what makes leaves green!* Write the word "chlorophyll" on the board.
- Demonstrate to students how you can rub a green leaf on blank paper to make a green mark. *We can see the chlorophyll inside the leaf! This is what makes food from sunlight for the plant.*
- Pass out green leaves and blank paper for students. Let them experiment and make their own artwork from the green leaves.

Closing Circle (10 minutes)

- Share a leaf tasting with students.
- *We learned that plants need sunlight to make food, and they use the chlorophyll in their leaves to do it. Thank you, plants, for making food for us!*

Procedure: Day Two

Opening Circle (5 minutes)

- Welcome students back to garden class*. Remind me: what was the experiment that we did last time? What did we learn about how sunlight affects plants?* Summarize the results of the experiment.

Garden Job (35 minutes)

- Lead students in a seasonal garden job, connecting it to their light experiment, if possible. Some options might include seed starting or propogating.

Closing Circle (5 minutes)

- Have students share their experiences from the garden job that they did.

Common Core State Standard Extensions

ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

- Have students write a "scientific report" to compare what happened to the plants in the sun and the plants in the dark. Have students write descriptions of what happened to each plant and what that tells us about plants and sunlight. Students can illustrate their report.

Other Extensions

Science: Conduct another series of experiments in which plants are deprived of water, space, soil, or other factors necessary for growth. Have students hypothesize what will happen to plants that lack these other factors. Compare the results to see how each impacts the plant. Do the plants that got no sun look different from the plants that got no water?

Name: _____ LIGHT EXPERIMENT

Before

Will your plant be in the sun or in the dark? _____

What do you think will happen to your plant?

_____

Draw in the box what your plant looks like now.

After

Draw in the box what your plant looks like now.

What happened to your plant? Why?

_____

_____

Soil Study

Aim
Students will understand that healthy soil contains nutrients to help plants grow, and that decomposers are essential to putting nutrients in the soil.

Summary
Students will create a nutrient cycle as a class. Students will study soil samples looking for evidence of the nutrient cycle.

Standards
CCSS: ELA, Grade 2, W8: Recall information from experiences or gather information from provided sources to answer a question.

Materials

- Dry erase board and markers
- Do You Know These Decomposers? visual
- Trays with active soil samples
- Pencils
- Soil Study worksheets
- Seasonal tasting

Vocabulary

- soil
- nutrient
- cycle
- decompose

Procedure: Day One
Opening Circle(5 minutes)

- *Why do plants need soil? What does it do that helps them to grow? What would happen to plants if they didn't have soil?* Solicit student answers. Students should say that soil helps plants get water, helps plants stand up, and helps plants grow strong. Help guide students to these answers, if need be. *What is in the soil that the plants drink? If the plant couldn't hold onto the soil with its roots, what would happen to it if a big wind came?*
- *Today we're going to learn about what makes soil healthy for plants to grow.*

Inquiry Activity One(10 minutes)

- *There's something in soil, a small, secret thing that we can't see, but is very important. The soil has plant food called "nutrients."* Write the word "nutrients" on the board.
- *What happens to your body when you eat fruits and vegetables? Your body is healthy and strong! And that's because fruits and vegetables have nutrients in them. And where do fruit and vegetable plants get their nutrients from? From the soil!*
- On the board, draw an apple with the word "nutrients" written inside it. *Let's say I have an apple, and I eat it to put some of the nutrients in my body. But I leave the apple core, because people don't eat that part. There are still some nutrients in the apple core.* Draw an arrow next to the apple and then draw an apple core, still with the word "nutrients" written inside.
- *Now, I put my apple core into my compost, where my worms and centipedes and roly polies live. An animal that eats dead plants is called a "decomposer." The decomposers eat it and turn it into soil, which still has nutrients in it.* Draw an arrow after the apple core and then draw some soil with the word "nutrients" written inside.
- *Finally, I plant a seed in the soil. The plant absorbs all the nutrients up through the roots and into its body.* Draw an arrow from the soil, a tree with the word "nutrients" written inside. *Then what grows on my tree? More food with nutrients inside!* Connect the tree to the initial apple with an arrow, making a circle.
- *Nature reuses the same nutrients over and over again in a cycle. But the only way that it can happen is with the help of the creatures living in the soil, the worms and centipedes and roly polies. They decompose dead plants and fruit and vegetable scraps to make compost and to put nutrients back into the soil. Even in nature, these bugs do the same things with fallen sticks and branches.*
- *Can you help me tell the story about how nature reuses nutrients to make plants and people grow strong?* Have students mime out each step in the nutrient cycle: eating an apple, putting an apple in the compost, having the worms eat the apple to become dirt, having the dirt grow a plant, etc.
- Show visuals of decomposers. *Have any of you seen any of these bugs in our garden?* Have students discuss and share their experiences with a partner. *All of these creatures decompose dead plants and put the nutrients into the soil. Without them, our soil wouldn't be healthy!*

Inquiry Activity Two (20 minutes)

- *Now, it's time for you to be soil scientists. We have some samples of soil in trays for you to observe. We're going to get a good look at our soil and at our decomposers that are making the soil. We are going to get to see the nutrient cycle in action, nutrients being transformed from dead plants to soil right before our eyes!*
- Pass out Soil Study worksheets. Go over directions with students. Remind students how to treat living things with respect (not touching them, not

shaking the tray, etc.). Be sure that the soil samples in the trays have a wide variety of decomposer food.
- Put students in small groups to observe soil samples. Circulate to help students answer questions.

