



Science



Math

SLICE OF SOIL

Grade Level

2-7

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will have a better understanding of our natural resources and their connection to agriculture.

Materials Needed

- 1 Apple (keep sticker on, if possible)
- Paring Knife
- Cutting Board

Standards

Common Core

CCSS.ELA-Literacy.RI.4.7; RF.4.4; W.4.1; W.4.9

CCSS.Math.Content.4.NF.3

NGSS

3-LS4-1; 3-LS4-4;
3-LS2-1; 3-LS3-2;
4-PS3-4; ETS1.A

Lesson Summary

This lesson uses an apple as a small scale model of earth to give students a different perspective on the amount of land available for agriculture. Students will follow along the demonstration, using fractions to divide the earth into decreasing segments. Students should be familiar with the term *natural resource*.

*This activity should be completed as a teacher demonstration.

Suggested Sequence of Events:

1. Read "[A Handful of Dirt](#)" by Raymond Bial to capture student interest.
2. Read through AITC Soil Ag Mag to learn about soil. Interactive online versions can be found on our website.
3. Pre-Activity Discussion: Tell students that soil is one of our most important natural resources on earth's surface. Many living things, including people, depend on it for food. Not all soil is good enough for plants to grow. Let them know that this activity is going to show them how much soil we have on earth to grow our food.
4. Complete the activity following the procedures on page two.



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4-PS3-4; ETS1.A

Suggested Sequence of Events:

4. Complete the activity following these procedures:
 - Explain to your students that the apple is going to represent a smaller model of the earth.
 - Cut an apple into four equal parts. Three parts represent the oceans of the world. Set these three aside. The fourth part represents the land area.
 - Cut the land section into three equal wedges. Each of these represents $\frac{1}{12}$ th of the earth.
 - One of these wedges represents inhospitable land (including deserts, mountains, and polar regions) where it is not suitable for life or plant growth.
 - The second of these wedges represents habitable land that has been protected (like nature preserves or public lands) or developed for roads, schools, houses, businesses, etc.
 - Set these two aside. One $\frac{1}{12}$ th wedge remains for us to grow food on.
 - Slice this $\frac{1}{12}$ th section crosswise into four equal parts. Each of these represents $\frac{1}{48}$ th of the earth.
 - Three of these pieces represent land that is used for grazing or for growing feed crops for livestock. Set these aside.
 - One $\frac{1}{48}$ th piece of the earth remains. This final piece is what is left for us to grow food crops for humans to eat, such as beans, fruits, vegetables, and grains.
 - Slice the peel off of the flesh of the apple. The peel on this small piece represents the amount of soil on which we have to grow food. This amount of soil will never get any bigger, but will only get smaller as the population grows and more land is developed for roads, schools, houses, business, etc.
5. Whole class discussion and reflection of activity. Ask your students to explain why soil is so important.

TEACHER RESOURCES

Extension Ideas:

- Give students a photo of an apple cut open. Have them label the layers of the earth. Have them explain what layer of the earth the soil is a part of.
- Have students draw or fill in a pie chart that shows the fractions from the activity. Color the sections to identify the types of areas described.
- Look at pictures of places around the world that have the types of land described in the demonstration.
- Introduce or review photosynthesis.
- Introduce or review sustainability.
- Invite a farmer into the classroom to talk about soil health.
- Have students research other types of natural resources. Students could present their research using a slide show or poster.
- Have students explain how weather and climate affect different regions in the world.
- STEM: Have students think more deeply into accessibility of natural resources. Can they design a way to be able to grow crops on the other parts of the land where there isn't good soil? Have students use the "[STEM: Student Worksheet](#)" to record their research and experiment.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

Media Resources:

Use this short video to introduce, review, or demonstrate this activity: <http://iaitc.co/Slice>