LiveWell Kids

Garden and Nutrition Program

Lesson 6: The Importance of Water, and Growing Warm-Season Crops for the Community

OBJECTIVES

By the end of this lesson, students will:

- Learn about warm season-crops and seasonal planting.
- Understand how to prepare soil for planting.
- Practice proper seed-planting techniques.
- Recognize that all living things - including people, animals and plants - need water to survive.
- Understand that growing food in our garden can help support our local community.
- Recognize that fresh water is a valuable and limited resource that we must use wisely.

SUPPLIES

Supplies to bring from the classroom to the garden – *arrange with teacher ahead of time*:

- Paper – one piece per student
- Writing tools, such as crayons, colored pencils, or markers

Supplies to bring from the shed to the garden:

- Soil Prep and Planting Activities:
  - Compostable pots, potting mix (TK)
  - Laminates: *Row Planting guide,* 4 seed packet laminates (K-5th)
  - 1 brown paper bag containing seeds (all grades) and plant labels (K-5th)
  - 2 Sharpies
  - Cultivators (K-5th)
  - Rake (K-5th)
  - Bucket for compost - unless you have a bag of soil leaning on your bed (K-5th)
  - Compost scooper (K-5th)
  - Watering cans (K-5th)
  - 2 popsicle sticks (K-5th)
  - Ruler (K-5th)
  - Row-planting tool (or yarn, 2 popsicle sticks, and scissors, if one doesn't already exist) (K-5th)
  - 6 kneelers (K-5th)
  - Gloves - optional (K-5th)
- Water Activity:
  - Water pitcher (all grades)
  - Cling Wrap (all grades)
  - Paper cups (all grades)
  - Scissor (TK-5th)
  - Whiteboard (4th)
  - Dry-erase markers (4th)
  - Laminates:
    - *We Grow Food to Help Our Community* (all grades)
    - *Recipes to Make Water More Fun* (all grades)
    - *Eat Your Water* (all grades)
    - *Water Use* (TK, K)
    - BOOK: *I Am Water* (K)

- *Water Can Change Form* (2nd)
- *Benefits of Drinking Water* (1st, 3rd)
- *The Water Cycle* (2nd)
- *The Water Cycle Worksheet* (2nd)
- *Losing Water* (3rd)
- *Where is Earth's Water?* (2nd, 4th)
- *Water Tracker* (3rd, 5th)
- *Healthy Habits, Healthy Planet* (2nd)
- *Sugar Word Cloud* (5th)
- *Nutrition Facts: Sugar* (5th)

PREPARATION

- Refer to the LiveWell Kids Volunteer Manual on the LiveWell Kids webpage for details about preparing for the lesson one week prior and the day of.
- Allow **30 minutes** for set-up and preparation on the day of the lesson.

SET-UP INSTRUCTIONS

1. (Grade TK:) Take the compostable pots, the potting soil, your bag of seeds, and 2 sharpies to one of the tables for your planting activity.

2. (Grades K-5th) SET UP THE "SOIL PREP" AND "PLANTING" ACTIVITIES:

   - If your garden bed does NOT have a bag of soil leaning against it, go to the compost bin and scoop compost into a bucket using the compost scooper. Some schools have compost already sifted and waiting for you in the shed (in the large party bucket, labeled.) Then place the bucket near your bed. Your Lead Volunteer will let you know how much compost can be taken.
   - Place the following items at the garden bed for the *"Soil Prep"* activity:
     - Cultivators
     - Kneelers
     - Rake
     - Bucket with compost
     - Optional: gloves (not all students are comfortable wearing gloves)
     - Grades 1st -5th only: your garden cart or wheelbarrow
   - Set the following supplies near, but not directly next to, the garden bed for *"Planting"* activity:
     - Ruler
     - 2 popsicle sticks
     - Yarn/popsicle stick row-planting guide tool
     - Bag of seeds and labels
     - 2 Sharpies
     - Watering cans filled halfway
     - 2 seed packet laminates
     - *Row Planting Guide* laminate
   - If a row-planting guide tool is not already available in the shed from the fall planting lesson, make one by cutting a piece of yarn slightly longer than the length of your garden bed and tying a popsicle stick to each end. The tool should stretch across the bed to guide the planting rows.
   - If a row-planting guide tool is already available in the shed, check that it fits the length of your bed. If you create a new tool, leave it with the lesson supplies for others to use**.**
   - (REDONDO BEACH ONLY) Remove the irrigation lines from the garden bed (follow the instructional video on the website: https://bchd.org/youth-programs/livewell-kids/) and place them on a nearby bed or the ground away from the area where your students will be working.

