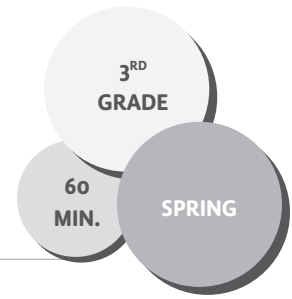


Breaking Down Rocks, Building Up Bread

THEME: EXPLORING THE ECOLOGY OF FOOD



ESSENTIAL QUESTION

How can all the foods we eat be traced back to natural resources, including rocks?

LEARNING OBJECTIVE

✓ Students will be able to explain how diverse grains from around the world can be traced back to plants that grow in soil made, in part, from eroded rocks.

LESSON DESCRIPTION

In this lesson, students read a book about how bread is a staple food around the world. They then use a variety of props to explain how bread originates from plants, which grow in soil that is made, in part, from eroded rocks. Finally, they work in small groups to explain how different staple grains from cultures around the world can all be traced back to natural materials, including rocks.

MATERIALS

- *Bread, Bread, Bread* by Ann Morris or *Bread is for Eating* by David and Phyllis Gershator
- Rocks to Bread Props (in mason jar or zip lock bags)
- Rocks to Bread Cards (pp. 405–407)
- 5 zip lock bags (1 for each set of cards)
- Loaf of whole wheat bread, sliced (optional)

PREPARATION

- › Gather objects for props including the following:
 - › Rock
 - › something to represent wind (such as a folding fan that says “wind” on it or a paper cut-out of something blowing in the wind)
 - › something to represent sunlight (such as a fake tealight candle, flashlight, or paper cut-out of a sun)
 - › Worm in some soil or a picture of a worm (if using a real worm, make sure to add some soil and some air holes to the jar)
 - › Jar of water
 - › Jar of soil
 - › Jar of wheat seeds
 - › Jar of wheat stalks (or any grass to represent these)
 - › Jar of flour
 - › Jar of yeast
- › Copy and cut out Rocks to Bread Card sets, according to the amount of students and using blank cards if need be. Put each set into separate bags.
- › Slice bread to have a piece for each student, if using.

ACTION STEPS

1. Reading: Gather students in a circle and read a book about bread such as *Bread is for Eating*, which introduces the idea that bread is a food around the world and discusses all that goes into making a loaf of bread. Explain, *Bread is called a staple food because people eat it regularly and get a lot of their energy from it. What are other staple foods you and your family eat?* **(10 min.)**

2. Rocks to Bread: Ask students, *Do you know that bread can be traced all the way back to rocks?* Have students explain how they believe that could be, and say, *I've brought clues to show you how, but you'll have to solve it yourselves.* Ask for volunteers, and randomly pass out objects or cards that represent each part of the process. Explain that they're going to use these props to show different processes involved in making bread. The first will be rocks eroding into the soil. Ask the students not holding props to raise their hands to share props they think should be included in this process. Together, call up the rocks, sun, water, wind, worms, plants, and soil, and put these props together to describe the process of erosion and decomposition that builds soil. Now repeat that practice with the process of growing grains, having students call up the soil, water, sunlight, and grains and explaining how grains grow. Finally, have students identify the props (wheat stalks, wheat seeds, wheat flour, yeast, and water), and use these to describe the process involved in turning those grains into flour and, ultimately, into bread. Several of the items may be used more than once, for example water, which is part of erosion and a growing plant. Add props as needed for the size of your group. **(10 min.)**

3. Discussing: Ask students who arranged the props to explain their order. Ask, *What other things that you eat are made from flour?* Field responses such as pasta, tortillas, cookies, cake, and then say, *All flour comes from grinding down a whole grain or seed grown from a plant. We're going to explore other staple grains that people from different cultures eat as a regular part of their diet.* **(5 min.)**

4. Telling a Story, Small Groups: Divide students into groups, and pass out a set of cards to each group. Ask students to work in teams to use their cards to tell a story about growing that crop, starting with rocks and ending with their final dish (i.e., a tortilla or a chapati). Remind students that they'll likely need to use some of the crops in more than one place in the story. Circulate through the room while students are sorting through cards with their groups, providing guidance and support where needed. **(10 min.)**

5. Whole Class Sharing: Have each group present their story to the class. **(15 min.)**

6. Tasting: Pass out a small slice of bread to each student. As students taste the bread, have them name all the "ingredients," starting from rocks, that went into making it. **(5 min.)**

REFLECTION

Have students discuss the following questions in small groups, then share with the class: **(5 min.)**

- *What is a grain? What is a staple food?*
- *How did your group figure out how to get from soil to your staple food?*

ADAPTATIONS

At Home: Have students work with their caregivers to make a list of staple grains they eat at home. Then have them share these with one another or with the whole class.

4th Grade NGSS: This activity can be used in conjunction with a geology unit related to the following standard: NGSS: ESS2.A: Earth Materials and Systems. Rainfall helps shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soil, and sediments into smaller particles and move them around. (4-ESS2-1)

