

FBI (FUNGI, BACTERIA, INVERTEBRATES)

Garden

Grades Pre-K–2 • 45 mins • Fall, Spring • Outdoor

ADAPTED

GRADES PRE-K–2

SCHOOL PARTNER
LESSON PLAN

SUBMITTED BY

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ESSENTIAL QUESTIONS

- Big Idea: The nutrients within soil are the product of decomposers working to break down organic matter.
- Big Question: Does nature create trash?



MATERIALS

- FBI Examples
- Samples of half-decomposed compost
- Bug catchers
- Gloves
- Magnifying glass
- Trays
- Compost sifters (optional)
- Large pitchfork (if compost pile present)



VOCABULARY

- Decompose/se descomponen
- Humus/humus
- Organic/orgánico
- Plant and animal remains/restos de plantas y animales
- Texture/textura
- Soil/suelo
- Fungus/hongo
- Bacteria/bacteria
- Invertebrate/invertebrado



ASSESSMENT

Farm & Food journals for tracking and note-taking (optional)

NOTE:

Adapted from **Grade 1 Garden Lesson #5: Soil Web**, pg 428.



CREATED BY

Cunningham Elementary School
and Partners for Education in 2022

Emeril Lagasse Foundation retains ownership of these specific lesson plans. Any third-party resources or handouts included are shared solely as examples and we do not claim ownership of them.

PREPARATION (15 MINS)

- Collect samples of compost in various stages.
- Collect various examples of FBI in jars.
- *Option—invite teachers ahead of time to collect food scraps from their class snacks/lunches to drop into the compost pile during this lesson. Be sure to inform them of what is and isn't appropriate for the compost pile.

TEACHER BACKGROUND

- Rotting food (or food that's gone bad) doesn't look or smell great but it contains a wealth of nutrients, including carbon, nitrogen, and phosphorus. Living organisms require these nutrients to create cells, tissues and to provide energy for life processes.
- Decomposers (fungi, bacteria, invertebrates such as worms and insects) have the ability to break down dead organisms into smaller particles and create new compounds. We use decomposers to restore the natural nutrient cycle through controlled composting.

LESSON DESCRIPTION

Decomposers are the link that keeps the circle of life in motion. The nutrients that decomposers release into the environment become part of the soil, making it fertile and good for plant growth. These nutrients become a part of new plants that grow from the fertile soil.

LEARNING OBJECTIVES

- Name the three types of decomposers necessary for decomposition.
- Understand decomposers are found throughout the food web at any point when a plant or animal dies.
- Understand that decomposers return nutrients back to the soil.

Content Learning Objectives*Garden and Food Systems*

GFS.1.2 Describe a soil web. Identify fungi, bacteria, and invertebrates..

ACADEMIC STANDARD CONNECTIONS

Texas Essential Knowledge and Skills (TEKS) for Science, Elementary, Revised 2022

PK4.VI.B.1 Child observes, investigates, describes, and discusses the characteristics of organisms

PK4.VI.B.3 Child observes, investigates, describes, and discusses the relationship of organisms in their environments

K.2 Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:

(A) ask questions about organisms, objects, and events observed in the natural world

K.3 Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

(C) explore that scientists investigate different things in the natural world and use tools to help in their investigations

1.2 Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:

(A) ask questions about organisms, objects, and events observed in the natural world

1.9 Organisms and environments. The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:

(C) gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter

2.9 Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:

(C) compare the ways living organisms depend on each other and on their environments such as through food chains

HEALTH STANDARD CONNECTIONS

4-M-3.1: differentiate between negative and positive behaviors used in conflict situations (e.g., compromise, avoidance, mediation, assertive/aggressive, non-violent behaviors).

Lesson Sequence

Engage

Cultivate Curiosity (5–10 mins):

Gratitude: I am thankful for the many different living things that keep the world turning. Word of the Day: Decomposers! “munch, munch, munch!” (students repeat)

Explore

Root Around (5–10 mins):

Begin with the Big Question: Does nature create trash? Invite students to Turn and Talk, reminding them to give both partners a time to share and to use the sentence stem, “think that _____ because”

Remember to not immediately clarify all misconceptions—allow for all ideas to come to the table and let the lesson clarify. Clear anything up at the end if needed.

Explain

Grow Understanding (5–7 mins):

- Briefly show the students the Compost Recipe anchor & explain that in order for compost to turn into healthy soil, it needs to have certain ingredients just like a recipe you follow in the kitchen!
- Share that if we add all of the proper ingredients to the compost stew, critters of all sorts will gather to help munch & break down the scraps, turning it into soil over time.
- Show the FBI Examples & share that today they will be hunting for these FBI in our compost.

Elaborate

Observe The Fruits (5–10 mins):

- Invite students/pairs/groups to explore trays of compost to check to see what ingredients they can find.
- Show them the materials available to them: gloves, magnifying glass, recording sheet if they would like to draw what they find.
- Explain that they will likely not only find plant parts, food scraps, etc., but they will find some living things moving around as well—we call these FBI, or Fungus, Bacteria and invertebrates!
- Invite them to share out as they find critters crawling around & identify them on your FBI Examples anchor chart.
- When they’ve shared all of the FBI they’ve found, mention the remaining FBI they are likely to find in the compost pile at some point.

Evaluate

Reflect (5 mins):

- Bring the group back together to address the Big Question: Does nature create trash?
- Invite students to pair up and share out.

 ADAPTING FOR INDOORS

- Explore the compost on trays indoors. Mix the compost ingredients in tubs to add more scraps to the garden compost. Talk about healthy compost and the role that decomposers play in our garden.
- Use the visual posters and book listed in ‘additional resources’ to aid discussion.

POSSIBLE EXTENSIONS

- Burlap sack or bucket with holes drilled, and recycled mushroom blocks if available locally to create your own mushroom grow bag/bucket.
- We utilized a community partner to aid in this by donating recycled mushroom blocks from local mushroom farmers and providing information to our staff on how to build the grow bags/buckets.

ADDITIONAL RESOURCES

Rotten Pumpkin by David Schwartz