LiveWell Kids
Garden and Nutrition Program

Lesson 2: Planting Cool-Season Crops & Food Groups

OBJECTIVES

By the end of this lesson, students will:

- Learn about cool season crops and seasonal planting. (TK-5)
- Understand how to prepare soil for planting. (TK-5)
- Learn and experience proper seed planting procedures. (TK-5)
- Recognize that gardening is a form of moderate exercise and adds to daily physical activity. (TK-5)
- Name the five MyPlate food groups. (TK-5)
- Identify foods in the various food groups. (TK-5)
- Understand the importance of eating foods from all five food groups. (TK-5)
- Describe a healthy meal containing foods from each food group, including whole-grain options and a variety of colorful fruits and vegetables. (2-5)

SUPPLIES

Supplies to bring from classroom to 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:

- For the Garden Activity:
  - Laminates: *Planting Guide*, and 4 seed packet laminates: golden beets, carrots, kohlrabi, and green onions
  - 1 Brown paper bag, labeled by grade, containing your seeds and plant labels
  - 1 Seed packet (for the Introduction)
  - 2 Sharpies
  - Cultivators
  - Rake
  - Bucket for compost and scooper (unless your bed has a bag of soil leaning on it)
  - Garden cart
  - Watering cans
  - Scissors
  - Ruler
  - 2 Popsicle sticks
  - Yarn & 2 more popsicle sticks (only if needed)
  - 6 Kneelers
  - Optional: Gloves

- For the Nutrition Activity:
  - Grade K: Laminates – *The Five Food Groups, Farrah Fruit, Reggie Veggie, Dean Protein, Mary Dairy, Jane Grain*
  - Grade 1: All the above, plus *Food Cards Packet*
  - Grades 2-3: Laminates - *MyPlate, Food Cards Packet, What Am I? Clue Card*
  - Grade 4: Laminates – *MyPlate, Snack of Champions*
  - Grade 5: Laminates - *MyPlate, Quiz Show*

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.
- RBUSD ONLY: Watch the instructional video on the website under "Lesson 2" to see how to properly remove and replace the irrigation lines.
- Allow **30 minutes** for set-up and preparation on the day of the lesson.

SET-UP INSTRUCTIONS

For the Introduction:

- 1 seed packet (it may be opened, be careful.) Put it where you can grab it once the class is in the garden.

For the nutrition activity:

- Set out the nutrition laminates at an area designated for the activity – typically the picnic tables. See your grade's nutrition section for applicable laminates. The laminates are in the laminate packet in your lesson materials box under "Lesson 2", unless your Lead Volunteer set them out for you in the area designated for current lesson materials, inside the shed.

For the garden activity:

- Locate the *Planting Guide* laminate and seed packet laminates – they will be set out for you inside your shed by your Lead Volunteer, in the area designated for current lesson materials. You will refer to these during the planting section.
- Fill the watering cans (half full for younger students as they get heavy.)
- If you do NOT have a bag of soil next to your bed, use the compost scooper to transfer compost from the compost bin into the bucket. The amount of compost you may take will depend on what's available in the bins—your Lead Volunteer will let you know how many scoops to use and will also post a reminder on the shed bulletin board. Set the following items near the garden bed to be used first:
  - Cultivators
  - Kneelers
  - Rake
  - Filled watering cans (half full for younger students, as they get heavy)
  - Compost bucket with compost (if there isn't a soil bag at your bed)
  - The garden cart or your largest container
  - Optional: gloves (Note: Not all students are comfortable with gloves)
- Create a 'row-planting tool' by cutting a piece of yarn to be longer than your bed's length and tying a popsicle stick to each end.
  - **Check to see if someone has already made one.** If the beds are the same size, you should **reuse it**. If there isn't one made yet, and you need to make one, leave it with the lesson supplies for others to reuse**.**

- Set the following supplies near (but not right next to) the garden bed to be used second:
  - Ruler
  - 2 Popsicle sticks
  - Yarn/popsicle sticks row-planting tool
  - Bag of seeds and labels
  - 2 Sharpies
  - 4 Seed packet laminates

- REDONDO ONLY: Remove the irrigation lines from the garden bed (following the instructional video on the website under "Lesson 2") and lay them on a nearby bed or the ground, away from where the kids will be working.

INTRODUCTION & MINDFUL BREATHING (ALL GRADES: 1 MINUTE)

- Greet the class and introduce any new volunteers.
- Guide students through a mindful breathing exercise.
- Explain the purpose of this lesson is to:
  - Explore the garden.
  - Plant cool-season crops.[1]
  - Learn about the food groups (all grades) and MyPlate (older grades only).
- To grab the students' attention, show the seeds from one of your seed packets to help them visualize the number of plants that come from one seed packet.