Closing Circle (10 minutes)
- Share a seasonal tasting.
- *This food is delicious and good for our bodies, thanks to the decomposers! How do the decomposers make our soil healthier? They break down dead plants to put nutrients back into the soil. And then how do those nutrients get into our food? The plants absorb it!*
- *Today, before we share our tasting, let's say, "Thank you, gardeners, thank you, cooks, thank you decomposers!"*

Common Core State Standard Extensions

ELA, Grade 2, W3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
- Have students write and illustrate a narrative about the nutrient cycle. You can prompt them to start with an apple core and end with an apple tree, as in the lesson, or give them another prompt.

Other Extensions

Science: Have students build a worm bin with newspaper, food scraps, and red wiggler worms. Have students worm together to create signage explaining what is happening in the worm bin and why the worms are doing important work.

February 2nd Grade

Name: _____

SOIL STUDY!

Write three words to describe the soil in your tray.

1. _____
2. _____
3. _____

Draw and label what you see in the tray.

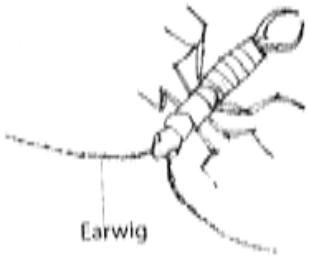
These things are food for decomposers!

What do the decomposers make when they eat these things?

_____

_____

Do You Know These Decomposers?



Earwig

Leopard Slug

Roly Poly or Pill Bug

Earthworm

Soldier Fly Larva and Pupae

Soldier Fly Adult

The Expert's Guide to Gardening: Seed Starting

Aim
Students will begin a project that demonstrates their mastery of key garden knowledge.

Summary
Students will start seeds indoors. Students will then write and illustrate a how-to guide about seed starting.

Standards
CCSS: ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and defnintions to develop points, and provide a concluding statement or section.

NYS: Science, LE 1.1b: Describe the basic needs of plants (light, air, water, soil, nutrients.

Materials
- Dry erase board and markers
- Materials for seed starting
- Expert's Guide to Gardening workbooks
- Pencils
- Colored pencils or crayons
- Seasonal tasting

Vocabulary
- soil
- sun
- water
- space

Procedure: Day One
Opening Circle (5 minutes)
- *Welcome to garden class, 2nd graders. I have some news that I'd like to tell you. We think you are truly garden experts, and we would like for you to help us teach the younger students how to be better gardeners. Do you think you can help? Can I put you in charge?*

- *We know, 2nd graders, that you are truly garden experts. But don't worry! We're going to do some practicing together, to be sure that you have all the tools and knowledge that you need to be the best garden experts. In fact, we're even going to write a book together! All the things that you already know about gardening will go in the book, and we can use this book to teach others about how to be a gardener.*

Inquiry Activity One (10 minutes)

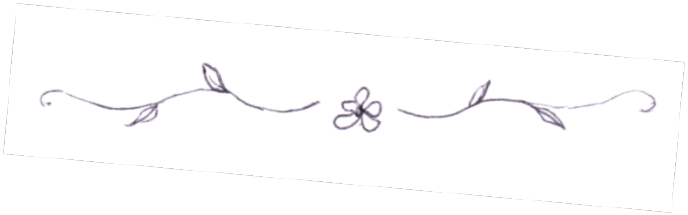
- *Okay, gardeners. Here's what's going to happen. We're going to spend the next few months practicing all the really important garden jobs. Then, we're going to make a book with all the information on how to do those jobs. It's called the Expert's Guide to Gardening, because all of you are experts!*
- *First of all, what do plants need to survive?* Write student ideas on the board. Prompt students for answers, if needed. The final list should include light, water, soil, and space.
- *All the practicing that we're going to do in the next few months is going to go towards being sure that our plants have enough light, water, soil, and space. Let's get started right now!*

Garden Job (25 minutes)

- *First, we are going to start growing our plants inside. Why can't we grow our plants outside yet? Right, we need to wait for it to be warmer, and for there to be more sunlight.*
- Show students the materials that you will be using. *You all are the experts. Tell me, how do I do this job?* Have students narrate the steps needed to plant. Write their ideas up on the board. Ask them to describe why in more detail, connecting it back to what plants need to survive. *Why don't I put lots of seeds in one hole? What would happen if I planted it too deep?* Acknowledge students as much as possible for being experts.
- Lead students in seed starting. Reference the Seed Starting lesson plan. If possible, have them start seeds in larger cells that they will be able to easily transplant later.

Closing Circle (10 minutes)

- Acknowledge students for their good work.
- *Remind me, what do I need to do to take care of the plants until the next time we see each other for class?*
- *The next time we see each other, we're going to start writing our book together.*
- Share a seasonal tasting.