3. SET UP THE "WATER" ACTIVITY (all grades):

- Fill the water pitcher with fresh water at either a hydration station or the teacher's lounge and bring it to the garden.
- Place the following items at the picnic table area:
  - TK:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, laminates: *Water Use*, *Recipes to Make Water More Fun, Eat Your Water*
  - Kindergarten:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, book - *I Am Water*, laminates: *Water Use*, *Recipes to Make Water More Fun, Eat Your Water*
  - 1st grade:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, laminates - *Benefits of Drinking Water*, *Water Tracker, Recipes to Make Water More Fun, Eat Your Water*
  - 2nd grade:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, laminates - *The Water Cycle, Recipes to Make Water More Fun, Eat Your Water*
  - 3rd grade:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, laminates - *Benefits of Drinking Water*, *Water Tracker*, *Losing Water, Recipes to Make Water More Fun, Eat Your Water*
  - 4th grade:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, whiteboard, dry-erase markers, laminates - *Recipes to Make Water More Fun, Eat Your Water*
  - 5th grade:
    Filled water pitcher (cover with cling wrap), paper cups, scissors, laminates - *Water Tracker, Sugar Word Cloud, Nutrition Facts: Sugar, Recipes to Make Water More Fun, Eat Your Water*

INTRODUCTION & MINDFUL BREATHING *(All grades - 4 minutes)*

- Greet students and introduce any new volunteers.
- Lead the class in a short mindful breathing exercise.
- Explain that for today's lesson, they will:
  - Plant warm-season crops.
  - Learn how water supports life.

  - Understand how the food grown in the garden can help support members of the community.

- Explain that water is essential for all living things.
  - Plants need water to grow.
  - People need water to keep their bodies working properly.
  - Although people may live in different places and grow different foods, we all depend on the same water that Earth provides.

- Show laminate *We Grow Food to Help Our Community.*
  - Inform them that not everyone in our community has regular access to fresh, healthy produce.
  - The seeds they plant today will be watered throughout the summer so they can grow and produce food.
  - When the crops are ready, volunteers will harvest them and donate the produce to local food pantries and soup kitchens.
  - There, the food will be shared with community members who need it.
  - Point out that by planting seeds today, they are helping grow food that will support others.

- Ask:
  - "Who do you see in this picture?"
  - "How does water help this whole process?"

- Allow a few students to share their observations before moving on to the next activity.

All Grades	**<u>Prep Infused Water</u>** Supplies – Filled water pitcher, scissors
	• Tell students that they will be tasting naturally flavored water made by adding fresh herbs from the school garden. • Walk them to where herbs are growing in the garden and show them which herbs are there. • If there are several herb options available, allow them to vote on which herbs they'd like to try (or you can just decide.) • Using scissors, cut a few sprigs. • Explain that they will be rinsed at the sink before you add them to the pitcher of water at the table. ○ Alternative: For stronger flavor, the infused water can be prepared before the lesson begins. In this case, instead of cutting herbs with the class, walk them to the herbs and show them where they were harvested.

<u>Divide Class into Two Groups</u>

One group will go to the garden bed (TK goes to the planting activity location) for the *Soil Prepping* activity while the other group will go to the *Water* activity. The two activities will run simultaneously.

After both groups have completed each activity, the class will come together at the garden bed for the *Planting* activity.

WATER ACTIVITY *(10 minutes for TK – 2nd, 13 minutes for 3rd – 5th)*

1. Engage students in grade-specific discussion about water.
2. Serve infused water for tasting while discussing creative and hidden ways to get more water.

