LiveWell Kids
Garden and Nutrition Program

Lesson 3: Composting & Minerals

OBJECTIVES

By the end of this lesson, students will:
- Realize the role of nutrients in the garden and our bodies. (K-5)
- Understand what makes a healthy growing medium. (K-5)
- Understand the benefits of composting and vermiposting (worm composting). (K-5)
- Understand the components needed for successful compost and partake in building compost. (K-5)
- Increase ability to make healthy food choices by being aware of nutrients in food and how to get them. (K-5)
- Become aware of the Nutrition Facts label as a valid source of nutrition information. (5)

SUPPLIES

❖ **SUPPLIES THAT YOU PROVIDE -** *The following items will come from either a classroom collection or brought in by you, the volunteer. Some sources for collecting green materials are coffee houses, local cafés/restaurants, local grocers, juice bars and neighbors.*
- **Green materials (2 ½ gallons)**
  - Examples: vegetable and fruit scraps, green leaves, green cut grass, coffee grounds
- **Brown materials (5 gallons)**
  - Examples: dry leaves, dry grass, shredded newspaper/ brown paper bags, eggshells

- Supplies to bring from the shed to the garden:
  - Nutrition laminates (by grade):
    - K: *Benefits of Eating from the Rainbow*
    - 1st: *Food Cards* (from Lesson 2)
    - 2nd: (1) Two Sets of *Sodium Relay* flashcards (blue-dot set and yellow-dot set), (2) *Sodium Relay Answer Key*, (3) *High Sodium*, (4) *Low Sodium*
    - 3rd: *Ready, Set, Riddle*
    - 4th: (1) *Whole & Processed Foods*, (2) *Find My Match*
    - 5th: (1) *Nutrition Facts,* (2) *Label Fitness*
  - Garden laminates:
    - *Do the Rot Thing…Compost!*
    - *Landfill*
    - *Decomposers in the Compost Pile*
    - *Compost Cycle*
    - *Worm Bin*
  - 2 Paper trays (2nd grade only)
  - 2 Watering cans
  - 2 Hand cultivator tools
  - Book: *Compost Stew (optional)*

- 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, markers

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. The information can also be found on the inside of the shed door.
- Allow **30 minutes** for set-up and preparation on the day of the lesson.

SET-UP INSTRUCTIONS

1. SET UP THE COMPOST BUILDING ACTIVITY (at the composter):
   - Remove the composter lid and set aside.
   - Create a pile of green materials on one side and a pile of brown materials on the other (unless the kids are bringing greens and browns with them.)
   - Fill the watering cans and set out the hand cultivator in front of the composter. (Illustrated in the "Compost Building" activity diagram, in the garden activity section.)
   - Place a hand cultivator tool on top of the worm bin.
   - Place the laminate, *Worm Bin*, on top of the worm bin.
   - Have the following laminates in the composter area, ready to show and discuss:
     - *Landfill*
     - *Do the Rot Thing…Compost!*
     - *Decomposers in the Compost Pile*
     - *Compost Cycle*

2. SET UP NUTRITION ACTIVITIES:
   - Kindergarten: *Benefits of Eating from the Rainbow*
   - 1st grade: *Food Cards* (Pull from Lesson 2.)
   - 2nd grade: (1) Two paper trays, (2) Sodium Relay Packet which includes (A) two sets of *Sodium Relay Flashcards* (blue-dot and yellow-dot sets), (B) *Sodium Relay Answer Key* (C) *Low Sodium*, (D) *High Sodium*
   - 3rd grade: *Ready, Set, Riddle*
   - 4th grade: (1) *Whole & Processed Foods*, (2) *Find My Match*
   - 5th grade: (1) *Nutrition Facts*, (2) *Label Fitness*

INTRODUCTION & MINDFUL BREATHING (1 MINUTE)

- Introduce yourself and other volunteers.
- Guide students through a mindful breathing exercise.
- Explain the purpose of this third lesson is to better understand the benefits of composting and the role of minerals in the garden and our bodies.

Divide the class into 2 groups

Split the students into two groups. Send one group with the helper/teacher to the nutrition activity. Take the other group to the compost building activity at the composter. Both activities will run simultaneously for a total of 20 - 36 minutes, depending on grade.) Switch groups after 10 - 18 minutes.