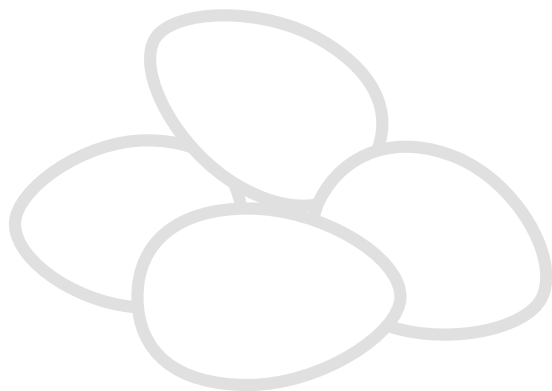
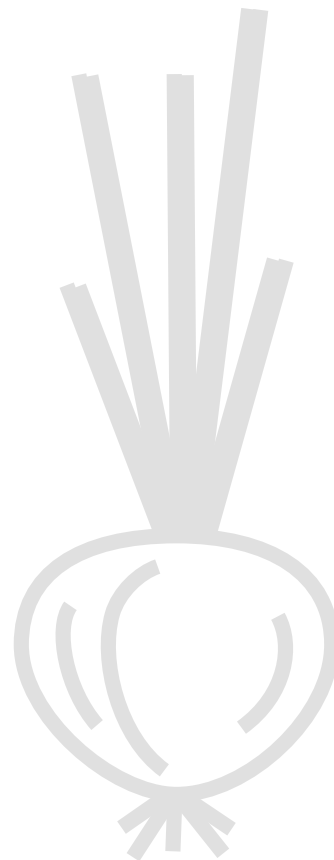
Song: Learn the song “Dirt Made My Lunch” by the Banana Slug String Band, and sing it with students.

ACADEMIC CONNECTIONS

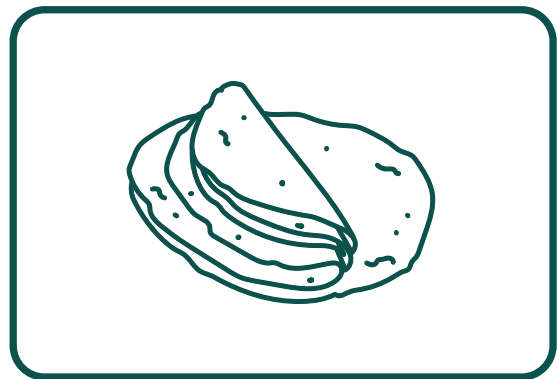
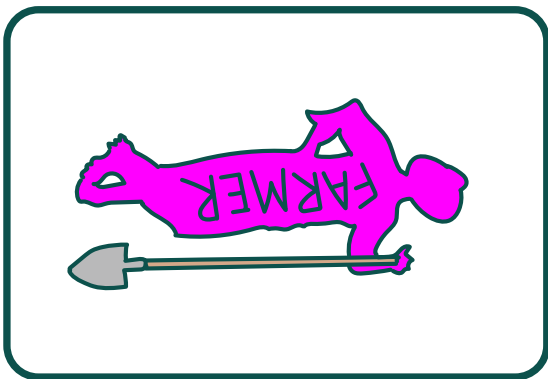
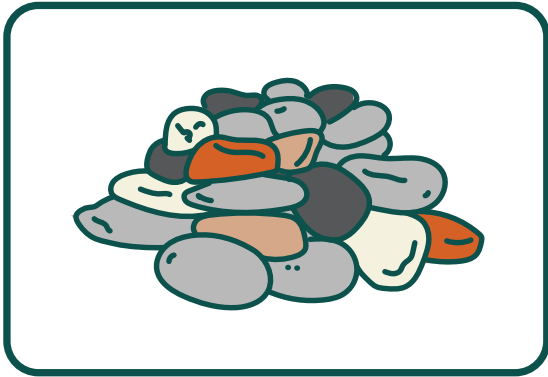
English Language Arts Common Core State Standards

CCSS.ELA-LITERACY.RL.3.1

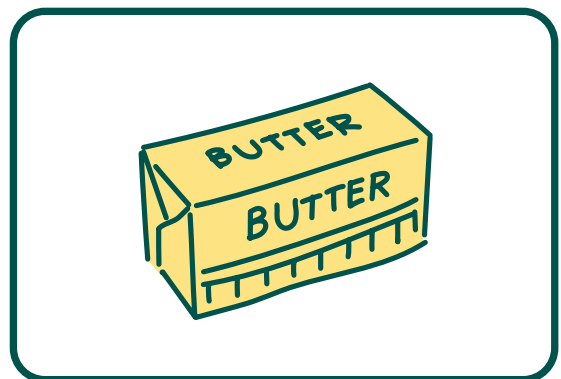
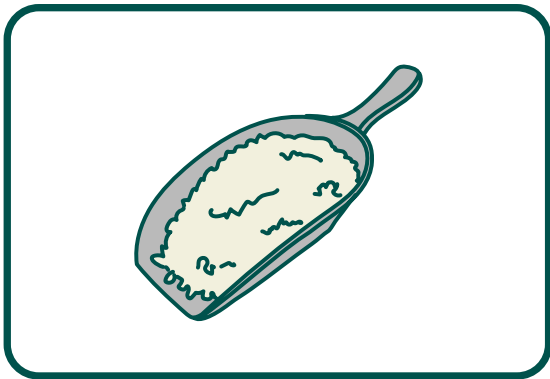
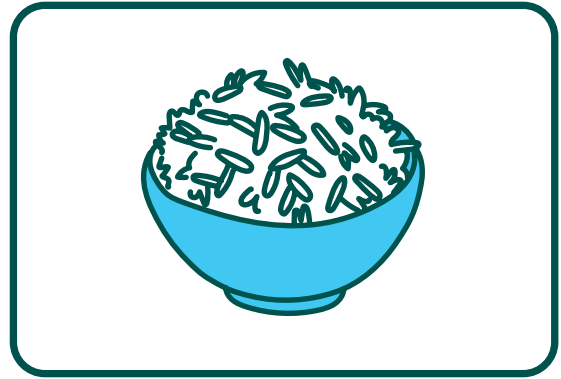
Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.



Rocks to Bread Cards



Rocks to Bread Cards



Rocks to Bread Cards