GRADE AND DISCUSSION TOPIC	DISCUSSION AND ACTIVITY CONTENT
TK Discussion Topic: *All Living Things Need Water*	Laminates: *Water Use, Eat Your Water* • Explain that all living things need water to grow and stay healthy. People, animals and plants all depend on water. • Ask students how people drink water. Point out that people drink water through their mouths, which helps keep our bodies healthy and strong. • Then explain that plants also need water, but they get it in a different way. Plants do not have mouths. Instead, their roots absorb water from the soil and send it up through the plant so it can grow. • Point out that even though people and plants get water in different ways, they both need water to live. • Use the laminate *Eat Your Water* to help illustrate the discussion: o Show them that some foods contain a lot of water, such as cucumbers, watermelons and oranges. o Explain that eating fruits and vegetables that contain a lot of water is also a way to get water into our bodies. o Show them Have them look at the laminate and compare how much water is contained in the different fruits and vegetables. • Explain that water is important in many parts of our lives, not just for nourishing our bodies. • Use the laminate *Water Use* to help illustrate the discussion: o Ask: “Can anyone name some other ways that we use water each day?” o Point out that water is also important for things like cooking and cleaning. o Ask: “How would we do any of these things without water?”
Kinder Discussion Topic: *Water and Living Things*	Laminates: *Water Use*, *We Grow Food to Help Our Community* Book - *I Am Water* Use the book, *I Am Water*, and the laminate *Water Use* to help illustrate the following discussion: • Water is an important part of our daily lives. All living things need water to live and grow, including people, animals and plants. • People and animals need to drink water to stay healthy and feel good.

	• Kindergarteners should drink about five glasses of water a day. • People can also get some of their daily water from fruits, vegetables, and other foods that contain a lot of water. • Plants need water too. They get water from rain or when people water them. • Ask: "What are some ways we use water?" Answers could include: o *People and animals use water to bathe and keep clean.* o *We use water to brush our teeth.* o *You can't flush a toilet without water!* o *We use water for cooking food, like spaghetti, or boiling eggs.* o *We also use water for washing our clothes, cars, dishes, and many other things that need cleaning.* o *We have fun with water, like using it in a swimming pool, or playing with water toys.* • Water is one of Earth's most valuable resources, so it's important that we don't waste it! • Ask: "What are some ways we can save water?" Guide the discussion towards ideas such as: o Turn off the water when brushing your teeth. o Taking shorter baths and showers. (Showers often use less water than baths.) o Finish the water in your cup or water bottle before asking for more. o Use a watering can instead of a hose when you water plants. • Explain that using water wisely means that there is more water available for everyone in our community, including the plants we grow. • Refer to the laminate, *We Grow Food to Help Our Community,* and remind students that when we water our garden, we are helping grow food that will be shared with people in our community.
1st Grade Discussion Topic: *Water in Your Body*	Laminates: *Benefits of Drinking Water* Use the laminate, *Benefits of Drinking Water*, to illustrate the discussion: • Ask: "What do you have in common with trees and animals?" Remind them that all living things, including people, animals and plants, need water to survive. • Ask: "Do you know that your body is mostly made of water?" o More than half of our bodies are made up of water! o Many important parts, including our brain, heart, lungs, skin, muscles, bones, and blood, are all made of lots of water. • People need to drink water every day for our bodies to work properly. o Children 6 to 7 years old should try to drink at least 6 to 7 glasses of water each day, or even more if it's hot outside, or if they are playing hard and sweating. • Water helps our bodies in many important ways. Here are some examples:

	1. <u>Water forms saliva.</u> o Ask: "Do you know where we find saliva in our body? If yes, point to that body part. Saliva is spit, the clear liquid in your mouth. Saliva helps to clean out your mouth and throat." 2. <u>Water helps to keep our bodies cool.</u> o Have them jump up and down in place 10 times. o Explain that if they keep moving, they may start to notice water on their skin. This is called ***sweat***. When we sweat, water moves from the inside to the outside of our body, forming small droplets on our skin. o When air moves across these droplets, it cools the skin. This is how water helps our bodies stay at the right temperature and prevents us from getting too hot. 3. <u>Water helps move nutrients through our bodies.</u> o Water helps move nutrients from the foods we eat to all parts of our body using our blood, which is mostly made of water. 4. <u>Water helps our muscles work properly.</u> o Have them flex their arm muscles (demonstrate.) o Muscles need water to work well during activities like playing, walking, and exercising. 5. <u>Water helps keep parts of our body moist and working smoothly.</u> o Water helps keep our eyes moist so we can blink. o Water helps our joints move smoothly. 6. Water helps remove waste from our bodies. o Water helps move food through our body and helps the body get rid of waste through pee and poop.