GARDEN: COMPOSTING AND VERMIPOSTING (10 - 18 MINUTES, depending on grade)

The garden section has four discussion parts and one activity:

1. Composting: Definition & Benefits
2. Ingredients for a Compost Bin / Tumbler
3. How to Make Compost
4. Vermiposting

Activity: Compost Building (Occurs at the same time as the nutrition activity.)

Grades	**Composting: Definition & Benefits**
K – 5th	• Definition of *composting* - In a controlled environment, such as a compost bin, we copy nature's process of plant materials breaking down into useful nutrients for growing plants[1]. • Three Benefits of composting[2]: 1. Reduces waste 2. Beneficial to soil 3. Saves money

Grades	**Benefit #1: Composting Reduces Waste** Supplies: *Landfill*
K - 2nd	• Everything that we put in the trash ends up in a place called a *landfill*.

	○ In landfills, the trash is buried in the ground for many years and is of no use to anyone; it's just taking up space. ○ Imagine what it would look like and smell like if all your trash from home was buried in the backyard! • When we compost, we put less waste into landfills. • Just like reusing and recycling, we can think of composting as nature's recycling.
3rd – 5th	• Where would plant materials go if they didn't go in compost? ○ If students say "trashcan," then ask: Where does the trash from the trashcans go when the trash trucks have taken it away? ○ Answer: When plant materials go in the trashcan and get picked up by the trash trucks, they end up as waste, in a landfill with other trash, instead of becoming useful nutrients for our gardens and yards. • Trash buried in landfills doesn't break down to become compost, but just stays there for many years. (Show *Landfill* laminate.) ○ This smells bad and could cause air, soil and water pollution. • We use our limited natural resources, such as *gasoline* (for the trash trucks) and *land* (for the landfills), to transport and process all this trash. ○ This would be greatly reduced if all the plant material went into the compost!

Grades	**Benefit #2: Composting Is Beneficial to Soil** Supplies: *Compost Cycle*
K – 2nd	• Compost contains ***nutrients*** that are vital to a healthy soil, just like nutrients are vital to your body. • What are nutrients? ○ A *nutrient* is a substance found in food that provides the nourishment we need to grow and thrive.[3] • How do the nutrients get into the soil? ○ Scavengers and decomposers break down organic matter into smaller and smaller pieces until it's in a useable form for plants to access the nutrients.[4] • Compost is an example of the ***nutrient cycle*** at work. ○ The ***nutrient cycle*** is the natural process of nutrients being recycled from dead matter to living matter in a constant loop.[5] ○ The image (on laminate) shows how the nutrient cycle happens when people compost – this is called the ***compost cycle***.[6]
3rd – 5th	• Compost contains ***macroorganisms*** and ***microorganisms***[7]. • What is the difference between a macroorganism and a *microorganism*? ○ Macroorganisms are organisms that are large enough to see, such as pill bugs (also called sow bugs or rolly pollies), earthworms or centipedes. ○ Microorganisms are organisms that are so tiny, that you need a microscope to see them. ○ Both types of organisms break down organic matter, and often even consume each other, into a usable form of nutrients for plants. • Compost improves the texture of garden soil. • By adding compost to our soil, it replenishes nutrients that have been removed from the soil by other plants. • The image (on laminate) shows how the nutrient cycle happens when people compost – this is called the ***compost cycle***. • It also adds moisture that all living things need to survive, and weighs down the soil, keeping it from blowing away or being rinsed away.

	• Compost is loose and crumbly, which contributes to aerating the soil, vital to supporting the life of soil inhabitants.

Grades	**Benefit #3: Composting Saves Money**
K – 5th	• The healthier our soil is, the healthier our plants will be. • When we make compost, we use it to **amend,** or *improve the health of* the soil. ○ If we didn't make compost, we would have to buy it from the nursery, or garden center, to amend our soil. • Making it ourselves through composting we can save money.

Grades	**Ingredients for a Compost Bin/ Tumbler** Supplies: *"Do the Rot Thing…Compost!"*

