

# Food and Farming Cycles

## Objectives

- Meet the microbes in our gut
- Taste fresh vegetables mindfully
- Evaluate claims that compost is a valuable practices that nurtures the soil and reduces the amount of carbon in the atmosphere.
- Sort agricultural practices as either soil-building or soil-depleting and explain reasons.

## Method

Discuss importance of microbes in soil and human health. Engage in a Mindful Tasting Activity to test some fresh/local and non-local strawberries to taste the difference and discuss nutrients in food and the role of microbes. Introduce the practice of composting and how it benefits soil and other agricultural practices used in farming and food production. Students will use investigative skills to categorize practices into soil-building or soil-depleting practices. Engage in a compost planting exercise to take home a plant to grow in a garden.

## Materials

Computer

Projector

Slides 4.1-4.6 from Kiss the Ground's Soil Story

Handouts: *Why compost?*, *Agricultural Practice Cards*, *Soil Story Assessment*

Curriculum

Paper

Local fruits or vegetables (in-season preferred) that can be enjoyed raw, or are unique – for this lesson, we will use strawberries and yogurt.

The Compost Story video on YouTube:

[https://www.youtube.com/watch?v=bqDQD8cvO5](https://www.youtube.com/watch?v=bqDQD8cvO5Y)

[Y](#)

Soil sample and compost sample

**Grade Level:** 6-8

**Subject Areas:** Science, Environmental Education

**Duration:** 30-45 minutes

**Group Size:** 10-30

**Setting:** Outdoor, if possible, at a farm

**Key Terms:** humus, organic matter, upcycling

**Ohio State Standards: NGSS alignment**

*LS4.D Biodiversity and Humans*

Change in biodiversity can influence humans resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling.

**Accommodations:** Consider doing the exercises in a classroom if you are limited in ability to get to a farm or garden.

## Background

This lesson is module that is part of a five-part unit about the carbon cycle from Kiss the Ground. In this unit, the students can learn about the following:

1. Earth's systems – what carbon is found on earth?
2. Photosynthesis – what role do plants play in the carbon cycle?
3. Healthy soil – what role do microbes play in the carbon cycle?
4. Food and Farming – what role do farmers play in the carbon cycle?
5. Taking action -what role do you play in the carbon cycle?

## Procedure

Explain that just like soil, our body has microbes that help break down food to keep us healthy. Share the slides about the number of microbes (4.1-4.3) in our gut.

4.1 Ask: where might microbes occur in the body?

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4.2 Show the second slide that indicates microbial count increases as you move down the digestive tract. Ask: what do the circles represent?

4.3 Looking at the third slide, we can see the circles represent how many microbes are in each portion of our digestive tract.

Highlight the following: *Our stomachs and other parts of our bodies are, in fact, small habitats for billions of microbes. In fact, when taken all together these microbes weigh about 3 pounds, which is about the same weight as our brains!*

Ask: How might these microbes be different from the microbes in the soil? How might they be similar?

These microbes are different, but similarly they promote human health in the same way that soil microbes promote soil health. Ask: Have you ever been told to eat yogurt after taking antibiotics? That's because certain foods contain probiotics, which are good bacteria for your gut and can help replace the killed bacteria used from antibiotics.

Set up purpose for **Mindful Tasting Activity**: *Feeding ourselves and our microbes fresh nutritious food is a good way to stay healthy. Reminder: some microbes make us healthy and some make us sick. They may be living in the soil, which is why it is important to always wash your vegetables and fruit before eating! Encourage students to wash hands before eating, but do not use hand sanitizers (this can kill good bacteria!).*

**Mindful Tasting Activity**: Share where the produce is from and anything known about how it was grown and by whom. Use your senses to explore the fruit you are eating and compare the differences between the local and non-local fruits. Use descriptive language – smell? Taste? Sound? Feel? After everyone has tasted the fruit ask which they preferred and why. Ask: Can you taste the nutrients? While you may not be able to, *flavor may be an indication of freshness and fresh food is often more nutritious.*

Ask: How do farmers grow nutritious food for us to eat? If answers don't come up, remind them of microbes.

Show The Compost Story video (7 minutes). Compost is an essential microbial source, regenerating the land below us.

Set up for **Agricultural Practice Cards Activity**. Look at samples of compost and soil. Have the group list out observations for both in small groups. What do you see? Sometimes you can look at soils and farms to learn about whether the practices used to grow food are soil-building or soil-depleting.

Show slides 4.4-4.6, Are We Building or Depleting Soils? Explain that farmers use different types of practices. Some practices build up soil, encourage microbial activity and grow nutrient dense food. Others tend to deplete the soil causing erosion, desertification, run off, or other depleting outcomes.

**You be the Investigator Activity**. Handout cards (4 sheets with 14 different practices demonstrated). Use your understanding of soil, farming and carbon to determine if the practice builds or degrades soil. Students can work in groups of 3-4 to categorize these two.

Be sure to emphasize that farmers are not trying to harm the earth, but that recent science has indicated the importance of soil health and soil-building practices. Farmers at Agraria are organic farmers, which means they use soil-building practices and are verified by a third-party agency that comes out once a year to inspect the farm. Some farms may not want to do this right away because of the cost, however, as people become more aware of where their food comes from and policies change, it will become more cost effective and mainstream for farmers to transition to organic.

It is important to know that composting isn't just for farmers, though. Anyone can do it!

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**Compost plant activity** – Take home your own compost with a plant in it and try growing your own food. Use the compost media provided, pots, and plant starts to pot your own vegetable plant.

### **Alternative Options:**

Activity: See *Make A Compost Cake Activity* – this can also be demonstrated in a classroom with a bucket if you do not have access to a farm/garden.

Speaker: Bring in a farmer or visit a farm and have the farmer speak about how they grow their food and build their soil.

### **Extension/Agraria Connection**

Bring the students to Agraria to observe different agricultural practices during the growing season. You may also consider having one of the Agraria farmers lead a farm tour and students can bring along a checklist and look for different types of soil-building practices to observe on the farm tour.

### **Evaluation**

Students do a field assessment of a farm in small groups to gather data and photos on agricultural practices and do a presentation back to the group their findings using visual images collected and other information gathered.

Students create a farm model that represents a farm using soil-building practices. Use crafts and other found objects in nature to convey the farm practices. This may be a good way to incorporate art and kinesthetic learning.

Students write a story about their experience on a farm (post-field trip). Students write a persuasive speech or article about the importance of composting.

### **Resources**

Kiss the Ground's Soil Story Curriculum:  
[https://kisstheground.com/wp-content/uploads/2018/07/Soil-Story-Curriculum\\_180729.pdf](https://kisstheground.com/wp-content/uploads/2018/07/Soil-Story-Curriculum_180729.pdf)

The Compost Story video on YouTube:

<https://www.youtube.com/watch?v=bqDQD8cvO5Y>