Sample Script

Do you know that I can hold more than 200 (insert seed name here, i.e. peas) *in my hand? How is this possible?* (Allow a few students to respond, then pour some of the seeds from the packet into your hand and show the class.) *This is how! Each seed develops into its own, single* (insert seed name, i.e. peas) *plant, producing many* (insert name, i.e., peas.) *You will experience this for yourself, beginning with today's lesson when you get to plant cool-season crops. In the spring, you will harvest these crops to make and sample a tasty, healthy dish. You're also going to play games to help learn about food groups. Let's begin!* (Carefully put the seeds back into the seed packet and have a parent helper put it back in the shed with the current lesson materials for the next class to use.)

Divide Class into Two Groups

Split the students into two groups. Keep one group at the garden bed where the students will prepare the soil for planting. Send the other group with your co-volunteer to the nutrition activity. Both activities will run simultaneously. After completing the nutrition lesson and this first part of the garden activity, both groups will come back together and finish the garden lesson by planting, labeling and watering the seeds.

Sample Script

Now I'm going to divide the class in half. Everyone will have a chance to prepare the soil for planting, but it will be easier with smaller groups. Some of you (Group 1) *will stay with me now to remove the old plants, and the others* (Group 2) *will go with* (insert name) *to the nutrition activity. Then you'll switch. Afterward, we'll all come back together to finish the garden lesson.*

NUTRITION: FOOD GROUPS & MYPLATE (10 MINUTES for TK-2nd, 13 MINUTES for 3rd-5th)

** Happening at the same time as the garden activity.

NOTE: *MyPlate is a nutrition guide published by the USDA and serves as a recommendation based on the Dietary Guidelines for Americans.* When discussing food groups and MyPlate, i*t's important to keep in mind that eating looks different to everyone and will depend on many factors including culture, access, availability, personal taste, allergies, and personal life experiences.*[1]

Discussion and Activity: TK	**I Spy with My Senses – What Season Is It?**
	In this guided garden walk, students focus on using their five senses and seasonal clues to explore the garden and learn what makes fall and winter special for certain plants. They'll move like seeds, feel the air, and begin to understand how the weather and seasons
	• Gather the students in a circle on the ground.
	• Say: Today we're going to explore the garden with our eyes, ears, noses, and even our hands and feet. We'll see what the season is telling us!"
	• Lead them through two slow, simple, mindful breaths: "This time, breathe in like you're smelling a flower…. and out like you're blowing a leaf in the wind."
	• Seasonal Garden Walk – lead the students on a short "I Spy with My Senses" walk around the garden.
	• Ask:
	  ○ "Do you think it's hot like summer, or cool like fall?" (Feel; sense of touch)
	  ○ "Look at the sky and the ground – what season do you think it is?" (See; sense of sight)
	  ○ "In fall and winter, we plant cool-season crops – plants that like the chilly winter weather!"
	• Five Seasons Prompts with a Seasonal Twist:
	  ○ **See** (Sight):
	  ▪ "Can you see anything that looks like it's growing?"
	  ▪ "Do you see anything turning colors or getting ready for fall?"
	  ○ **Touch** (Feel):
	  ▪ "Close your eyes and touch the air – does it feel warm or cool?"
	  ▪ "Open your eyes and gently touch the soil, is it dry? Wet? Hard? Soft?"
	  ○ **Smell:**
	  ▪ "Close your eyes and smell the air – does it smell fresh? Can you smell dirt, plants or leaves?"
	  ○ **Listen** (Hearing):
	  ▪ "Let's be silent for 5 seconds. What do you hear in fall?"
	• Movement Break – Be a Seasonal Seed!