K – 5th	• Every school garden in the LiveWell Kids program has composters (show composters.)
	• There are four ingredients the compost bin/tumbler needs to recycle organic materials into usable compost:
	  ○ Air
	  ○ Water
	  ○ Organic green materials (for 3rd – 5th grades, say: "rich in the element Nitrogen")
	  ○ Organic brown materials (for 3rd – 5th grades, say: "rich in the element Carbon")
	• Why are these ingredients necessary?
	  ○ There is life in the compost bin, ***decomposers, the organisms that eat organic matter*** and all life needs food, air, and water to survive.
	  ○ We are feeding our decomposers – like taking care of pets!
	  ○ Without the decomposers, organic matter would not break down, but would just pile up.
	• There is a recipe for making compost, which is 2-parts brown materials to 1-part green materials.
	  ○ If we use too many greens, they can rot, making the compost bin slimy and stinky, which attracts pests.
	  ○ If we use too many browns, there won't be enough nitrogen (from green materials) to feed the decomposers and they will die.
	  ○ The compost bin needs a balance of ingredients, just like our bodies need a balanced diet.
	• If the compost bin gets out of balance with either too many greens, or too many browns, it's easy to fix!
	  ○ You just add more of the other ingredient (plus water if it's dry) and stir.
	  ○ For example, if you have too many greens, you need to add browns.
	  ○ Similarly, when our diets get out of balance, we need to adjust what we eat.

Grades	**How to Make Compost** Supplies: *"Do the Rot Thing…Compost!"*
K – 1st	• Ask: Who can give an example of *green* materials? ○ *Green materials are the fresh plants and plant parts that get put in the compost. Here are some examples: fresh cut grass, vegetable scraps, fruit scraps, coffee grounds, manure and green leaves.*

	• Ask: Who can give an example of *brown* materials?
	  ○ *Brown materials are the dried, brown plants and other non-green things that are put in the compost. Here are some examples: dried grass, brown leaves, dead flowers and plants, even paper and eggshells.*
	• *On the laminate, point out the F.B.I. (scavengers and decomposers),* an easy way to remember who's in the compost bin.
	  ○ FBI is an acronym for **F**ungus, **B**acteria and **I**nvertebrates
	  ▪ Examples include worms, millipedes and pillbugs (also called sowbugs and roly-pollies), pincher bugs and centipedes.

2nd – 5th	• In the compost pile, we have scavengers, ***physical decomposers***, such as bugs, as well as ***chemical decomposers***, such as fungi and bacteria.
	• Decomposers eat the organic matter that we put in there, including each other![4]
	• Ask: "Can you name any decomposers that we might see in the compost pile?"
	  ○ *In the compost pile, you can see: Pillbugs, pincher bugs, worms, centipedes, fungi….*
	• Decomposers don't all like to eat the same things.
	• Some of them are carnivorous, or meat eaters, while others like animal waste.
	• Some like dead bugs, while others prefer dry, dead plants. Fungi like to eat fruit and vegetables.
	• Ask: "What would our planet look like if we didn't have decomposers?"
	  ○ *The earth would be covered in dead plants and animals.*

4th – 5th
 	
Same as 2nd – 5th, and add:
	• Ask: "What are some other benefits to having decomposers in the compost bin?"
	  ○ *Decomposers also help keep the compost pile warm with their body heat AND **aerate**, which means to create air spaces, in the compost as they move around.*
	• Ask: "How do decomposers help plants?"
	  ○ *They decompose organic materials into smaller parts that plants can use for accessing nutrients.*
	• Ask: "Does anyone know the difference between a scavenger and a decomposer? Try to guess by thinking about what the word **scavenge** means."
	  ○ *Scavengers eat dead plants and animals, breaking them into smaller pieces. This creates more surface area for the decomposers to take over and finish breaking the organic matter down into usable nutrients for plants to use.*[8]

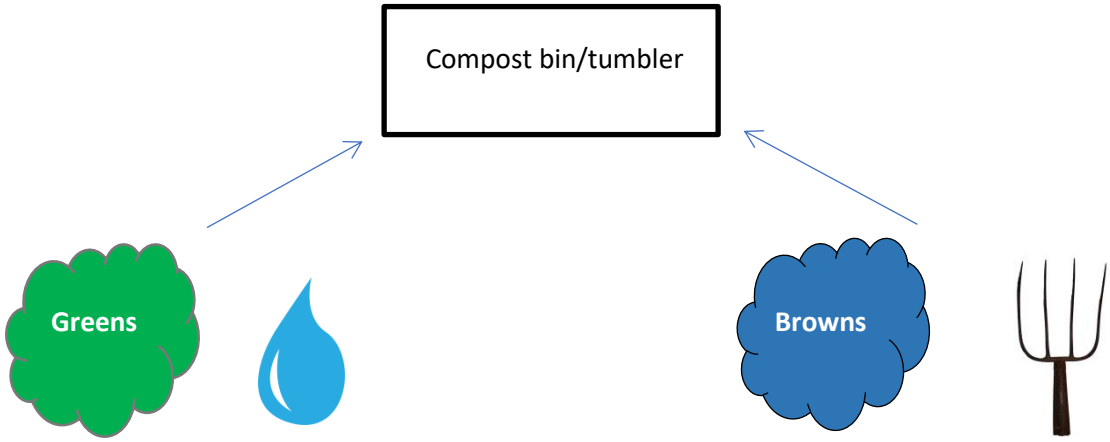
Grades	**Vermiposting** Supplies: *Worm Bin*
K – 5th	• There is more than one way to add nutrients to soil. • The school garden has a worm bin. • Worms live in this structure and are fed fresh produce scraps each week. • Gardeners call their waste "liquid gold!" It's periodically added to the garden beds for a nutrient boost. • Using the worms to make nutrients for the garden is called ***Vermiposting*** or ***Vermicomposting***.[9]