Procedure: Day Two

Opening Circle (5 minutes)

- Welcome students back to garden class.
- *Okay, 2nd graders, remember, I'm going on a long vacation this summer, and we really need your help to take care of the garden while we're away. Today, we're starting to write our book, the Expert's Guide to Gardening, so you'll be totally prepared to take over for us.*

Inquiry Activity (35 minutes)

- Explain to the students that this book is a way for them to really show you that they are garden experts. Explain that you want to see their best work. Say that you will be expecting to see their expertise in how to do all the important garden jobs, as well as why those jobs are important.
- *Remind me, what was the job that we did together the last time? Today, we're going to start our book, and we're going to start it at the very beginning: planting a seed.*
- Pass out workbooks to students. Have them begin by filling out their name and class on the title page. Have them turn to the pages that you would like them to complete. Read through the questions together with them.
- Circulate to help students as they work.
- If some students finish early, they can decorate the cover or the title page.

Closing Circle (5 minutes)

- Congratulate students on their good work today. *Wow, I am really impressed at how expert all of you are!*
- Explain that next month, you'll be moving their baby plants outside. *Can anyone guess why we might need to move our baby plants outside? What would happen if we left them in the little pot for their whole lives?*

Common Core State Standard Extensions

ELA, Grade 2, W3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, use temporal words to signal event order, and provide a sense of closure.

- Students narrate a day-in-the-life of a plant from the plant's perspective. Students can illustrate and add captions.

March 2nd Grade

THE EXPERT'S GUIDE TO GARDENING

Written and Illustrated By:

_____

(Name)

_____

(Class)

HOW TO PLANT A SEED

How does a gardener plant a seed? Write all the steps.

_____

_____

_____

_____

_____

In the box, draw the steps for planting a seed.

What does a gardener need to do to be sure that the seed grows?

_____

_____

_____

SEED STUDY

Are all seeds the same? Find the tray with the seeds.

Draw and label the seeds that you see in the tray.

The Expert's Guide to Gardening: Transplanting

Aim
Students will begin a project that demonstrates their mastery of key garden knowledge.

Summary
Students will transplant their baby plants outside. Students will then write a how-to guide about how and why to transplant plants.

Standards
CCSS: ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

Materials

- Dry erase board and markers
- Materials for transplanting
- Expert's Guide to Gardening workbooks
- Rulers (optional)
- Pencils
- Colored pencils or crayons
- Seasonal tasting

Vocabulary

- soil
- sun
- water
- space
- transplant

Procedure: Day One
Opening Circle (5 minutes)

- *Welcome to garden class, 2nd graders. Your baby plants that you planted last time are looking great! We took care of them just the way that you told us.*
- *Today, we're going to do the next part of our work: moving our plants outside.*

Inquiry Activity One (10 minutes)

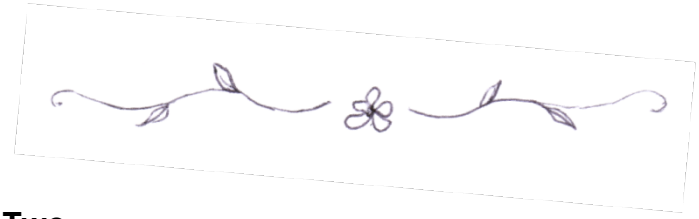
- *Okay, gardeners. What season is it? What's happening outside right now? It's starting to warm up! Spring is coming!*
- *So, your plants have been growing just fine inside. Why do we have to move the plants outside and put them into a bed? What would happen to the plants if we left them inside?* Have students turn and talk to a partner.
- Solicit student answers, and write their answers on the board. Ideas should include that the plants need more light and more space. Students may also talk about the importance of having good soil in a garden bed outside.

Garden Job (25 minutes)

- Show students the baby plant. *You all are the experts. Tell me, what do I need to do to plant this outside?* Have students narrate the steps needed to plant. Write their ideas up on the board. Ask them to describe why in more detail, connecting it back to what plants need to survive. *Why do I need to have so much space between the plants? What's going to grow under the ground?* Acknowledge students as much as possible for being experts.
- Lead students in transplanting. Reference the Planting Starts lesson plan. If time allows, you can also have them do a supplementary job, such as mulching. Reference the Mulching lesson plan.
- If time allows, tell students exactly how many inches they need between each plant. Have students measure the distance between the plants or the bed markers to be sure that they did the job correctly.

Closing Circle (10 minutes)

- Acknowledge students for their good work.
- *Now that we moved our plants outside, they're going to grow even bigger! Why are they going to grow even bigger? What will they have more of now that they are outside?*
- *The next time we see each other, we're going to start writing our book together.*
- Share a seasonal tasting.



Procedure: Day Two

Opening Circle (5 minutes)

- Welcome students back to garden class.
- *Remind me, what was the job that we did the last time? We planted baby plants! Today, we are adding a new section to our book all about that, and you are the experts.*

Inquiry Activity (35 minutes)

- Pass out workbooks to students. Have them turn to the pages that you would like them to complete. Read through the questions together with them.
- Circulate to help students as they work.
- If students finish early, have them work on the "bonus pages" of the workbook.

Closing Circle (5 minutes)

- Congratulate students on their good work today.
- Explain that for the next two months, they'll be taking care of their plants. *What do you think are some things that we might need to do to take care of the plants now that they are outside?*

Common Core State Standard Extensions

ELA, Grade 2, W3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, use temporal words to signal event order, and provide a sense of closure.

