



Do Rocks Need Us?

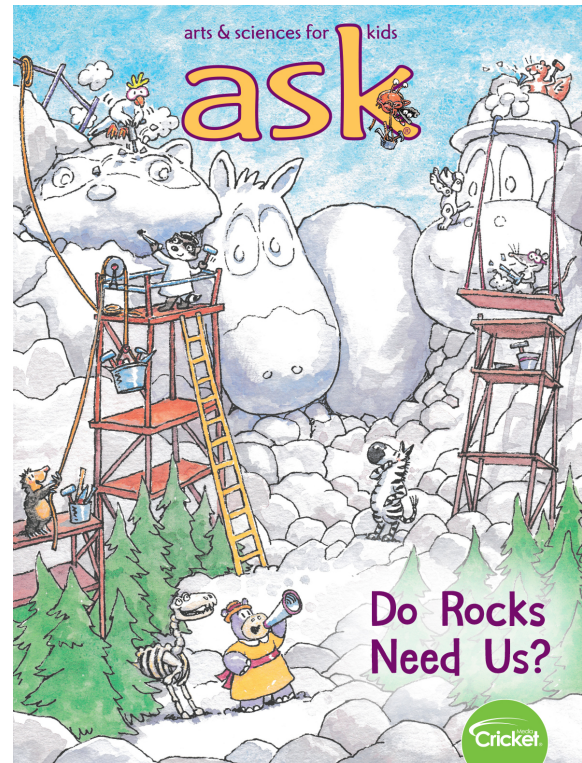
Take a journey to the center of the Earth and explore the living rock cycle. This issue of *Ask* invites students to study the process of fossilization, as well as the mineral-dense composition of rock formations. Engaging text and bright graphic features will undoubtedly leave an “impression” on young readers.

CONVERSATION QUESTION

How do rocks give us information about our world?

TEACHING OBJECTIVES

- Students will learn about the living rock cycle.
- Students will learn how fossils are formed.
- Students will learn about the variety of rocks that contain fossils.
- Students will examine the process of change.
- Students will demonstrate the ability to properly sequence a studied process.
- Students will collect evidence from a science-based text.
- Students will study other cycles in nature.
- Students will create realistic journal entries detailing the work of a chosen scientist.
- Students will create a living profile for a pet rock.



In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

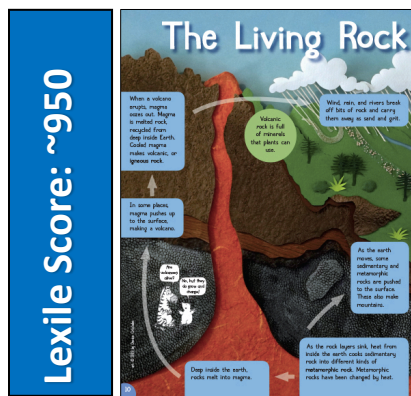
SELECTIONS

- **The Living Rock Cycle**
Expository Nonfiction, ~950L
- **How to Become a Fossil**
Expository Nonfiction, ~750L
- **This Rock Was Once Alive**
Expository Nonfiction, ~950L

The Living Rock Cycle

pp. 10–11, Expository Nonfiction

Erupting with information and graphic features, this article digs deep to uncover the various forces that effect change on geographical structures.



RESOURCES

- We Will Rock You!

OBJECTIVES

- Students will learn about the living rock cycle.
- Students will examine the process of change.
- Students will study other cycles in nature.

KEY VOCABULARY

- **compress** (p. 11) flatten by pressure
- **dissolve** (p. 11) to be absorbed or destroyed by a liquid
- **erupts** (p. 10) ejects lava, ash, and gases
- **minerals** (p. 10) naturally occurring inorganic solid substances

ENGAGE

Conversation Question: How do rocks give us information about our world?

Display various rocks on the table for students to study during the week, and have them bring in their own if possible. Encourage them to sort them by different criteria (ex: size, shape, color). Before launching the theme of this issue of *Ask*, discuss their observations and ignite prior knowledge regarding the subject.

