



LiveWell Kids Garden and Nutrition Program

Lesson 3: Soil Health & Minerals

FOURTH GRADE

OBJECTIVES

By the end of this lesson, students will:

- Understand how nutrients move through soil, plants, animals, and people.
- Explain what makes a healthy growing medium.
- Understand how composting and vermicomposting support soil systems.
- Build skills to make healthier food choices by recognizing nutrient sources.

SUPPLIES AND SET-UP

- Garden discussion – Soil Health
 - Laminates: *Landfill, Compost Cycle, Laminate*
- Garden activity - “Food Web”
 - 16 “Food Chain” cards
 - 1 ball of yarn
 - Choose an open space.
 - Place the Food Chain cards and the ball of yarn in the center.
- Nutrition activity – “Whole and Processed Foods”
 - Laminate: *Whole & Processed Foods*
 - Laminates: *Find My Match* packet
 - Place laminates where visible for discussion.
 - Place Find My Match cards where they can be distributed.

PREPARATION

- Refer to the LiveWell Kids Volunteer Manual for lesson preparation.
- Allow 30 minutes for set-up on the day of the lesson.



INTRODUCTION & MINDFUL BREATHING (1 Minute)

- Introduce volunteers
- Guide a brief mindful breathing moment
- Explain: *Today we'll learn how soil supports food systems and how nutrients move through plants, animals, and people.*

****Divide the class into 2 groups****

Split students into two groups. One group goes to the garden activity while the other goes to the nutrition activity. Both run **simultaneously for 18 minutes**, then groups switch.

GARDEN: DISCUSSION & ACTIVITY (18 Minutes)

*** Occurs at the same time as Nutrition Discussion and Activities*

Discussion: Soil Health

Healthy soil has important jobs that help plants, animals, and people. These are five of those jobs:

1. Managing water so plants can absorb what they need.
2. Supporting living organisms.
3. Filtering harmful substances.
4. Recycling nutrients.
5. Holding roots and structures in place.

Caring for soil helps it continue growing food season after season. One way gardeners care for soil is by returning nutrients through compost and worm systems.

- You already know healthy soil helps plants, animals, and people.
- Ask: What happens when all of those are connected and depend on each other?
That system is called an **ecosystem**.

When soil is healthy, plants grow well, animals have food, and the ecosystem stays balanced.

Discussion: Composting Benefits

Supplies - Laminates: *Landfill, Compost Cycle*

As you know:

- Composting creates a controlled environment where plant materials break down.
- Decomposers release nutrients from those materials back into the soil for plants to use again.

When composting returns nutrients to the soil, it helps plants, soil, and the environment in important ways.

Composting has three main benefits:

1. Reduces waste
2. Improves soil health
3. Saves money

Reduces Waste

- Show laminate: *Landfill*
 - Plant materials placed in trash go to landfills, where they do not return nutrients to soil and contribute to pollution.
 - Composting keeps these materials in use.

Improves Soil Health

- Show laminate: *Compost Cycle*
 - Compost contains both **macroorganisms** and **microorganisms**.
 - Macroorganisms are large decomposers like worms and pill bugs.
 - Microorganisms are tiny decomposers like bacteria and fungi.
 - Together, they break down organic matter and release nutrients plants can use.
 - Compost also:
 - Improves soil structure.
 - Adds moisture.
 - Helps soil resist erosion.
 - Increases air spaces needed by roots and organisms.
 - This process is part of the **nutrient cycle**, where nutrients are reused again and again.

Saves Money

Using compost reduces the need to buy soil amendments, saving money while improving plant growth.

Discussion: Ingredients for a Composter

Supplies: “*Do the Rot Thing...Compost!*”

- Show laminate: “*Do the Rot Thing...Compost!*”
- Compost needs four ingredients:
 - Air
 - Water
 - Green materials (rich in nitrogen)
 - Brown materials (rich in carbon)

These ingredients support decomposers. Compost works best when greens and browns are balanced, like how people need balanced diets.

Discussion: Vermiposting

Supplies: *Worm Bin*

- Point out the worm bin in the garden.
- Vermiposting uses worms to break down food scraps. Worms create nutrient-rich castings that gardeners add to soil. This process is called **vermiposting**, or **vermicomposting**.

Introducing the Activity: “Food Web”

Supplies: 16 Food Chain cards, ball of yarn

Explain: This activity is about the **food web** — how living things are connected by energy and food.

- Ask: What are some of your favorite meals? (Take 2–3 answers.)
- Choose one example and trace it back to plants.
 - Example: Pasta with pesto and broccoli.
 - Broccoli is a plant.
 - Pasta is made from wheat (a plant.)
 - Pesto comes from basil, olive oil, pine nuts (all from plants), and cheese.

- Ask: How is cheese connected to plants?

Answer: *Cheese comes from milk. Cows eat plants to make milk.*

- Ask: If cows get energy from plants, where do plants get energy?

Answer: *From the sun.*

- Introduce key roles:
 - **Producers** are plants that get energy from the sun.
 - **Consumers** are animals (including people) that eat plants or other animals.