- Students write a narrative about transplanting from the plant's perspective. Students can include captions and illustrations.

HOW TO PLANT A BABY PLANT

How does a gardener plant a baby plant outside? Write all the steps.

_____

_____

_____

_____

_____

In the box, draw the steps for planting a seed.

Why do we need to move our baby plants outside?

_____

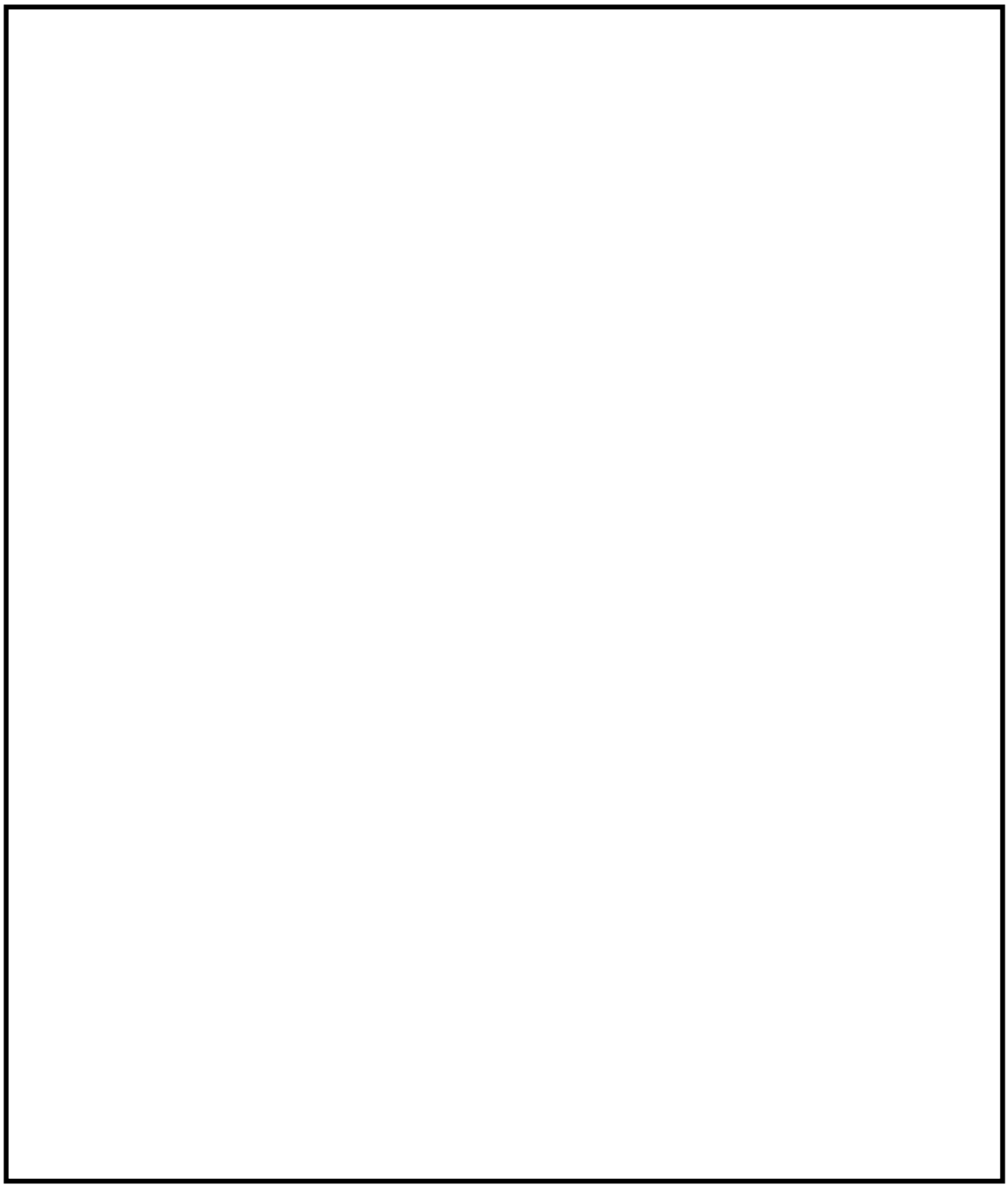
_____

_____

PLANT STUDY

Are all baby plants the same? Find the tray with the baby plants.

Draw and label the baby plants that you see in the tray.



The Expert's Guide to Gardening: Soil and Compost

Aim
Students will demonstrate their knowledge of soil and compost.

Summary
Students will amend beds with compost and discuss the importance of healthy soils and compost in successful plant growth.

Standards
CCSS: ELA, Grade 2, W8: Recall information from experiences or gather information from provided sources to answer a question.

NYS: Science, S 1.3: Develop relationships among observations to construct descriptions of objects and events and to form their own tentative explanations of what they have observed.

NYS: Science LE 1.1b: Plants require air, water, nutrients, and light in order to live and thrive.