	○ "Let's curl into a ball like a little seed sleeping in the cool soil. Now, stretch up tall like a plant waking up in the fall sunshine!" ○ Closing Circle Share – reform a circle (standing or sitting) to reflect and share. • Ask students to volunteer what they experienced with their senses: ○ "I saw ____ in the fall garden." ○ "The air felt ____." ○ My favorite thing in the garden today was _____."
Grades: **K-1st**	**Food Groups[2]** Supplies: Laminates – (1) *The Five Food Groups,* (2) *Farrah Fruit,* (3) *Reggie Veggie,* (4) *Dean Protein,* (5) *Mary Dairy,* (6) *Jane Grain,* (7) *Food Cards Packet* (1st grade only)
Discussion: **K-1st**	• Ask: Have any of you ever organized your toys or clothing into different groups? ○ For example, have you put trucks in one group and cars in another? Separated dolls and stuffed animals? Put shirts in one drawer and socks in another? ○ There are many objects we can sort by color, shape, size or some other way. • Foods can be sorted into groups too. These are called food groups! ○ Foods in the same food group are similar in some way. • Show the laminate, *The Five Food Groups*, as a visual reference to introduce the five food groups: Fruits, Vegetables, Grains, Protein and Dairy. • Foods from the different food groups provide our bodies with things we need to stay healthy. Some things foods can help us with include: ○ Build strong bones, muscles, and teeth. ▪ Let's all point to our teeth. ○ Give us energy to move and play. ▪ Let's move by jumping up and down 5 times! ○ Have healthy eyes and skin. ▪ Show me your eyes… and your skin! ○ Heal cuts and scratches. ▪ Do any of you have a cut or scratch that's healing right now? • Use laminates to introduce students to *Farrah Fruit, Reggie Veggie, Jane Grain, Dean Protein, and Mary Dairy*. ○ Show each Food Group Friend and talk about how they are made up of foods from a particular food group. ○ Point out that each food group is a certain color: Fruit/Red, Vegetable/Green, Grain/Orange, Protein/Purple, Dairy/Blue. ○ The Food Group Friends can help us remember which foods belong to which food group: ▪ **Farrah Fruit** — e.g., apple, blackberries, bananas, watermelon, strawberry, kiwi, grapes, orange, cherries ▪ **Reggie Veggie** — e.g., carrot, broccoli, snap peas, spinach ▪ **Jane Grain** — e.g., whole-wheat bread, whole-grain pasta, whole-grain cereal, brown rice, popcorn (plain) ▪ **Dean Protein** — e.g., chicken, egg, beans, peanuts ▪ **Mary Dairy** — e.g., yogurt, milk, cheese, fortified soy alternatives (e.g., soy yogurt and milk) * • We try to eat a variety of foods from the different food groups to feel our best!

	○ Just like some toys need batteries to work, you need different foods so your body works its best. Food gives you the energy to read a book, dance, play tag and do all the other activities you like to do.[2] *NOTE: With MyPlate, fortified soy milk and yogurt with added calcium, vitamin A, and vitamin D are a part of the Dairy Group because their nutrition content is like dairy milk and yogurt. Other products sold as 'milks' but made from plants like almond, rice, coconut, oat, and hemp 'milks' may have calcium, but they are not a part of the Dairy Group because their nutrition content is not like dairy milk and fortified soy milk. In addition, the Dairy Group **does not include** foods made from milk that have little calcium and a high fat content. Examples are cream cheese, sour cream, cream, and butter.[3]
Activity: K	<u>Duck, Duck, Apple</u> • Instead of traditional Duck, Duck, Goose, play this game using foods from the food groups. • Have the students gather in a circle. • Instruct them to go around the circle saying "duck, duck…" • Then, when they want to tag a classmate to chase them, they will name a fruit or vegetable (or another food from a food group of your choosing.) • For example, if you decide to play a round or two using the fruit food group, then a child will go around the circle and possibly say: "duck, duck, duck, duck, apple!" That "apple" classmate will then chase the child who tagged him/her around the circle.
Activity: 1st	<u>Food Group Race</u> [4] (You will need the *Food Cards Packet* & 5 *Food Group Friends laminates*.) • Organize students into five groups: Fruits, Vegetables, Grains, Protein and Dairy. • From the *Food Cards Packet*, give each child a picture of a food that is in their assigned food group. ○ Note that the name of the food is printed in the same color as the corresponding food group: Fruit/Red, Vegetable/Green, Grain/Orange, Protein/Purple, Dairy/Blue. • Place the *Food Group Friend* laminates on the ground as "bases." • Provide ample space between the five base colors so that children don't run into each other. • Have the students stand at an appropriate distance from the five bases. This will be their starting line. ○ Volunteer choice: Students can either stand directly across from their matching base color or you can choose to have them run in a different direction. • After counting to five, have the children run, hop, skip, or jump to the different bases. • Have the children tag the base color matching the food card they are holding and run back to the starting line. ○ This can be done several times. Have children change food cards and try again.