INTRODUCE VOCABULARY

Arrange students in pairs and have them procure definitions for the vocabulary words. Allot time for completion, then post and discuss given definitions so that students may check their work for accuracy, as some words have more than one meaning. Use this exercise to practice cloze reading (instructional strategy where readers are required to fill in blanks) and have students create a sentence for each word, omitting the key term. Instruct them to switch papers and have their partner fill in the blanks.

READ & DISCUSS

Reinforce understanding of the living rock cycle by using the following prompts to direct discussion.

- Describe each type of rock: igneous, sedimentary, metamorphic
- How does the weather affect rocks?
- How is soil made?
- Why do shellfish take minerals from the ocean?

CONCEPT/SKILL FOCUS: Process of Change

INSTRUCT: Guide students to articulate that the main idea of this article is to explain the process of the living rock cycle. Distribute the graphic organizer, *We Will Rock You!*, and tell students that they will be using information from the article to explain how different factors affect this cycle. Emphasize that they should clearly state how each event listed contributes to the process.

ASSESS: Circulate and discuss the article's content with students. Collect and examine graphic organizers to further evaluate individual understanding of the studied process.

EXTEND

Science Take this opportunity to study other cycles in nature (water cycle, the life cycle of a butterfly, life cycle from egg to adult, etc.). Assign students the project of creating diagrams and using captions and/or paragraphs to explain their designated cycle. Encourage children to share their work.

We Will Rock You!

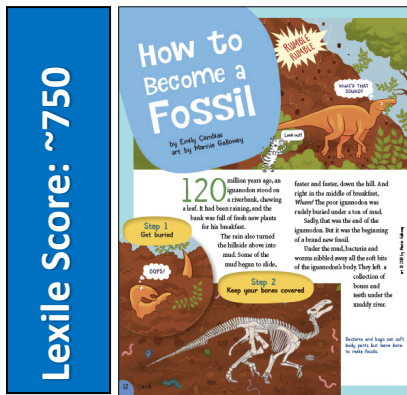
Use information from the article, "The Living Rock Cycle," to explain how each occurrence causes changes in rocks.

Occurrence/Event	How it changes rocks (Process)
Volcanoes	
Weather	
Plant/animal remains	
Bacteria	
Plant roots	

How to Become a Fossil

pp. 12–14, Expository Nonfiction

Young readers will travel back in time to meet an iguanodon whose fate is determined by a prehistoric mudslide. This article will make quite an impression on young readers as the process of fossilization is explored.



RESOURCES

- Leaving Quite an Impression

OBJECTIVES

- Students will learn how fossils are formed.
- Students will demonstrate the ability to properly sequence and explain a studied process.
- Students will create realistic journal entries detailing the work of a chosen scientist.

KEY VOCABULARY

- bacteria** (p. 12) microscopic living organisms, usually one-celled
- continents** (p. 14) any of the world's main continuous expanses of land
- fossil** (p. 12) any remains, impression, or trace of a living thing from a former geological age

ENGAGE

Conversation Question: How do rocks give us information about our world?

Distribute pieces of clay or playdough for children to manipulate. Have plastic toy dinosaurs, animals, and plants/trees available for the children to imprint into the pliable material. List any relevant terms that the students use in their peer dialogue and introduce the title of the article.

INTRODUCE VOCABULARY

Review the key vocabulary with the class. Guide students to notice that the words are all nouns with a different number of syllables. Have students divide a piece of paper into three columns with the following headings: One-syllable nouns/Two-syllable nouns/Three-syllable nouns. Instruct the class to “tap out” each key term and place it in the correct column. As a post-reading activity, have the students search the article for other nouns that they can add to each column.

READ & DISCUSS

Reinforce understanding of the concepts presented in this article by using the following questions to initiate meaningful conversation.

- Why does the composition of bones encourage fossilization?
- How does the passage of time contribute to the formation of a fossil?
- What is the job of a paleontologist?
- How long does it take for remains to become fossilized?

CONCEPT/SKILL FOCUS: Sequence & Explanation

INSTRUCT: Review the information on pages 12–14, in addition to the text boxes. Elicit from the students that there is a specific sequence of events that contribute to the creation of fossils. Distribute the *Leaving Quite an Impression* graphic organizer and instruct the class to refer back to the article and to properly sequence and explain each step. Their finished work will tell the story of fossilization.