Materials

- Dry erase board and markers
- Buckets full of finished compost
- Expert's Guide to Gardening workbooks
- Pencils
- trowels
- Seasonal tasting

Vocabulary

- soil
- compost
- nutrients

Procedure: Day One
Opening Circle (5 minutes)

- *Let's remind ourselves: what are all the things plants need to grow healthy and strong? Today, we're going to be talking about soil. What are some of*

the things that soil does? Take student answers, highlighting that it holds up plants, takes in water for roots, has good nutrients in it for the plants, and is a home for living things.

- *Soil is important for our plants for many reasons. We make a special kind of super soil in our garden, in a special container in our garden. What am I describing? Compost! What is that again? Why is compost important for plants? What would happen if our plants didn't have healthy soil and compost to help them grow?*

Inquiry Activity One (10 minutes)

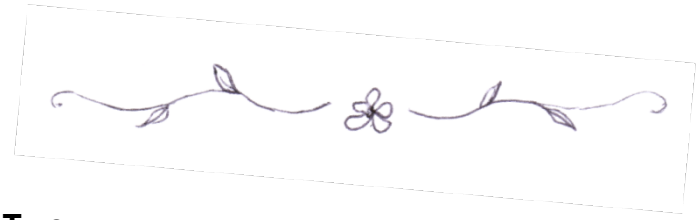
- *We're going to get to some serious soil investigation while we work with our plants today. We are going to be spreading some compost around our plants to make sure that our plants are going to grow strong.*
- *While we are doing this job, I want you to study the soil. Let's try to find as many different things in the soil and the compost as we can. What are some things we could find in the compost? Where should I put my soil on my garden bed?*
- Go over applicable garden rules including safe tool use, no flying soil, and being kind to insects.

Garden Job (25 minutes)

- Spread compost around the base of the plants. Make sure to notice and call out all the different things you are finding in the soil and compost, organic and inorganic. If it seems necessary to add extra structure, have students list at least three things they find in the soil while they work.

Closing Circle (5 minutes)

- Acknowledge students for their good work.
- *Can someone remind me: why do plants need soil and compost?* Act out plants using soil to stand straight, soak up water and nutrients, etc.
- *What did you guys see in the compost while we were doing that activity? Any bugs? Tomorrow we're going to do more soil work, so hold onto your soil observations.*



Procedure: Day Two

Opening Circle (5 minutes)

- Welcome students back to garden class.
- *Remind me, what was the job that we did the last time? We added compost to our garden beds and helped our soil get stronger and healthier.*

Inquiry Activity (35 minutes)

- Pass out workbooks to students. Have them turn to the pages that you would like them to complete. Read through the questions together with them.
- Circulate to help students as they work.
- If students finish early, have them work on the "bonus pages" of the workbook.

Closing Circle (5 minutes)

- Congratulate students on their good work today. *Great work, soil scientists. We're going on to add this new soil information into our book. At the end we're going to have such great information to help new gardeners.*

Common Core State Standard Extensions

ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

- Have students write about what the jobs are of some of the items that they found in the soil (e.g. if the student writes that they found a worm in the soil, ask them to explain what that worm does for the soil, what role does it have?).

Other Extensions

Science: Work with the students to draw out the cycle of how nutrients move throughout the garden up on the whiteboard. *Why do we have to add more compost in for the plants? What do the plants get from the compost? Nutrients! After the plants take up the nutrients they're not in the soil anymore! Now they're inside the plant. Then what happens when the plant dies, what do we do with dead plants in the garden? We compost them! When we put the dead plants back in the compost we are putting the nutrients that are inside those plants back in the soil!* Draw these steps up on the board, in one big circle.

ABOUT SOIL AND COMPOST

What are some things that we put into the compost? Name three.

_____

_____

_____

In the box, draw any creatures that you saw in the compost.

Why do plants need soil? Give two reasons.