2nd Grade Discussion Topic: *The Water Cycle*	Laminates - *The Water Cycle, The Water Cycle Worksheet, Where Is Earth's Water?, Water Can Change Form, Healthy Habits Healthy Planet* Use the laminate, *The Water Cycle*, to illustrate the discussion. This version has everything labeled. • Ask: "Did you know the water we drink today is older than the dinosaurs?" • Explain that Earth has a limited amount of water, and it's constantly being reused through a system called the *water cycle*. This cycle allows all living things to receive the water they need to survive. Use the laminate, *Water Can Change Form*, to illustrate the next point. • Before we look at the steps, it helps to know that water can exist in three different forms: o Solid - ice o Liquid - water o Gas - water vapor (invisible in the air) The water cycle is all about water changing between these forms. • Go over the following stages:

- ***Evaporation*** - Water changes from liquid to vapor.
  - The sun heats water in oceans, lakes and rivers, causing it to rise into the air as water vapor.
- ***Condensation*** - Water changes from vapor back into liquid.
  - As the water vapor rises and cools, it forms clouds.
- ***Precipitation*** - Water falls back to earth.
  - When clouds become too heavy, the water falls as rain. If it's really cold, it can fall as snow or hail (water turning into a solid.)

- Looking at *The Water Cycle*, point out that when water reaches the ground, it can take different paths:
  - Some soaks into the soil and nourishes plants or becomes ground water.
  - Some returns to their air as vapor, through evaporation.
  - Some becomes ice or snowpack, changing from liquid to solid.
  - Some collects in oceans, lakes and rivers.
  - Some flows downhill across the land, which is called ***runoff.***
- Collection – Water flows into rivers, lakes and oceans, and the cycle begins again.

Water as a Limited Resource

- Use the laminate, *Where is Earth's Water?* to continue the discussion.
- Explain that even though Earth has a lot of water, most of it is not available for us to drink.
- Most of Earth's water is:
  - Salt water in the ocean.
  - Stored underground or in soil.
  - Frozen as ice.
- Ask: "How much of Earth's water do you think we can actually drink?" Allow some guesses.
  - Explain that **only about 1%** of Earth's water is fresh water, available for drinking!
  - This water comes from rivers, lakes and ground water.
- Explain that because fresh water is limited, it is important that we do not waste it so there will always be enough for everyone.
- Use the laminate *Healthy Habits, Healthy Planet* to show how our everyday choices can help protect water.
- Explain that when we:
  - Use only the water we need
  - Take care of our soil and plants
  - Grow food locally

  … we help keep our water clean and available for people, plants and animals.
- This is why using water wisely helps our gardens grow healthy food for us and our community.
- Review: Use the laminate *The Water Cycle Worksheet* to review the cycle.

	○ Point to each of the blank label boxes and ask: "Who can describe what is happening here?" Guide them to an accurate description. ○ Point to each blank label box again and say: "Can anyone remember the names of the different stages of the water cycle?" *(Evaporation, condensation, and percipitation.)*

3rd Grade Discussion Topic: *Hydration & Dehydration*	Laminates: *Benefits of Drinking Water, Water Tracker*, *Losing Water* • Ask: "What do all of us have in common with trees and animals?" ○ Remind them that all living things, including humans, animals, and plants, need water to survive. • Ask: "Can you guess how much of our bodies are made up of water?" *More than half.* • Show the laminate, *Benefits of Drinking Water* and point out that many parts of the body, including the brain, lungs, muscles and skin, contain a high percentage of water. • Explain that because our bodies are made of so much water, water plays many important roles in keeping us healthy. It helps: ○ Regulate body temperature. ○ Carry nutrients and oxygen around our bodies. ○ Remove waste. ○ Support our organs and joints. • Explain that we need to drink water, or ***hydrate***, every day to keep our bodies working properly. Hydrate means to "add water." • At this age, students should try to drink about 8 glasses of water each day, and more when it's hot or when they're doing something active. • Have students take a slow breath in and out. Explain that even though they could not see it, they lost a small amount of water just by breathing. • Use the laminate, *Losing Water* to continue the discussion. • Ask students to help identify other ways the body loses water, such as sweating, using the restroom, sneezing, and crying. • Feeling thirsty is one of the first signs that the body needs more water. • Ask: "What would you guess are some other signs of dehydration?" *Responses should include:* ○ *Headaches* ○ *Feeling tired* ○ *Muscle cramps* ○ *Dizziness* ○ *Nausea* ○ *Needing to use the restroom less often*

	• Explain that after the body uses the water it needs, the extra water leaves the body through urine, or pee. • Explain that one way to tell if you're drinking enough water is by noticing the color of your urine. If it's light in color, your body probably has enough water. If it's dark, you may need more water. • Introduce the laminate, *Water Tracker*, and explain that it can help students keep track of how much water they drink each day.