Compost Building Activity **(5 - 9 MINUTES, depending on grade)**
*Make sure that you only use **HALF** the materials, saving the other half for the second group.*

- Have the students form two lines in front of the compost area (one in front of the greens/watering can, and the other in front of the browns/hand cultivator tool.)
- Have one student from each line approach their pile. The student in front of the green pile will go first, putting in one scoop of greens **into the composter.**
- The student in front of the browns will then add two scoops of brown material.
- The student in front of the greens will sprinkle some water onto the pile.
- The student in front of the browns will give a stir with the cultivator.
- They will step away.

When everyone has completed the composting building, switch with the other group and direct students to the nutrition activity.

Compost Building Activity Diagram



LINE 1	LINE 2
X	X
X	X
X	X

ALTERNATE BETWEEN BOTH LINES:

CHILD IN LINE 1 ADDS ONE SCOOP OF GREENS, CHILD IN LINE 2 ADDS TWO SCOOPS OF BROWNS, CHILD IN LINE 1 SPRINKLES WATER, CHILD IN LINE 2 MIXES WITH HAND CULTIVATOR

NUTRITION: MINERALS WE EAT (10 - 18 MINUTES, depending on grade)

** Occurs at the same time as Composting and Vermiposting.

The nutrition section has two parts:

1. Nutrients Discussion (differs by grade)
2. Activity

K-5th	**Nutrients**

Discussion	• Just like soil needs nutrients, so do people.
	• This is especially important for all of you because you are still growing. Your body needs nutrients to grow strong, healthy bones and muscles.
	• Nutrients also give you the energy to run around the playground, catch a ball, dance and learn in school.
	• People get nutrients from food and water.
	• For younger students, the following imagery may help clarify the concept:
	  ○ Think of a carrot that you built out of Legos. Each Lego piece is a different nutrient. Different nutrients, or Lego pieces, do different things that our bodies need. Nutrients can be vitamins, such as vitamin A, which is found in carrots and spinach for example. So, your Lego carrots and spinach would have lots of vitamin A Lego pieces. Nutrients can also be minerals, such as potassium, which is in bananas and potatoes. Carbohydrates, fats, proteins, and water are other examples of nutrients. Keep in mind that foods can have a bunch of different nutrients in them. Therefore, your Lego carrot not only has vitamin A Lego pieces, but it also has vitamin K, vitamin C, potassium, fiber, calcium and iron Legos too. That's a lot of good-for-you nutrients – or Legos!
	• For older students:
	  ○ Nutrients include carbohydrates, protein, fats, fiber, vitamins, minerals, and even water.
	• It's important to eat a variety of foods so you can get lots of different nutrients.

Kindergarten	**Eating the Rainbow: Colorful Fruits & Vegetables** Supplies: *Benefits of Eating from the Rainbow*
Discussion	• Fruits and vegetables are an important part of what you eat because they're packed full of nutrients that help your body feel its best. • Like the rainbow, fruits and vegetables come in many colors. • Every color is good for you in its own special way.[10, 11]