1. _____

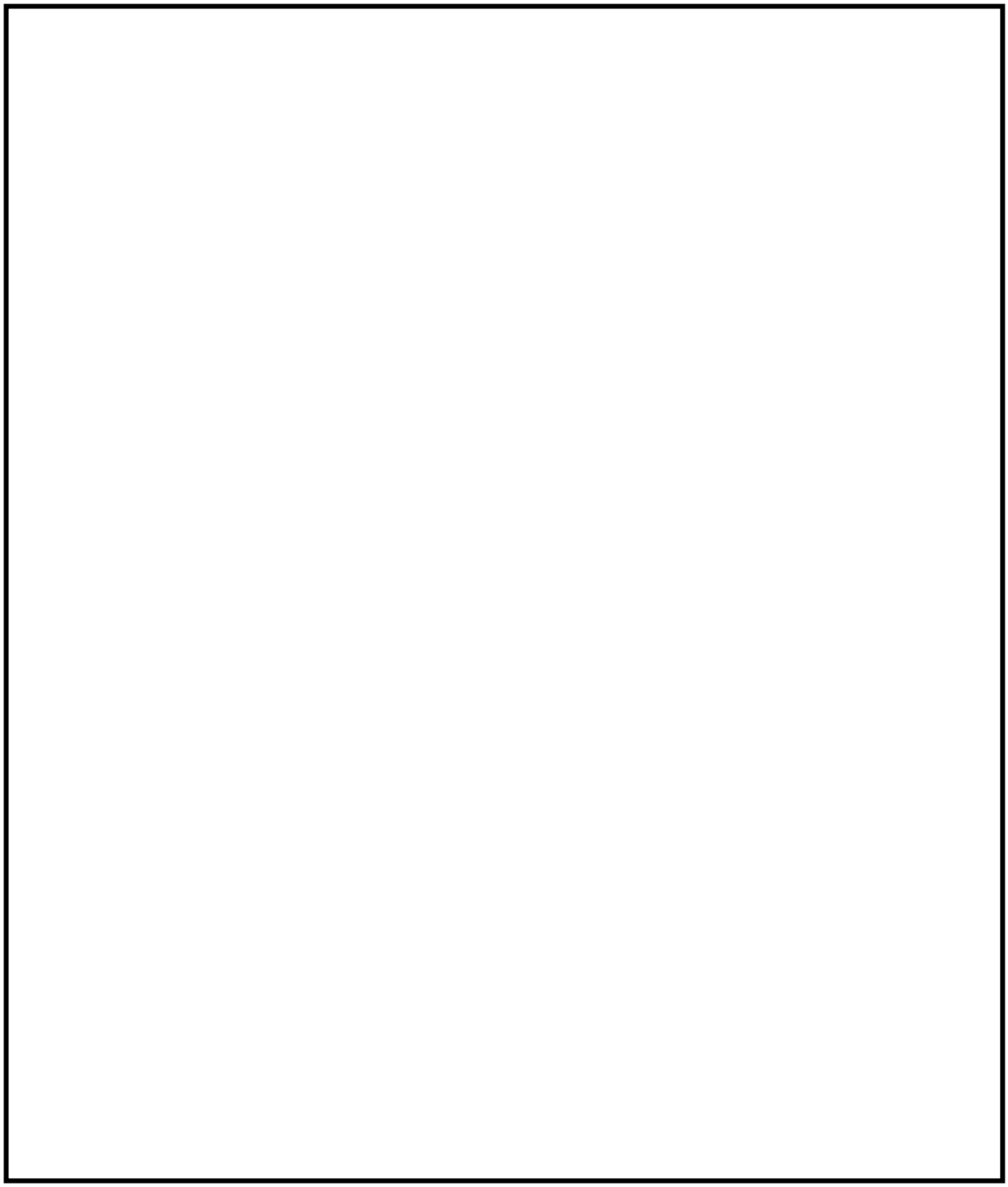
_____

2._____

_____

GARDEN STUDY

Draw a garden with healthy soil and happy plants.



The Expert's Guide to Gardening: Weeding and Watering

Aim
Students will demonstrate their expertise in watering and weeding and capture that gardening fluency in the final chapter of their Garden Expert's book.

Summary
Students will weed and water in the garden and then fill in the corresponding pages in their books.

Standards
CCSS: ELA, Grade 2, W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

CCSS: ELA, Grade 2, W8: Recall information from experiences or gather information from provided sources to answer a question.

NYS: Science, LE: 1.1b Plants require air, water, nutrients, and light in order to live and thrive.

Materials

- Dry erase board and markers
- Buckets to put weeds in
- Expert's Guide to Gardening workbooks
- Watering cans
- Water
- Pencils
- Seasonal tasting

Vocabulary

- water
- space
- weeds

Procedure: Day One

Opening Circle (5 minutes)

- *Hi, gardeners! Today, we're going to be working on the two things that gardeners do the most in their gardens to make sure their plants grow well. We are going to weed our garden beds and then give our plants water.*
- *The first thing we are going to do is weed our plants. We plant special seeds of plants we want to grow in our garden. But sometimes other plants find their way in our gardens, too. Seeds can blow around in the wind or get accidentally dropped. Plants that we didn't mean to put in our garden are called "weeds." There isn't anything wrong with weeds. We just don't want them in that particular place. Why do you think it might be a problem to have too many plants in one small bed? Because plants need space! What do plants need space for? What happens if plants don't have enough space?*
- *Exactly – gardeners pull out weeds so that the plants they want to grow have enough space to stretch out their roots and grow tall and healthy*.
- *Can someone remind me: what plants are we growing together? Peas! Peas are pretty small, do you think they'll need the same amount of space as trees would? No, trees would need more space, but all plants need the right amount of space for them to grow*. If necessary, physically demonstrate this by acting out being a pea plant and being a tree.

Garden Job One: (15 minutes)

- *You have to be very careful when you weed to make sure you aren't accidentally pulling out a plant that we want. Remember, this is what our snap pea plants look like. We want to make sure we don't pull those out!*
- Gather kids around bed. *When you pull out a weed, you want to pull it out right at the bottom of the plant where it meets the soil. Grab it and pull up. When you have the weed pulled out, put it in the weed bucket. My weed looks like this*. Describe whatever weed you pulled.
- *I want everyone to find a weed that looks like mine but don't pull it out yet, just touch it like this.* Check that they have the right weeds. *Great, on the count of three everyone pull their weeds*. Repeat until out of time or weeds.
- *See how much space we made in this bed?! Now our peas have lots of room to stretch out and grow. Let's head back for our next gardening mission.*

Garden Job Two: (15 minutes)