4th Grade Discussion Topic: *Water-Wise Practices*	Supplies: Whiteboard and dry-erase markers, laminate: *Where is Earth's Water?*
	• Explain that all living things need water to survive, but not just any water. Humans, like many living things, require fresh water, which is water that is not salty, for things like:
	  ○ Drinking
	  ○ Washing
	  ○ Watering plants
	  ○ Washing the dog
	• Use the laminate *Where is Earth's Water?* to explain that **only about 1%** of Earth's water is fresh water. The rest is salt water, frozen in ice, or stored underground.
	• Explain that because fresh water is limited, it is important that we use it wisely and do not waste it, especially as the population continues to grow.
	• Use the whiteboard to record student responses to the question, "What are some ways we use **fresh** water in our daily lives?" Guide responses toward examples such as bathing, brushing teeth, washing dishes, preparing food, watering plants, and cleaning.
	• Explain that now they're going to do an activity to come up with ideas to use water more wisely.
	• Divide students into small groups of 2-4.
	• Have each group brainstorm ideas and come up with one good way to use less water during that activity.
	• Allow a few minutes, circulating to support group discussions as needed.
	• Bring them back together and have each group share their best idea.
	• Write each idea on the whiteboard so all students can see the list. If they came up with the same idea as one that's already on the board, put a checkmark next to that idea and have the group share another good idea they discussed to add to the whiteboard.
	• Take a photo of the list to share with the teacher. Let them know that you'll ask the teacher to share it with their parents so they can try them at home.
	• Close the discussion by pointing out that using water wisely helps make sure there is enough water for our homes, our gardens, and our community.

5th Grade Discussion Topic: *Sugar in Our Drinks*	Laminates: *Water Tracker*, *Sugar Word Cloud*, *Nutrition Facts: Sugar* • Briefly review that all living things, including humans, animals, and plants, need water to survive, and that drinking water each day helps our bodies function properly. • Students should aim to drink about 8 glasses of water each day, and even more when it's hot, or when they're being active. • Show the laminate Water Tracker and remind them that it can be used to keep track of daily water intake. • In addition to drinking water, we can also get water from milk (nut milk or cow's milk), fruits and vegetables. • Remind them that some fruits and vegetables contain more water than others. • Some drinks contain water but can also include added ingredients that are not as healthy, such as added sugars, artificial colors and flavorings. • Give examples of drinks that may contain added sugar: o Fruit juices, which may contain natural or added sugars, or both o Sodas, which often contain high amounts of sugar or artificial sweeteners o Flavored milks, which contain added sugars (and sometimes added colors) o Sports drinks, which contain added sugars (added colors and sodium) These drinks should be chosen less often than water. • The Nutrition Facts label helps us understand what is in our food and drinks. • We look at the label to find out how much sugar is in a drink and whether sugar has been added. • Show them the *Sugar Word Cloud* laminate and explain that sugar can appear under many different names. • Ask, "Can you think of other words for sugar?" • Sugar is listed on the Nutrition Facts label in grams. • Children should aim to have less than 25 grams of added sugar per day. Show the laminate *Nutrition Facts: Sugar*. • Using the laminate, compare two drinks: a soda and a sports drink. • Ask: "Do you see any of the sugar words from the *Sugar Word Cloud* in these ingredients?" • Point out that both drinks contain high fructose corn syrup, which is a form of added sugar. • Ask: "How much sugar is in each drink?" • The soda contains 39 grams of sugar, which is more than the recommended amount for an entire day. The sports drink contains 21 grams of sugar, which is close to the daily limit.

	• Choosing water instead of sugary drinks supports overall health. • Making healthy choices about what we drink also supports our ability to stay active, think clearly, and care for our bodies.