- Explain: Energy moves from the sun → plants → animals → people.

This connected system is called a **food web**.

Activity: Building the Food Web

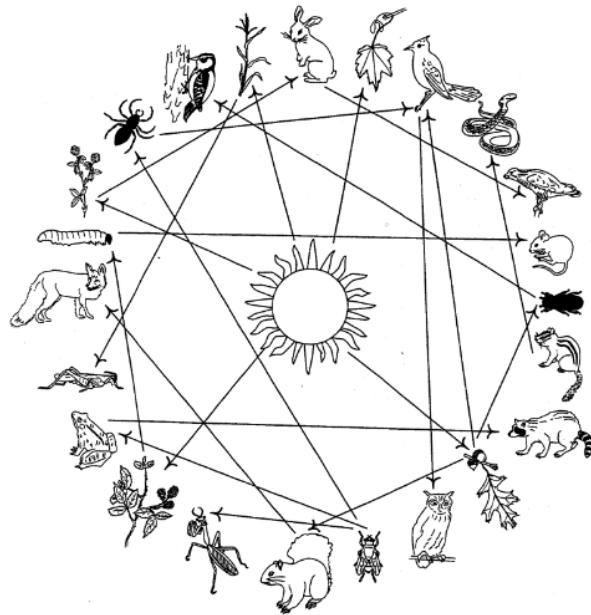
- Have students stand in a wide circle.
- Pass out one Food Chain card to each student (picture facing out) and have them wear their card like a necklace.
- Choose one student to be the “Connector.”
 - The Connector holds the yarn and is the only person who walks.
 - The Connector does not hold a card.

- Place the student with the “Sun” card in the center and give them the end of the yarn to hold.
- Ask the Sun: Who gets energy directly from you?
Answer: A plant.
- The Sun keeps holding the end of the yarn and the Connector walks the yarn (while unrolling it) to a “Plant” card and hands it to that student.
- The Plant announces where the yarn should go next and why (for example, to an insect that eats plants.)
- The Plant continues to hold onto the yarn while the Connector walks around the outside of the circle to the next student, lifting the yarn over others as needed.
- Each student holds the yarn in front of them, keeping it taut.
- Continue linking cards based on who eats whom or what provides energy.
- It is okay if the yarn returns to plants multiple times.
- Continue until all students are connected at least once.

Conclusion: What the Web Shows

Students continue to hold “food web” until instructed to let go.

- Ask: What do you notice about the web?
Expected answers:
 - Everything is connected.
 - Plants are connected many times.
 - Many living things depend on plants.
- Ask: What happens if one part of the food web is removed?
(Examples: drought, pollution, construction.)
- Say: Let’s test it.
 - Ask students holding plant cards to drop the yarn and sit down.
- Observe the web unraveling.
- Explain:
Plants are the foundation of food webs. When plants are affected, everything else is affected too. Healthy soil helps plants grow, which helps keep food webs strong.



At the end of the activity, please wind the yarn back up for the next class.

NUTRITION: DISCUSSION & ACTIVITY (18 Minutes)

**** Occurs at the same time as Garden Discussion and Activities**

Discussion: Nutrients

- Nutrients are substances our bodies need to grow, have energy, and stay healthy. Both food and water provide nutrients.
- Nutrients include carbohydrates, protein, fats, fiber, vitamins, minerals, and water.
- Eating a variety of foods helps ensure our bodies get what they need.

Discussion: Whole & Processed Foods

Whole foods come from plants and animals and are close to their natural form. **Processed foods** have been changed in some way after harvesting.

- Foods may be processed to:
 - Preserve them
 - Improve safety
 - Add convenience
 - Add flavor or texture

Some processing is minimal (freezing fruit.) Other processing is moderate or heavy and may reduce nutrients or add sugar, salt, or fat.

Activity: Find My Match

Supplies: Laminates (1) Whole & Processed Foods, (2) Find My Match packet

Students match food products with ingredient lists.

- Divide students into two equal groups.
- One group receives food cards, the other ingredient lists.
- Students mix and find their matching pair.
- If time allows switch roles.
- This activity shows how processing changes foods and ingredients.

CLOSING (4 Minutes)

Regroup students.

Review:

- Garden Review
 - How does compost help soil do its job?
 - Why are decomposers important in the soil system?
 - Why are plants the starting point of the food web?
 - What happens to the food web if plants are removed?
- Nutrition Review
 - How do nutrients move from soil into our bodies?
 - Why does eating a variety of foods matter?
 - What is one difference between a whole food and a processed food?

****2-question review if time is tight:*

- How are soil, plants, and people connected?
- What is one choice we can make to support healthy soil and healthy bodies?

- Visit the garden briefly.
- Thank students, teachers, and volunteers.
- Dismiss class.

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- From your phone, scan this QR code below to report lessons as delivered. Once the page opens, select the 'grid view'.
- From the computer, click the link [LiveWell Kids Tracking Links 2025-26](#)