	• Show *Benefits of Eating from the Rainbow* and ask the class to think about the colorful fruits and vegetables that they've eaten and those that they would like to try.
	  ○ Can you name some **red** fruits and vegetables?
	  ▪ Examples: strawberries, tomatoes, apples, red pepper and watermelon
	  ▪ Red helps keep your heart healthy and is good for memory.
	  ○ Who can share some **orange** fruits and vegetables?
	  ▪ Examples: peaches, oranges, orange peppers and carrots
	  ▪ Orange keeps your eyes healthy and fights off illness.
	  ○ Next, can you name some **yellow** fruits and vegetables?
	  ▪ Examples: bananas, lemon, yellow peppers and pineapple
	  ▪ Yellow helps fight off sickness and also protects your eyes.
	  ○ Can you name a few **green** fruits and vegetables?
	  ▪ Examples: peas, spinach, broccoli and cucumbers
	  ▪ Green keeps your bones, teeth and nails healthy and strong.
	  ○ How about **blue** and **purple** fruits and vegetables?
	  ▪ Examples: blueberries, grapes, eggplant, plums and red onions
	  ▪ Helps memory and protects your body from disease.
	  ○ Finally, can you share examples of **white** vegetables and fruits?
	  ▪ Examples: cauliflower, garlic, mushrooms and potatoes
	  ▪ Keeps your bones strong and lowers cholesterol and blood pressure.
	• The next time you go to the grocery store or farmer's market, take a look around and think about all of the new fruits and vegetables you can try eating!
	  ○ Sometimes you may need to try a new food several times before deciding if you like it, so don't be shy and give it a try!
	• Whether you're having breakfast, lunch, dinner or a snack, it's always a good time to color your plate with a variety of fruits and vegetables.

Activity	<u>Carrot Jump</u>[12]
	
	• Game description: Today we will play a game where we all get to move around while sharing what we learned about colorful fruits and vegetables.
	• Everyone stands in a circle together.
	• One student is selected to:
	  1) Name a color.
	  2) Pick a fruit or vegetable of that same color.
	  3) Add a movement.
	  4) Example: A student says, "orange carrot jump" and everyone jumps.
	• The next person must think of another vegetable or fruit and another movement, such as "red apple spin."
	• Remind students that they can ask for help at any time.
	• Continue until everyone has a turn.
	• If the children cannot think of movements, the volunteer can add the movement after the child has said the piece of food.

	• For children with impairments in flexibility or gross motor skills, or who are injured, encourage them to perform the movements as much as they can, understanding that it may look different to others.

1st Grade	**Whole Foods** Supplies: *Food Cards*

Discussion	• Ask: Who has been to a grocery store?
	• Ask: What do you find at a grocery store?
	• Ask: What are some foods that you like to get at the grocery store?
	• Today, we are going to talk about some foods at the grocery store that have lots of nutrients that our bodies need to help us stay healthy.
	• Choose a variety of *Food Cards* as examples of whole foods.
	  o Ask: What do you notice about these foods?
	  ▪ These foods are called **whole foods**.
	• Whole foods are as close to their natural form as possible. This means that they haven't been changed (or at least very little) from how they are in nature.
	  o For example, an orange is a whole food. When you see it in the store or in your refrigerator at home, it looks just like it does when it's still on an orange tree.
	  o Whole foods come from plants and animals.
	  o Whole foods don't have other items, like sugar, added to them.
	  o They also don't have nutrients, like vitamins, taken out of them.
	• Ask: Let's think of examples of whole foods together. In addition to an orange, can someone name another fruit that's a whole food?
	  o VOLUNTEER NOTE: A correct answer is any fruit that isn't moderately or highly processed – more than peeled, sliced or frozen. Consider mentioning that fruit in a can with syrup/juice is not considered a whole food because it has added sugar.
	• Ask: How about a vegetable that is a whole food?
	  o VOLUNTEER NOTE: Consider mentioning that french fries from a restaurant aren't whole foods even though they are made from potatoes. They have added salt, oil and are often fried.
	• Ask: Do you know that beans, nuts and seeds are also whole foods?
	  o These include peanuts, walnuts, sesame seeds, black beans and more!
	• Ask: Chicken, turkey, fish, beef and other meats are whole foods too.
	• Ask: What whole food comes from a chicken? Eggs!
	• Ask: Do you enjoy a glass of milk? Milk is a whole food.
	• Ask: Have you eaten foods made with whole grains? These foods have lots of nutrients too.
	  o Grains are actually the seeds of grasses grown for food![13]
	  o Whole grains come from plants like wheat, corn, rice, and oats.
	  o Bread, pasta and tortillas made with whole grains are yummy!

Activity	<u>Whole Foods Go!</u>
	(Played like Red Light, Green Light)
	• Game description: Today we are going to practice our whole foods knowledge by playing a game called, "Whole Foods Go!"
	• Line up the students, one next to the other, so they form a horizontal line in front of you.
	• Stand a running distance away, like how you would if playing Red Light, Green Light.
	• Explain how to play the game:
	  o You will shout out different names of foods, such as "apple," "pie," "carrot" or "pizza."
	  o If the food is a whole food, then the students will take one step forward.
	  o If the food you name is not a whole food, then the students will remain in place.
	• The goal is for the students to recognize enough whole foods so they move forward and end up where you are standing.