All Grades Discussion	<u>Creative & Hidden Ways to Get More Water</u> Laminates: *Recipes to Make Water More Fun, Eat Your Water*
	• In addition to drinking water, there are other ways to help our bodies stay hydrated. • Some drinks have water but also contain ingredients we should have less often. (Skip this point for 5th grade since they have already discussed sugary drinks.) • Explain that another way to help us stay hydrated is to "eat your water." • Show the laminate *Eat Your Water* and explain that many fruits and vegetables contain large amounts of water. • Explain that water can also be made more enjoyable by adding natural flavors. • Show the laminate *Recipes to Make Water More Fun* and point out that they can add ingredients such as lemon, cucumber or watermelon to water. Herbs like mint or spices like ginger can also be used to add flavor. They can even combine fruit and herbs. • Keeping water nearby throughout the day can help students remember to drink it. Using a reusable water bottle is a great way to make water easy to access. • Simple choices, such as using frozen fruit instead of ice cubes or using a fun cup or straw, can make drinking water more fun. • Ask: "What ideas can you think of for flavored water or ways to make drinking water more fun?"
All Grades Activity	<u>Tasting Infused Water</u> *(You can move this to the end of the lesson if you choose)* Supplies – Herb-infused pitcher of water • Pour into cups and allow students to try and share what they think. • Challenge them to try out new creations at home and share with the class later.

<u>Switch groups after 10 minutes for K – 2nd and 13 minutes for 3rd – 5th**</u>**

SOIL PREPPING ACTIVITY *(10 minutes for K – 2nd, 13 minutes for 3rd – 5th)*

**<u>Happening at the same time as the water activity, while the class is divided into 2 groups.</u> **
This activity is preparing the soil for planting warm season crops by cultivating and amending the soil.

TK	**Activity: Planting seeds for home**

	Supplies: Small compostable pots, potting soil, packet of seeds, watering can, Sharpie. • Explain that they will plant seeds to take home and care for, so they can begin growing their own plants. • Assist students through the following process: o Write their first name on their pot with the Sharpie. o Add potting soil to compostable pots. o Make a small hole in the center with their fingertip (not too deep!) o Drop in 2 seeds. o Cover gently with the soil. o Water lightly. • Explain that their seed will need water, sunlight and time to grow into a plant that's big enough to plant in the ground. • Have the teacher email these instructions to their parents so they can care for the plants at home: *1. Keep pot on a plate in a sunny windowsill.* *2. Water every day for the first week, then every other day. The soil should feel damp (like a wrung-out sponge), not wet, not dry.* *3. Pour out water that drains onto the plate.* *4. When the plant is 4-6 inches tall, dig a hole in a sunny spot outside, tear the pot open and plant the seedling in the ground.* *5. Water immediately, then every 2-3 days.*

K – 5th Grades	**Activity: Preparing the Soil for Planting** *While students are preparing the soil, briefly review the purpose of each step, (a review from Lesson 2.) Assist students with tasks as needed.*
	• Stand on the opposite side of the garden bed from the students and explain that they will be preparing the soil for planting. • If the bed is shared with another class, point out the specific area where they will be working. • Ask: "Who remembers what it means to amend the soil?" *Explain that to 'amend soil' means to add and mix in nutrients, usually in the form of compost, to improve the soil.* • Ask: "**Why** do we need to amend the soil?" *Explain that previous plants have already used many of the nutrients in the soil, so we add compost to replace those nutrients and help new plants grow.* • (Kindergarten only) – Explain that the Garden Angel volunteers have already removed the old plants from the bed. • 1st-5th grades - students will remove old plants before adding compost (or soil, if there's a bag leaning on your bed) and place in garden cart or wheelbarrow.

	• All students will help cultivate the soil. • Ask: "Who remembers what it means to cultivate the soil?" *Cultivating means loosening or "fluffing up" the soil to create air spaces between the soil particles.* • Ask: "Why is it important to create air spaces?" *Creating air spaces in the soil:* o *Helps the soil organisms move access air they need.* o *Allows roots to push through the soil more easily as they grow.* o *Helps water move through the soil and reach deeper layers.*
Kinder	• For each group, pass out cultivators, kneelers, and optional gloves to the students. • Have students spread out around the garden bed and cultivate the soil as deeply as they can. • After 3-4 minutes, add either half of the bag of amended soil, or half of the compost to the bed. • Have students continue cultivating to mix the amendment into the soil. • Switch groups and repeat the process. • When they're finished, gently rake the soil surface until it is level.
1st – 5th Grades	Break the students into 2 groups. <u>Group 1 – Remove Old Plants</u> • Allow students to take turns removing the plants from the garden bed. • Instruct them to GENTLY shake or brush soil off the roots so it falls back into the bed. • Place the removed plants in the wheelbarrow or garden cart. • Switch groups. <u>Group 2 - Cultivate the Soil</u> • Pass out the cultivators, kneelers and optional gloves to the students. • Have students spread out around the garden bed and cultivate the soil as deeply as they can. • After 3-4 minutes, add either amended soil or compost: o If there is a bag of soil resting against your bed, explain that this means the soil level is low. After cultivating for a few minutes, open the bag and spread the soil evenly over the bed. Continue cultivating to mix it in. • Resume cultivating to incorporate added soil or compost. • Gently rake the soil surface until it is level.