Grades: 2^{nd}-3^{rd}	**Food Groups & MyPlate**[5] Supplies: Laminates – (1) *MyPlate*, (2) *Food Cards Packet*, (3) *What Am I? Clue Card*

Discussion: 2^{nd} -3^{rd}	• Introduction: Think about what you ate for dinner last night or breakfast/lunch today. Were there different colors and types of foods on your plate? Hold onto your thought. We'll get back to it shortly.
	• Show the MyPlate laminate.
	  o This is MyPlate, a food guide that can be used as a reminder to eat a variety of foods, so you get the nutrition you need each day.
	• Ask: What are some things that you notice about MyPlate?
	  o There is a plate and a glass.
	  o It looks like a puzzle that shows five food groups: fruits, vegetables, grains, protein, and dairy.
	  o The food groups are represented by different colors: red, green, orange, blue and purple.
	  o Fruits and vegetables make up more than half (60%) of the plate.
	• There are all sorts of foods that benefit our bodies in different ways. Eating a variety of fruits, vegetables, whole grains, proteins, and dairy can help:
	  o Build strong bones, muscles, and teeth.
	  o Give you energy to move.
	  o Have healthy eyes and skin.
	  o Heal cuts and scratches.
	• Let's start with **vegetables and fruits.**
	  o On MyPlate, the green section represents vegetables, and the red section represents fruits – half of the plate.
	  o Vegetables and fruits come in lots of colors! They can be red, orange, yellow, green, blue, purple, and white.
	  o Every color is good for you in its own special way.
	• Ask: Would anyone like to share their favorite vegetable?
	• Ask: How about your favorite fruit?
	• Now let's talk about **grains**.
	  o The orange group represents grains.
	  o Grains come from plants such as wheat, corn, oats and rice.
	  o There are whole grains and refined grains.
	  ▪ Whole grains have the entire grain kernel, making breads, pastas, and tortillas with whole grains very nutritious. Other whole grain foods include oatmeal and brown rice.
	  ▪ Refined grains, like white bread, white rice and white flour went through a process that removed nutrients such as fiber, iron, and vitamins.
	• Try to eat whole grain foods when possible because they have more nutrients! They will give your body the energy it needs.
	• Ask: Who has a favorite food from the grain group?
	• Now it's time for the purple group – **protein**.
	  o Protein Foods come from animals <u>and</u> plants.
	  o Protein is important for healthy bones, muscles, skin, nails, teeth, hair, and many other parts of your body.
	• Ask: Can anyone give us an example of protein?
	  o Animals: chicken, fish, beef, pork, eggs
	  o Plants: beans, sunflower seeds, tofu, nuts, veggie burger

	• Ask: Would anyone like to share what protein they ate or plan on eating today?
	• Finally, we have **dairy** – the blue group.
	• Dairy has calcium which is important to keep our bones and teeth healthy and strong.
	• Ask: Can you name some foods in the dairy group?
	  ○ Hint: Foods in the dairy group have milk in them so think of foods that come from cows, goats, and sheep.
	  ○ Examples: milk, cheese, cottage cheese and yogurt.
	  ○ *See NOTE to volunteers about the dairy group in K-1 lesson.
	• Now, think back to when I asked you about your meal from last night/today.
	• Ask: Did your meal look like MyPlate and include a variety of foods from the different food groups?
	  ○ If not, think about how tonight's dinner or tomorrow's breakfast/lunch could look like MyPlate?
	  ○ Keep in mind that not every meal or snack will have something from every food group and that's okay! For example, if breakfast or lunch didn't have a vegetable or protein, you can consider adding those food groups later in the day, like eating baby carrots and hummus for an after-school snack.
	  ○ Ask: Would anyone like to share their ideas?

Activity: **2nd-3rd**	What Am I? [6] (You will need the *Food Cards Packet* and the *What Am I? Clue Card* laminate.) • Explain to students that they will play the game What Am I? and will need to guess what food they are by asking classmates "Yes" or "No" questions. • Have available the *Food Cards Packet* and *What Am I? Clue Card.* • Each card in the packet has the name of a specific food from each of the five food groups. • Distribute one food card to each student without them seeing what it says. No peeking! • Once the game begins, they will hold the card on top of their head facing outward so the other students can see the front of their card with the food picture showing. • Review the What Am I? Clue Card laminate with the students. • Welcome students to brainstorm any additional questions. • Encourage them to think with their five senses: taste, smell, sight, sound, and touch. • After reviewing the questions as a group, place the laminate in a convenient location so the students can reference the sample questions while playing the game. • Instruct students to walk around and ask each other questions. If they receive a "no" as an answer, then they should move on to a new person. • Once they guess their food correctly, have students sit down. • They may enlist your help if they are having trouble guessing.