2nd Grade	**Minerals** Supplies: (1) Two paper trays, (2) Sodium Relay Packet which includes (A) Two Sets of *Sodium Relay Flashcards* (1 blue-dot set and 1 yellow-dot set); (B) *Sodium Relay Answer Key*; (C) *High Sodium*; (D) *Low Sodium*

Discussion	• Minerals are nutrients that our bodies need to keep us healthy.[14]
	• Minerals help us grow, have good eyesight, fight illness and form bones, muscles, skin and organs.
	• Our bodies can't make minerals on their own.
	  o Minerals are found in soil and are absorbed by plants or eaten by animals that consume the plants.
	  o When we eat these plants (or animals that have previously absorbed the minerals by eating plants), the minerals are passed along to us.
	  o This means we get minerals through food.
	• Minerals are found in foods like cereals, bread, meat, fish, milk, dairy, nuts, fruit and vegetables.[15]
	• Some minerals that you may have heard of include:
	  o **Calcium** helps build bones and teeth.
	  ▪ Found in milk, yogurt, kale and broccoli.[16]
	  o **Iron** helps carry oxygen around the body.[17]
	  ▪ Found in beans, eggs, leafy green vegetables, whole grains, chicken and beef.
	  o **Potassium** is needed for kidney and heart function and to keep muscles and the nervous system working well.[18]
	  ▪ Found in bananas, tomatoes, dried apricots, spinach and nuts.
	  o **Fluoride** helps prevent cavities.[19]
	  ▪ Added to toothpaste and water.
	  o **Sodium** regulates muscle contractions, nerve function, blood pressure and the balance of fluids in the body.[20]

	▪ Most of the sodium we eat comes from packaged and prepared foods, including food from restaurants (e.g., deli meats, pizza, burritos and tacos, soups, chips). ▪ Foods may not taste salty, but they can still be high in sodium. ➢ Pickles and some chips *taste* salty and are likely high in sodium. ➢ However, packaged cookies, cereals and pizza may not taste salty, but may have a lot of sodium. ▪ Our bodies need sodium, but in small amounts – a little less than 1 teaspoon of table salt each day.[21] • The best way to make sure you get enough minerals is to eat a variety of fresh, whole foods, such as colorful fruits and vegetables. o Minerals are also in whole grain breads and cereals, lean chicken, fish and meat as well as eggs, beans, nuts and low-fat dairy products. o This is a good reason to eat more fresh, whole foods! **Note: The above is NOT a full list of minerals, their benefits nor their food sources.
Activity	<u>Sodium Relay</u> You will need the *Sodium Relay* Packet and 2 paper trays. • Game description: Today we're going to learn more about the mineral sodium by playing a game called Sodium Relay. • Activity Set Up: o Find an area with open space to move around. o Set up two paper trays with *High Sodium* and *Low Sodium* laminates placed in front. o Have in hand two sets of *Sodium Relay* flashcards (blue-dot and yellow-dot cards.) o Volunteer will be a few feet in front of the students with the High Sodium/ Low Sodium trays close by. o Have students sit down in two lines. o Volunteer will place a deck of cards in front of each team. o One team gets blue-dot cards, and the other team gets yellow-dot cards. o Students are divided into two teams and line up accordingly. • Explain that when students get to the front of the line, they will look at their card and decide whether the featured food is high or low in sodium. o If high, they will run to the tray labeled *High Sodium* and put the card in there. o If low sodium, then they will run to the *Low Sodium* tray and place their card inside there. • Teams are racing against one another, so they will be running at the same time. • After their turn, the student will go to the back of the line and the next person in line will take a card and run to a tray. • After every student has had a turn and all cards are used, count the number of correctly placed cards to determine the winning team. o See *Sodium Relay Answer Key* as needed. o If any cards are placed in the incorrect tray, review the correct answer with students.