ASSESS: Circulate as students are working on the graphic organizer and discuss the information in the article. Direct students having difficulty with the sequencing process to reread the text with a partner. Collect the completed work to further evaluate understanding of this skill.

EXTEND

Language Arts “How to Become a Fossil” discusses the work of a paleontologist. Have students research other “-ologists” (ex: cardiologist, biologist, criminologist) and create a mini-journal that consists of at least ten entries. Students should be sure that their entries provide details that accurately describe the work of their chosen expert.

Leaving Quite an Impression

Use information from the article, "How to Become a Fossil," to put the steps of the fossilization process listed below in the correct order on the chart. Then, write a sentence that explains what occurs during each step.

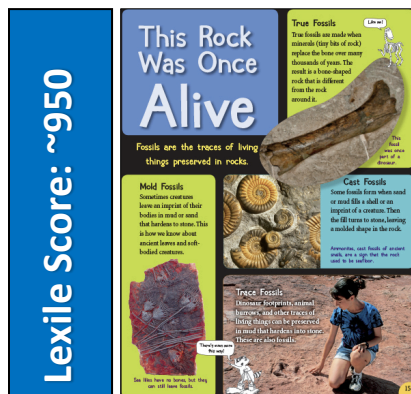
Get covered with layers * Get found * Get buried * Soak up minerals * Keep your bones together

Steps	Explanation
STEP 1 _____	
STEP 2 _____	
STEP 3 _____	
STEP 4 _____	
STEP 5 _____	

This Rock Was Once Alive

pp. 15–17, Expository Nonfiction

The collection of rocks presented in this article reaches well beyond the stones gathered during a walk on the beach. Discover a variety of rock species, where they can be found, and how they become fossils.



RESOURCES

- Fantastic Fossils

OBJECTIVES

- Students will learn about the variety of rocks that contain fossils.
- Students will collect evidence from a science-based text.
- Students will create a living profile for a pet rock.

KEY VOCABULARY

- burrow** (p. 15) a tunnel or hole dug by an animal as a den
- preserved** (p. 15) something that has been kept protected
- resin** (p. 16) a yellow or brown sticky substance that comes from certain trees

ENGAGE

Conversation Question: How do rocks give us information about our world?

Is it possible for a rock to be a pet? Why/why not? Familiarize students with the Pet Rock craze of the 1970s. Have students bring in rocks (or use rocks from the motivational activity from article one of this guide) to decorate. They will be using these pet rocks to complete the ELA extension activity at the bottom of this article page.

INTRODUCE VOCABULARY

Review the key vocabulary with the class. Guide students to notice that each word belongs in a different part of the alphabet. (Beginning: A–H, Middle: I–Q, End: S–Z) Have them write these headings at the top of their paper and put each word in the correct category. As a post-reading activity, have students add other rock/fossil words from the article to their list in the correct columns.

READ & DISCUSS

Read the article aloud with the students, pausing to discuss the key vocabulary. Have pairs of students reread the article and locate answers to the following questions.

- Explain the article's title. How were these rocks once alive?
- What is a mineral?
- How are rocks often pushed to the surface of the earth?
- How can oil transform into coal?

CONCEPT/SKILL FOCUS: Obtaining Information

INSTRUCT: Elicit from the students that this article contains information to help the reader understand how different types of fossils are formed. Distribute copies of the *Fantastic Fossils* graphic organizer and instruct students to focus on page 15 to study the four different types of fossils. Emphasize that they should thoroughly complete each section of the organizer using words and illustrations.

ASSESS: Circulate and have conversations with the students as they are completing their work. Encourage students needing assistance to work with their partners from the “Read and Discuss” activity. Collect and review the completed organizers.

EXTEND

Language Arts Have students place their pet rocks on their desks and “imagine” them to life. Discuss the literary device of personification and instruct them to create a “living profile” for their rock. They should create a name, assign personality traits, list hobbies/interests, and explain why they are compatible. Allow students time to roam the classroom and appreciate each other's creations and profiles.

Fantastic Fossils

Use information from the article, "This Rock Was Once Alive," to record relevant information using pictures and words.