Grades: **4th – 5th**	**Food Groups & MyPlate[7]** Supplies: Laminates – (1) *MyPlate*, (2) *Snack of Champions*, (3) *Quiz* Show, (4) Optional: *Food Groups Addendum* found at https://www.bchd.org/LiveWellKids

Discussion
4th – 5th
	• Tell the students to close their eyes and think about their favorite meal. Think about:
	  ○ What specific foods and drinks are part of your favorite meal?
	  ○ Why is it your favorite meal? (Prompts: Is there a specific memory around the meal, when it is served or who prepares it?)
	  ○ How would you describe it to someone? Think about the taste, what it looks like, the colors, the texture, and the feelings you get when you eat the meal.
	• Ask: Would anyone like to share their favorite meal with the group?
	• Show the *MyPlate* laminate.
	• This is MyPlate and it may look familiar to many of you.
	  ○ It's a food guide that can be used as a reminder to eat a variety of foods, so you get the nutrition you need each day.
	• Now, thinking about your favorite meal, let's see how it fits with MyPlate.
	• Ask: What are some things that you notice about MyPlate?
	  ○ There is a plate and a glass.
	  ○ It shows five food groups: fruits, vegetables, grains, protein, and dairy.
	  ○ The food groups are represented by different colors: red, green, orange, blue and purple.
	  ○ Fruits and vegetables make up more than half (60%) of the plate.
	• OPTIONAL: Supplement the information below by referring to the *Food Groups Addendum* found at https://www.bchd.org/LiveWellKids.
	  ○ Fuel up with **fruits** at meals and snacks. Besides fruits like oranges, apples and watermelon, this group also includes berries, raisins and applesauce (without added sugar).
	  ○ Think of a rainbow and color your meals with red, orange, yellow, green, blue, purple and white **vegetables**. Each color vegetable has nutrients that are good for you.
	  ○ Try making at least half your **grains** whole grain foods, such as whole-wheat bread, oatmeal, whole wheat tortillas, brown rice, and plain popcorn.
	  ▪ Whole grains have the entire grain kernel, making breads, pastas, and tortillas with whole grains very nutritious.
	  ▪ In contrast, refined grains, like white bread, white rice and white flour went through a process that removed nutrients such as fiber, iron, and vitamins.
	  ○ Vary your **protein** foods. Do you know in addition to chicken, beef and fish, beans, peanut butter, and tofu are also proteins? That's because protein is found in both animals and plants! Try some delicious protein foods like a bean burrito, hummus, veggie chili, fish tacos, chicken stir-fry or grilled salmon.
	  ○ **Dairy** foods have lots of good-for-you calcium. Foods in this group have milk in them so think of foods that come from cows, goats, and sheep. Examples include milk, cheese, and yogurt. (See NOTE to volunteers about the dairy group in K-1 lesson.)
	  ▪ If you are allergic to dairy or lactose intolerant, then dairy may not be part of your meals, or you may include dairy substitutes that you enjoy.

	• Ask: Getting back to the meal you thought of in the beginning, are there substitutions you can make so it's more balanced with a greater variety of foods?
	  o Not every meal or snack will have something from every food group and that's okay! For example, if breakfast or lunch didn't have a vegetable or protein, you can consider adding those food groups later in the day, like eating baby carrots and hummus for an after-school snack.
	  o And go ahead and try new foods!
	• Ask: Would anyone like to share their meal with the class and tell us how you adjusted to fit into MyPlate?

Activity: 4th	Snack of Champions [8] (You will need the *Snack of Champions* laminate.)
	• The challenge is to create a fun and healthy snack for members of the U.S. Olympic team.
	• Ask the students to imagine they are professional chefs and need to create a recipe for a snack that will be both nutritious and taste good.
	• Divide the class into teams with an equal number of students on each team.
	• Brainstorm with students by asking them what they should keep in mind when creating a snack for the athletes.
	  o Explain that professional athletes need healthy meals with nutrients, just like the students do, so they can have the energy and strength to perform well.
	  o Creating a snack using foods from different food groups helps make a snack more nutritious, interesting, and fun.
	• Explain that each team will create a recipe (including the ingredients and steps) and come up with a creative name for their Snack of Champions.
	• If time allows, ask each group to present its snack recipe to the class.
	• Before the teams get to work on their snacks, share the following example of a recipe for a healthy snack. Show laminate, *Snack of Champions*.
	  o PB Power Fruit-Wich (Makes 1 open-faced sandwich)
	  ▪ 1 slice whole-wheat bread
	  ▪ 2 tablespoons peanut butter
	  ▪ 1 /4 apple or banana, thinly sliced
	  ▪ (Optional) 2 Tbsp sliced or grated carrot
	  ▪ Spread 2 Tbsp peanut butter on bread.
	  ▪ Place fruit slices on top.
	  ▪ (Optional) Top with grated or sliced carrot.