3rd Grade	**Vitamins and Minerals** Supplies: *Ready, Set, Riddle*

Discussion	• Vitamins and minerals are two important nutrients that your body needs to grow, see, fight off illness, form bones, muscle, skin and organs and so much more![22]
	• Vitamins are made from plants and animals.
	  o We get the vitamins we need through the food we eat.
	• Minerals are found in soil and water.
	  o Minerals are absorbed by plants or eaten by animals that consume the plants. When we eat these plants (or animals that have previously absorbed the minerals by eating plants), the minerals are passed along to us.
	  o See 2nd grade for additional mineral discussion.
	• The best way to make sure you get enough vitamins and minerals is to eat a variety of fresh, whole foods, such as a mix of colorful fruits and vegetables, whole grains, lean meats, fish and poultry (e.g., chicken, turkey) and low-fat dairy (or dairy substitutes).
	  o Drinking water is important too!

Activity	<u>Ready, Set, Riddle</u>
	You will need *Ready, Set, Riddle*
	
	• Game description: Today we're going to play a game called *Ready, Set, Riddle*. This will be a fun way to learn more about vitamins and minerals in food. I will read a riddle and you will have to figure out the food I described in the riddle.
	• Divide students into two teams.
	  o Each team will take turns figuring out a riddle.
	  o Refer to the riddles found on the *Ready, Set, Riddle* laminate.
	  o Teams will have 15 seconds to discuss their answer before they share it.
	  o Teams will earn a point for each correct answer.
	• Feel free to add to the list and make up your own riddles.
	• Play as long as you want, until you run out of riddles or time.

4th Grade	**Whole & Processed Foods** Supplies: (1) *Whole & Processed Foods*, (2) *Find My Match*

Discussion	• Ask: Has anyone here gone fishing? What did you catch? (Wait for an answer.)
	  o You didn't catch a fish stick or a goldfish cracker?!
	• Ask: Have any of you visited a farm or an apple orchard? What did you see there?
	  o You didn't see a chicken nugget walking around and apple pies weren't growing on trees?!
	• The fish you catch and the apple you pick are <u>whole foods</u>.
	• A fish stick, chicken nugget, goldfish cracker and apple pie are <u>processed foods</u>.
	• Every day we typically eat a mix of some whole and some processed foods, and some of these foods provide us with more nutrients than others.

	• Ask: Can someone give me an example of a **whole food**? (VOLUNTEER NOTE: The students should be familiar with whole foods. Use your discretion regarding the time you want to spend sharing details.)
	  ○ Whole foods come from plants and animals.
	  ○ They are as close to their natural form as possible. This means that they haven't been changed (or at least very little) from how they are in nature.
	  ▪ For example, an orange is a whole food. When you see it in the store or in your refrigerator at home, it looks just like it does when it's still on an orange tree.
	  ○ Whole foods don't have other items, like sugar, added to them.
	  ○ They don't have nutrients, like vitamins, taken out of them.
	  ○ Fruits, vegetables, beans, nuts, seeds, eggs, chicken, fish and beef are whole foods.
	  ○ Dairy foods, like milk, are whole foods.
	  ○ Bread, pasta and tortillas are whole foods if they are made with whole grains. This means the food item has the whole grain seed in it.
	• **Processed foods** have been changed from how they are in nature. Sometimes it's a small change and other times a big change.
	  ○ Food processing is what happens between the time a food travels from a farm to a consumer.[23]
	  ○ Foods may be processed:
	  ▪ To preserve them (e.g., salting meats, pickling vegetables, pasteurizing milk)
	  ▪ For safety reasons (e.g., heating, refrigerating, freezing, fermenting, salting)
	  ▪ To add variety (e.g., flavoring, texturing, color)
	  ▪ For nutrition fortification and nutrition preservation
	  ▪ For convenience or fast food
	  ○ Show *Whole & Processed Foods* laminate and explain examples.
	  ○ Some foods may be <u>minimally processed</u>, such as taking strawberries and slicing, freezing and bagging them.
	  ▪ You will find this product in the freezer section of your grocery store. This form of processing increases the convenience (easy to grab and use) and shelf life (fresher longer) of the product.
	  ○ Foods can also be <u>moderately processed</u> when a factory turns an apple into apple sauce. The apples are cooked, mashed and may have some ingredients added to them to preserve freshness. Perhaps sugar is added for extra sweetness.
	  ○ <u>Highly processed foods</u> are baked, fried, smoked, toasted, puffed, shredded, artificially flavored or colored and/or sprayed with vitamins.
	  ▪ Examples include processing pork to bacon and potatoes to potato chips.

Activity	<u>Find My Match</u> You will need the *Find My Match* packet. • Game description: Half the students have a food product and the other half have an ingredients list. Students must find their pair by locating the matching product and ingredients list.