****Bring the entire class back together at the garden bed.****

PLANTING ACTIVITY *(8 minutes for K – 2nd, 14 minutes for 3rd – 5th)*

Refer to the *Planting Guide* laminate to see what you're planting and where to plant within the beds.

K – 5th Grades	• Explain that each class will plant two different warm-season crops. • Explain that warm-season plants grow best during long, hot summer days. They need warm air, warm soil and lots of sunlight. • If planted during colder months, they will not grow as well.

	Create Rows for Planting
K – 5th Grades	• Use the row-planting guide tool and ruler to create planting rows. • Remind students how to use the tool to create four evenly spaced rows in the bed. • Select two students to come forward and stretch the tool across the bed a few inches from the edge, securing it in the soil so the yarn is taut. • Explain that when planting different crops in the same bed, it is important to consider how each plant grows. Remind students of the general rule: "tall plants in the back."

	Measure Soil Depth
K – 5th Grades	• Using the seed packet laminates and the *Planting Guide* laminate, remind students that we read the instructions to learn the specific directions for each different type of seed. ○ Call attention to the planting depth highlighted on the laminate. • Demonstrate how they can measure the depth on their finger using the ruler, starting at the tip of their index finger. • Have your helper assist them with measuring on their fingers.

	Place Seeds in Soil
K – 5th Grades	• Have students form two lines in front of the garden bed. • Give each student a seed and instruct them to cover it with their other hand to avoid dropping it. • Invite students to approach the bed two at a time and follow the row guide to plant their seed in a straight line. • Instruct them to poke a small hole based on their measured depth, place the seed inside, and gently cover it with soil. Remind them to keep the soil loose and not press it down.

	• Use a popsicle stick to mark the location of the most recently planted seed. As each new student plants, they will move the popsicle stick to mark their own spot, helping maintain even spacing.

	Continue Planting
K – 5th Grades	• Instruct students to return to the back of the line after planting to receive another seed. • Be sure to monitor distribution so that only two rows of each seed type are planted. • Once the second row of the first crop is completed, distribute the second seed type until two rows of each crop are planted. • Have the last students in each row move the row guide to begin the next row. • If appropriate, select a student to label each row. Provided a Sharpie and plant label and instruct them to write the plant name on one side and the date on the other. Each row should have one label placed at the end. • If students are too young to write clearly, have a helper prepare the labels and allow students to place them in the soil. • At completion, the garden bed should have a total of four rows and four labels, with two rows for each type of crop.

WATERING *(3rd – 5th grades - 3 Minutes)*

	Watering the New Seeds *Once seeds are planted, they remain dormant until they are watered. Water activates the seed, allowing it to open, grow roots downward, and sprout upward. The sprout is the early stage of the plant, and the root anchors the plant and absorbs water and nutrients.*
K – 2nd Grades	• Explain that the seeds will be watered after they return to class so they can begin to grow.
3rd – 5th Grades	• Have your co-volunteer bring the half-filled watering cans and place them in front of the bed. • Instruct students to form a line behind each watering can and take turns watering. Have each student count to 5 before switching to another student. • Remind them to water gently by moving the can side to side so the water is evenly distributed and does not flood the seeds. • Explain that we use a sprinkle-top watering can for new seeds because it provides a gentle flow that simulates rain.

	• Remind them that we avoid using watering cans with a stream spout for new seeds because the stream pushes seeds out of place since they don't yet have roots to anchor them in place.

REVIEW GAME *(All grades - 3 minutes)*

- *This activity reviews content from all grade levels taught throughout the year. If you choose, you may refer to previous lesson plans for supporting materials.*

QUIZ QUESTIONS

These questions review key concepts from Lessons 1-5. Select questions based on available time. Skip any questions that your students haven't learned yet.