Activity: 5th	MyPlate Quiz Show[9] (You will need the *Quiz Show* laminate.)
	• Today we are going to play a Quiz Show game with questions referring to the MyPlate food groups.
	• Divide students into two teams.
	  o You will ask both teams the same questions.
	  o Teams will have 15 seconds to discuss their answer before they share it.
	  o Whichever team gets the question correct gets a point.
	  o If both teams are correct, then both win a point.
	  o Some questions/answers earn bonus points.
	  o Some answers may vary.

	• Refer to the questions and answers on the Quiz Show laminate. • Feel free to add to the list and make up your own questions. • Play as long as you want, until you run out of questions, or get to a certain number of points.

** Switch groups after 10 minutes for TK – 2nd and 13 minutes for 3rd – 5th **

GARDEN: COOL SEASON CROPS (19 MINUTES for TK-2nd, and 30 MINUTES for 3rd-5th)

Activity and Discussion Grade: TK	**Cool-Season Crop Moves Game**
	
	Introduce the Idea
	• Say: "In the garden, some plants like to grow when it's cooler outside — in the fall and winter. These are called cool-season crops. Let's pretend to be those plants and practice growing like them!"
	
	Choose a Cool-Season Plant and a Motion
	• Pick 4–5 common cool-season crops you'll grow in the school garden (examples: carrot, lettuce, broccoli, pea, cabbage).
	• Teach the students a simple movement for each:
	  ○ **Carrot** – stand tall and straight and press your feet into the ground, like a root underground.
	  ○ **Lettuce** - slowly open arms wide like leaves unfolding.
	  ○ **Broccoli** - stand tall, make a "treetop" with arms rounded overhead.
	  ○ **Pea vine** - stretch arms out to the side and twist like you're climbing.
	  ○ **Cabbage** - hug yourself tight like a round ball of leaves.
	
	Play the Game
	• Call out the crop name, and students quickly act it out.
	• Vary the pace — sometimes call crops quickly one after another, sometimes let them hold the pose and "grow" slowly.
	• Add seasonal context: "These crops like cool weather — they grow while we wear sweaters! Let's show how they grow when it's chilly outside."
	
	Wrap Up Reflection
	• Ask: "Which plant was your favorite to pretend to be?"
	• "Why do you think these plants like the cooler seasons?"
	Answer: because cool-season plants need cool temperatures to develop.

Activity Grades: K - 5	**Planting Procedure:** ***Happening at the same time as the nutrition activity *** 1. *Prepare the soil for planting cool-season crops, which includes amending and cultivating the soil (10 minutes for K-2nd, 13 minutes for 2nd-5th.)* 2. *Plant and label the seeds (8 minutes for K-2nd, 14 minutes for 3rd-5th.)*

	3. Watering the newly planted seeds: Grades 3rd – 5th only (3 minutes.)
	• **All grades** will plant four different cool-season crops. • These plants do NOT like the long, intensely warm summer days. • If we were to plant them in the summer, they wouldn't grow as well as they do in the cooler months. • They like cooler air and soil, less intense sunlight and fewer hours of light compared to warm-season plants.[10]
	<u>This Season's Crops</u> GOLDEN BEETS • Golden beets are roots and grow underground, while their leaves grow above ground. Both the golden beetroot and its tender young leaves are edible.[11] CARROTS • Carrots are root vegetables that grow underground. Their feathery green leaves grow above the soil. KOHLRABI • Kohlrabi is a swollen stem that grows above the ground. It has a mild flavor and a crisp texture when eaten raw.[12] GREEN ONIONS • Green onions grow mostly above ground. Both their green leaves and white lower stems are edible.

	<u>Preparing the Soil for Planting</u>
	• *All students will cultivate the soil.* • *Pass out the cultivators, kneelers & optional gloves to the students.* • *Have the students spread out around the bed and cultivate as deeply as they can.* • *Give students 3-4 minutes before adding either amended bagged soil or compost.* • *Resume cultivating to incorporate amendment.* • *Gently rake the soil surface until it is level.*
	• The two groups will each do a different soil-prepping activity in the garden bed. <u>Group 1 – Remove Old Plants</u> • Allow students to take turns removing the plants in the bed. • Instruct them to GENTLY shake or brush off the soil from the roots of each plant so that it falls back into the garden bed. • Place the removed plants in the wheelbarrow or large container. • Switch groups. <u>Group 2 - Cultivate the Soil</u> • Pass out the cultivators, kneelers and optional gloves to the students. • Instruct the students to spread out around the bed and cultivate as deeply as they can. • Give students 3-4 minutes before adding either amended bagged soil or compost: ○ *<u>If you have a bag of soil resting against your bed, this means that your soil level is low. Have the students cultivate the soil for 3 minutes before tearing the bag open and spreading the contents over the soil. Resume cultivating to thoroughly mix the new soil with the existing soil.</u>*