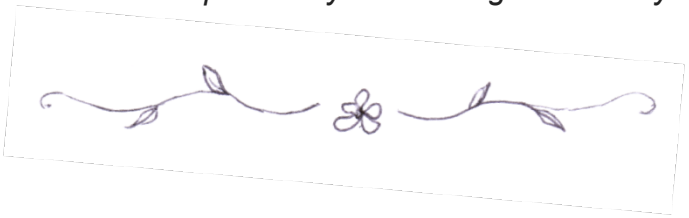
- *We helped our plants get the space they need. What else do plants need? Water, food, light. Why do they need those things? Where do our plants get light from? The sun! Where do they get food from? The soil!*
- *Where do they get water from? They get it from rain. Or, when there isn't enough rain, we like to water them to help them along. Do plants have mouths? Not exactly! Where do plants drink water from? The soil! They soak up water with their roots. Let's make sure when we water today that we are wetting the soil around our plants and not the leaves. That will help*

our plants get the most water. Also, remember, expert gardeners: today we are watering like the gentle rain so let's make sure we are really gentle with our plants. What would happen if I dumped a whole container of water on my plants? Would my plants like that? Why not?

- Water with students.

Closing Circle (10 minutes)

- *Great work, everybody. Today we helped our plants so much. Now they have all the water and space they'll need to grow healthy and strong.*



Procedure: Day Two

Opening Circle (5 minutes)

- Welcome students back to garden class*. Remind me: what were the two jobs that we did the last time? Today we're going to be working on new pages in our Garden Experts' books, this time about weeding and watering.*

Inquiry Activity (35 minutes)

- Pass out workbooks to students. Have them turn to the pages that you would like them to complete. Read through the questions together with them.
- Circulate to help students as they work.
- If students finish early, have them work on the "bonus pages" of the workbook.

Closing Circle (5 minutes)

- *Great work today, gardeners. Your books turned out beautifully. We can use those books to teach other people how to be gardening experts! Who are you going to share your book with?*
- If time allows, end with a seasonal tasting.

Common Core State Standard Extensions

ELA, Grade 2, W3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

- Ask the students to write a story about a garden filled with weeds. In the story what happens to the other plant? What does the gardener do, how does the gardener feel? Does the gardener learn anything at the end of the story?

Other Extensions

Science: Ask the students to only weed one section of the garden, but leave part of the garden bed unweeded. *We're going to do an experiement and see what happens to these platns! What might happen? Do you think all these plants will look the same when you come back next week? What do you think the plants will look like? Why?* When the students come back to the garden again, remind them about this experiment, and make observations about what happened.

ABOUT WEEDING AND WATERING

Which needs more space: our pea plants or a tree? Why do they need different amount of space?

_____

_____

_____

_____

What part of their bodies do plants drink from?

_____

_____

Draw a whole plant. Label the part they drink from.

WATERING

In the box, draw a picture of yourself watering our plants. Make sure you draw yourself watering the plants in the *correct* place.

Plant Life Cycle Scavenger Hunt

Aim
Students will be able to describe the life cycle of seed to plant to seed again.

Summary
Students list the stages of a plant life cycle, then go on a scavenger hunt to find plants at different stages in their life cycle.

Standards
CCSS: ELA, Grade 2, SL2: Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

NYS: Science, LE 4.1a,b,c,d: Observe plant life cycles and life spans.

Materials

- Dry erase board and markers
- Clipboards
- Pencils
- Plant Part Scavenger Hunt worksheets
- Seasonal tasting

Vocabulary

- life cycle
- sprout
- decompose
- compost

Adapted from ESY Berkley, http://edibleschoolyard.org/berkeley/

Procedure: Day One

Opening Circle (10 minutes)

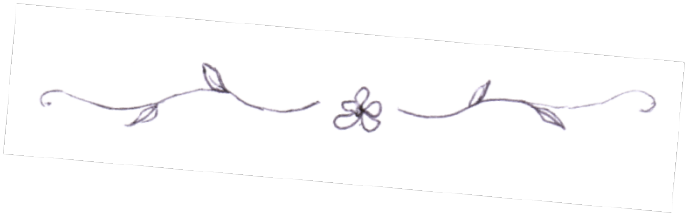
- *What is a "life cycle"?* Write the phrase "life cycle" on the board. Have students give examples of a life cycle, if they have learned any before.
- *A "cycle is made up of events which go in a circle. A cycle keeps going—there is no real end.* Point out that "cycle" looks like the word "circle."
- *Plants have a life cycle, too. Let's see if we can figure out what a plant life cycle is. How does a plant start its life?*
- Using student answers, draw up a plant life cycle on the board, from seed, to baby plant, to flower, to fruit, to seeds again. *What happens at the end? Does the cycle end? No, it repeats all over again!*
- *What happens to the old plant when it dies and decomposes? What does it turn into? Where in the garden do we put it? In the compost!*

Inquiry Activity One (30 minutes)

- *So, right now, you can find all of the steps of the plant life cycle in the garden. There are seeds, sprouts, mature plants, flowering plants, plants that have produced fruits or vegetables, and plants that are rotting and turning back into soil.*
- *You are going to go on a scavenger hunt and see if you can find examples of all the steps of the plant life cycle.*
- Hand out clipboards, pencils, and Plant Life Cycle Scavenger Hunt worksheets.
- *You are going to be in groups looking for clues. After you find what you are looking for, you have to follow the instructions on the sheet. Sometimes you have to draw, sometimes you have to answer a question, sometimes you have to bring something back with you.*
- *After you do what you need to do at one clue, you move on to the next.*
- Circulate during the activity to make sure the students know what they are doing and to help them find .