Review of Lesson 1

• When we eat mindfully, we use our five senses. *True*
• One of the five senses is breathing. *False. The five senses are: sight, hearing, touch, taste and smell.*
• "The Hunger Gauge" is a tool to help us decide if we are truly hungry. *True*
• One way our body tells us it's time to eat is by feeling energized. *False. Feeling low energy is a sign that we may need to eat.*
• Tomatoes and basil are warm-season crops that grow best in warmer months. *True*
• Peas, beans and cilantro are all legumes, growing pods of seeds. *False. Peas and beans are legumes, but cilantro is not.*
• All tomatoes are red. *False. Tomatoes can be many colors, including purple, pink, orange, green, white and yellow.*
• Cucumbers and pumpkins are related because they are in the same plant family. *True*

Review of Lesson 2

• Removing old plants helps loosen the soil and create air spaces. *True*
• All seeds like to be planted ½ inch deep. *False: All seeds have different depth requirements.*
• Smaller seeds should be planted deeper than larger seeds. *False: Larger seeds are generally planted deeper, and smaller seeds closer to the surface.*
• Some fruit and vegetable root grow above ground. *False: Fruit and vegetable roots grow underground.*
• Beets, peas and kale grow best in the warm season. *False: These are cool-season crops.*
Roots absorb water and nutrients from the soil and move them through the plant. *True*
• A beet is a swollen part of the plant's root. *True*
• Pea tendrils are modified leaves. *True*

Review of Lesson 3

• Organic matter, like banana peels and leaves, should go in the recycle bin. *False: Organic matter is compostable, not recyclable.*
• Decomposers need air, browns, greens and water. *True*
• Compost is part of a nutrient cycle that recycles nutrients from dead matter to living matter. *True*
• Compost helps soil hold moisture that living things (plants and soil life) need. *True*
• Macroorganisms (like pill bugs, earthworms, centipedes) are so small that they can only be seen with a microscope. *False: "Macro" means large, so these organisms are visible to the naked eye.*

- Both micro and macroorganisms consume each other. *True*
- Our bodies cannot make minerals on their own. *True*
- Sodium supports the nervous system, but too much sodium can be unhealthy. *True*

Review of Lesson 4

- An annual plant completes its life cycle in one year. *True*
- Some seeds have structures that help them travel by wind. *True*
- Pollinators include bees, butterflies and squirrels. *False: bees and butterflies are pollinators but not squirrels.*
- Bees visit many flowers to collect nectar and pollen, and in the process, they help pollinate plants. True
- Seeds contain nutrients that support early plant growth. *True*
- All seeds come from flowers that were pollinated. *True*
- All nutrients in food do the same thing. *False: Different nutrients have different roles.*
- Fat is an important nutrient that provides energy. *True*

Review of Lesson 5

- All above-ground parts of pea plants are edible. *True*
- Peas can be purple, white or green. *False. Peas are purple or green.*
- Lettuce can grow as a tight head or as loose leaves. *True*
- Carrots are in the same plant family as celery. *True*
- Beets come in colors such as golden, red, purple, and polka dotted. *False: they come in gold, red, purple, but not polka dotted.*
- Kohlrabi is most popular in Japan. *False: it is most popular in Germany and Switzerland.*
- Kohlrabi is a root vegetable. *False, it is a swollen stem.*
- Carrot greens are poisonous. *False. Carrot greens are edible.*

CLOSING *(All grades - 1 minute)*

- Bring students together to close the lesson and briefly recap what they learned.
- Tell them the crops planted today will grow over the summer. Volunteers will harvest and donate them to local food banks to help feed members of the community.
- Let them know the volunteers will plant new seeds so they can harvest and taste in the fall.
- If time allows, invite students to draw or write a short Reflection Page, either in the garden or back in the classroom.
- Thank the volunteers and the teacher for their support.
- Thank them for participating in the garden program and for helping grow food for their community.
- REDONDO BEACH ONLY (K – 5th): After the class has left the garden, please re-attach your irrigation lines and give a gentle tug to be sure it's connected. There is an instructional video on the website: https://bchd.org/youth-programs/livewell-kids/
- Check your garden bed to be sure that it's sufficiently watered. If not, please give it a thorough watering before leaving the garden.

****Don't forget to report your lesson as delivered with the online form!****

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