	○ *If you don't have a bag of soil resting against your bed, use the small bucket and scooper. Your Lead Volunteer will let you know how much you can scoop.* • Resume cultivating to incorporate amended soil or compost. • Gently rake the soil surface until it is level.
	Planting *While soil prepping and planting, educate the students about the importance of each task. Assist students with jobs as needed.*
	• Direct the students to stand at the opposite side of the garden bed from you. • Explain that they will plant in the garden bed. • If sharing the bed with other classes, then show them where your class will be planting. • Define amend – *To amend soil is to add and mix in nutrients, usually in the form of compost, to the soil that is already there.*[13] • We amend soil because the previous plants that grew in the same place already took the nutrients, leaving the soil depleted (without enough nutrients) for the new plants.[14] • **K:** The Garden Angel volunteers already removed the plants from these beds. • **1st - 5th:** Older students will remove the old plants before amending the bed with compost (or amended soil from a bag.) • **All** students will cultivate the soil. ○ Define cultivate – *Cultivating (fluffing up) the soil **aerates** it, which means creating air spaces throughout the soil.*[15] ○ There are several benefits to aerating soil, including: ▪ Cultivating soil breaks up soil that has become hard and compacted over time. ▪ Decomposers living in the soil need air spaces so that they can breathe and move around. ▪ Fragile seedlings need soil to be light and fluffy for pushing their hair-like roots through. ▪ Water needs soil to be soft and loose so that it can soak in and reach the deeper layers.

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

PLANT & LABEL THE SEEDS (8 MINUTES for K-2nd, 14 MINUTES for 3rd-5th)

Refer to the Planting Guide inside the shed door to show you where to plant within the beds.

Grades: K - 5	Create Rows for Planting
	• Retrieve the measuring tool (yarn tied to sticks) and ruler to create rows for planting. • Explain how the students will use this tool to create four equally spaced rows in the bed. • Select 2 students to come forward and use the yarn tool to create a guide for the first row of seeds (a few inches away from the edge of the bed.) • Instruct them to stretch it out lengthwise across the bed and secure it in the soil.

	• Explain that when planting different plants in the same bed, it's best to understand how each plant grows so we can create the optimal growing situation for them – "tall plants in the back." [16]

Grades: K - 5	**Measure Soil Depth**

	• Tell students that all seeds like to be planted at a specific depth.
	• Inform them that when planting seeds, we read the instructions on the packet to learn the directions for that seed, or we risk the seeds not sprouting.
	  ○ Show them the seed packet laminates and point out the information on the back, calling attention to the ***depth*** highlighted in yellow.
	  ○ Demonstrate how to measure the depth on their finger with the ruler, starting at the tip of their index finger and measuring down their finger.
	  ○ Hand off the ruler to your helper to assist them with measuring the depth on their fingers.

Grades: K - 5	**Place Seeds in Soil**
	• Ask students to form two lines in front of the bed for planting and you will give them their seeds. • Tell them to cover their seeds with their other hand to avoid losing it. • Instruct them to approach the box two at a time and follow the yarn guideline to plant their seed beneath, making a straight row. • Direct them to poke a small hole, according to the depth they measured on their finger and drop in the seed. • Make sure they put the popsicle stick in the soil "above" their seed to mark the spot. • Have them pinch the soil to cover their seed with soil, leaving it fluffy and not patting the dirt down. • The next student approaching the box can see where the last seed was planted as indicated by the popsicle stick and determine where to plant their own seed. They will then move the popsicle stick to mark their own spot.

Grades: K - 5	**Continue Planting**

	• After planting, have each student move to the back of the line to receive another seed, if there are still more seeds.
	• As each seed row fills up, have the last students that planted in the row move the yarn tool to start a new row.
	• If students are capable, select a new student to come forward to label each row.
	  ○ Give them a Sharpie and a plant label.
	  ○ Have them write the date on one side of the label and the plant name on the other.
	  ○ Instruct them to insert the label at the end of the row.
	  ▪ Each row gets one plant label.
	  ○ If students are too young, have your helper write the label and give it to the students to put into the soil.
	• Continue until one row of each seed type is planted: golden beets, carrots, kohlrabi, and green onions (four rows total.)