Closing Circle (5 minutes)

- Share answers from the hunt. *Who can tell me where they found a plant in the seed phase? Who can tell another place they found a plant in the seed phase? Who can tell me where they found a sprout, a baby plant?*
- As you take answers, refer to cycle on the white board.
- Share the seasonal tasting that students have picked during their scavenger hunt, if they did not taste it during the scavenger hunt.



Procedure: Day Two

Opening Circle (10 minutes)

- *Who can name one of the phases of a plant's life cycle? What comes next?* Go over the entire plant life cycle.

Garden Job (25 minutes)

- Explain the garden job and how it fits into the plant life cycle.
- *While you are doing your work, keep your senses alert to what is going on in the garden. What do you see? Hear? Feel? Smell? What differences do you notice from the last time you were out here?*

Closing Circle (10 minutes)

- Have students share their observations from today's work. *How did our work today relate to the plant life cycle?*

Common Core State Standard Extensions

ELA, Grade 2, W2: Write explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section:

- Describe the different phases of the plant life cycle.

Other Extensions

Math: Miss Feigin and Miss Roth's class found 13 flowering plants on their scavenger hunt. Miss Reed's class found 5. How many flowering plants did both classes find? Miss Accovelli's class found 8 sprouts and 7 mature plants on their scavenger hunt. How many plants in total did Miss Accovelli's class find?

Life Cycle Scavenger Hunt: 1

1. Find a flower in the garden. Smell the flower. Does it have a smell?_____
   Draw the flower here:

2. Find a fruit or vegetable in the garden that is ready to pick. PICK ONLY ONE FOR YOUR GROUP. Bring it to show your teacher at the end of the hunt.

3. Where in the garden can we find plants that have already died and are turning back into soil? Find this spot in the garden and draw it here:

4. Find a young plant in the garden—so young that it doesn't have any flowers or fruits or vegetables yet. Look for the sign on the garden bed. Write the name of the young plant here:

5. Where do you think you can find seeds in this garden? There are a few places! Pick one, go there, and draw the place here:

Life Cycle Scavenger Hunt: 2

1. Where do you think you can find seeds in this garden? There are a few places! Pick one, go there, and draw the place here:

2. Find a flower in the garden. Smell the flower. Does it have a smell?_____
   Draw the flower here:

3. Find a fruit or vegetable in the garden that is ready to pick. PICK ONLY ONE FOR YOUR GROUP. Bring it to show your teacher at the end of the hunt.

4. Where in the garden can we find plants that have already died and are turning back into soil? Find this spot in the garden and draw it here:

5. Find a young plant in the garden—so young that it doesn't have any flowers or fruits or vegetables yet. Look for the sign on the garden bed. Write the name of the young plant here:

Life Cycle Scavenger Hunt: 3

1. Find a young plant in the garden—so young that it doesn't have any flowers or fruits or vegetables yet. Look for the sign on the garden bed. Write the name of the young plant here:

2. Where do you think you can find seeds in this garden? There are a few places! Pick one, go there, and draw the place here:

3. Find a flower in the garden. Smell the flower. Does it have a smell?_____
   Draw the flower here:

4. Find a fruit or vegetable in the garden that is ready to pick. PICK ONLY ONE FOR YOUR GROUP. Bring it to show your teacher at the end of the hunt.

5. Where in the garden can we find plants that have already died and are turning back into soil? Find this spot in the garden and draw it here:

Life Cycle Scavenger Hunt: 4

1. Find a fruit or vegetable in the garden that is ready to pick. PICK ONLY ONE FOR YOUR GROUP. Bring it to show your teacher at the end of the hunt.

2. Where in the garden can we find plants that have already died and are turning back into soil? Find this spot in the garden and draw it here:

3. Find a young plant in the garden—so young that it doesn't have any flowers or fruits or vegetables yet. Look for the sign on the garden bed. Write the name of the young plant here:

4. Where do you think you can find seeds in this garden? There are a few places! Pick one, go there, and draw the place here:

5. Find a flower in the garden. Smell the flower. Does it have a smell?_____
   Draw the flower here:

Life Cycle Scavenger Hunt: 5

1. Where in the garden can we find plants that have already died and are turning back into soil? Find this spot in the garden and draw it here:

2. Find a young plant in the garden—so young that it doesn't have any flowers or fruits or vegetables yet. Look for the sign on the garden bed. Write the name of the young plant here:

3. Where do you think you can find seeds in this garden? There are a few places! Pick one, go there, and draw the place here:

4. Find a flower in the garden. Smell the flower. Does it have a smell?_____
   Draw the flower here:

5. Find a fruit or vegetable in the garden that is ready to pick. PICK ONLY ONE FOR YOUR GROUP. Bring it to show your teacher at the end of the hunt.