	• Ask students to stand in a horizontal line. • Count off students by providing them with a number of one or two, which should create two equal groups. o If there is an odd number of students, have a pair of students share either an ingredient list or food product laminate and work as a team to find their partner. • All cards are in the *Find My Match* Packet. • Distribute the food product laminates to one group of students and distribute the ingredient list laminates to the second group. • At your signal, have students start their search for the food product that corresponds with their ingredient list. • The game ends once all students find their corresponding food product and ingredient list. • If time allows, have group one and two trade laminates, so everyone has the opportunity to participate as both a food product and ingredient list.

5th Grade	**Nutrition Facts Label** Supplies – (1) *Nutrition Facts*, (2) *Label Fitness*

Discussion	• Ask: How do you decide what to eat? (You'll likely get a variety of responses: how a food tastes/looks/smells/want to try something new/what friends and family are eating, etc).
	• Follow up with more questions:
	  o How do you know what's in the food that you like to eat?
	  o If you're eating a whole food, like an apple, broccoli or grilled chicken, then you know what you're putting in your body. But what if you're eating a granola bar, chips or cereal?
	  o How can you find out what's in your food or drink?
	• The Nutrition Facts label can help you out!
	  o Use the laminate, *Nutrition Facts*, for the remaining discussion.
	• In the United States, the Nutrition Facts Label is required on all packaged foods.[24]
	  o It is based on updated science and dietary recommendations for Americans.
	  o Fresh food that isn't prepackaged does not need a label (e.g., lettuce, pears, potatoes).
	• Ask: What information does this label provide?
	  o It provides information about the food or drink's contents (ingredients) and nutrients.
	• Ask: What is the ingredient in a bag of apples?
	  o Answer: Just apples! Remember, apples are a whole food.
	• Ask: How about apple pie? What do you think that ingredient list looks like?
	  o Answer: apple pie is a processed food with many more ingredients. You'll likely see butter, sugar, salt, flour and other words you won't even recognize. All of this goes into your body!
	• In general, the first 3-5 ingredients make up the largest portion of the food.
	• The Nutrition Facts Label also includes other information about the food such as the serving size, fat, sugar, sodium, protein and more. **

	• For now, you can be a nutrition detective at home and at the store by reading the Nutrition Facts label and knowing what's in the food that you are eating! ** Volunteers: Use your discretion in deciding how much detail to review regarding the Nutrition Facts Label laminate.

Activity	Label Fitness [25]
	You will need the *Label Fitness* game cards.
	
	**IMPORTANT! The point of this game is not to scare the students nor to make them feel bad for eating particular foods. Rather, the goal is to familiarize them with the Nutrition Facts label as a source of nutritional information.*
	
	• Game description: Today we're going to play a game that will help us become more familiar with the nutrients and other components of the Nutrition Facts label.
	• Ask the students to stand in a horizontal line, leaving enough space between each other so they have ample room to all run/hop/skip forward at the same time.
	• Directly across from each student, place a *Label Fitness Game Card*.
	• Explain to the students that you will first call out a specific nutrient or other item (of your choosing) from the Nutrition Facts label.
	  ○ May be good options due to typical number: servings per container, total fat, saturated fat, carbohydrates, fiber, sugars, added sugars, protein.
	• At your signal, have the students run/hop/skip/crawl to the game card that is directly across from them.
	• Once at the game card, direct students to find the nutrient/item you picked out and then do that number of fitness movements (e.g., jumping jacks) that they see next to the item.
	  ○ For example, if their card has 5 grams of fat, then they will do 5 jumping jacks.
	• Repeat as many rounds as you have time for.
	• If you have the entire class or a large group of students, you will need to divide the class by the number of game cards and the kids will take turns by group.
	• A fun way to end the game is to shout out "sodium." Some students will see a very large number on their card. They won't have to do 450 jumping jacks, but they'll certainly notice that there is a big number next to sodium.

CLOSING (1 MINUTE)

- Bring students together to close the lesson and thank the students, teacher and other volunteers.
- Point out to them that composting is easy and they can do it at home.
- Take them to see how their garden box is growing before going back to class.
- If time allows, have students draw a Reflection Page and take a few photos to share with BCHD at Mishell.Balzer@bchd.org.
- Thank the students for joining you today and dismiss them.

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

Scan this QR code with your phone for scheduling and reporting lessons as delivered:

From the computer, click the link that was emailed to you by your Lead Volunteer:

LWK Tracking Links 2023-24

Resources

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