WATERING (3 MINUTES)

Grades 3rd – 5th Only

Grades: **K – 5th**	**Watering the New Seeds** ***Note: Now that the seeds are in the ground, they will remain in a dormant state until they are watered. Water stimulates the seeds to burst open, reach their root downward and sprout upward. The sprout is the baby stage of the new plant. The root is both the sprout's anchor and its source for obtaining nutrients.*[17]
Grades: **K – 2nd**	• Tell students that you'll give their seeds a thorough watering while they go back to class.

Grades:
3rd – 5th
	• Have your co-volunteer retrieve the half-filled watering cans and set them down in front of the bed.
	• Instruct students to form a line behind each watering can so they can take a turn watering.
	• Demonstrate how to lightly distribute the water by constantly moving the can side to side over the newly planted seeds, pausing as needed to avoid flooding.
	  ○ Inform them that we always use a sprinkle top watering can for new seeds. It is designed for gentle watering that simulates rain by distributing the water widely, allowing it to soak into the soil.
	  ○ We don't use watering cans with a stream spout for new seeds because the seeds would get pushed out of place from the big blast of water that would come out. This would happen because new seeds don't have roots to anchor them in place.
	• Allow each student to each have a 5-second turn before passing the can to the next student.

CLOSING (1 MINUTE)

- Bring students together to close the lesson and thank the students, teacher, and other volunteers.
- Recap what students learned in the lesson and tell them that when they return for the next lesson, the garden should have their cool-season crops growing.
- If time allows, have students draw/write a "Reflection Page" after the lesson, either in the garden or with their teacher when they return to class.
- If enough time, have students help clean up.
- Thank the students for joining you today and dismiss them.

***Remember to report your lesson as completed using the link or QR code below to access the form.**

If using the QR, tap the 6 stacked squares at the top to access. LiveWell Kids Tracking Links 2026-27

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[3] USDA. (2020). *Dairy | MyPlate*. Www.myplate.gov. https://www.myplate.gov/eat-healthy/dairy

[4] *for children ages 3-4½ concept*. (n.d.). Retrieved September 8, 2023, from https://www.floridahealth.gov/programs-and-services/childrens-health/child-care-food-program/nutrition/_documents/lesson-plans/lesson1.pdf

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[6] *Get to the Source THEME: MAKING HEALTHY FOOD CHOICES 3 RD*. (n.d.). https://foodcorps.org/wp-content/uploads/2018/07/Grade-3-Get-to-the-Source.pdf

[7] *Standards-Based Nutrition Education*. (n.d.-b). https://fns-prod.azureedge.us/sites/default/files/sump_level3.pdf

[8] *Standards-Based Nutrition Education Grades 3 & 4*. (n.d.). https://fns-prod.azureedge.us/sites/default/files/tn/sump_level2.pdf

[9] *Standards-Based Nutrition Education*. (n.d.-b). https://fns-prod.azureedge.us/sites/default/files/sump_level3.pdf

[10] *Cool-season vs. Warm-season Vegetables*. (n.d.). Penn State Extension. https://extension.psu.edu/cool-season-vs-warm-season-vegetables

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[12] *What Are the Health Benefits of Root Vegetables?* (n.d.). WebMD. https://www.webmd.com/diet/what-are-root-vegetables#:~:text=Root%20vegetables%20are%20grown%20underground

[13] *Choosing a Soil Amendment - 7.235*. (n.d.). Extension. https://extension.colostate.edu/topic-areas/yard-garden/choosing-a-soil-amendment/#:~:text=A%20soil%20amendment%20is%20any

[14] Penn State Extension. (2019, July 12). *Soil Quality Information*. Penn State Extension. https://extension.psu.edu/soil-quality-information

[15] Martin, O. (n.d.). Soil Cultivation: Fundamental Concepts and Goals. *The Center for Agroecology and Sustainable Food Systems - for the Gardener*. Retrieved May 4, 2022, from https://agroecology.ucsc.edu/documents/for-the-gardener/soil_cultivation.pdf. AND Stepniewski, W., GLIńSKI, J., & Ball, B. C. (1994, January 1). *Chapter 8 - Effects of Compaction on Soil Aeration Properties* (B. D. Soane & C. van Ouwerkerk, Eds.). ScienceDirect; Elsevier. https://www.sciencedirect.com/science/article/abs/pii/B9780444882868500167

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