



## Teacher's Notes: Physical Weathering

**Science Standards:** E1 The composition of the Earth and its atmosphere and the natural and human processes occurring within them shape the Earth's surface and its climate.

### Learning Objectives:

- Students will be able to identify rocks.
- The students will be able to define weathering.
- The students will be able to describe what causes weathering.

**NOTE:** This unit includes an interactive workbook. Students use that while the ebook is projected on the SmartBoard. It is located in the worksheets and also posted as a book.

### Activities:

- Do a google image search for main idea words.
- Water erosion experiment - Have students put sand on the bottom of a paint tray. Sprinkle water on the sand using a watering can. Discuss observations. Then have students pour the water onto the sand. Discuss observations.
- Wind and water erosion experiment. Give students a piece of chalk, a piece of limestone, a piece of concrete, and sandpaper. Sand the limestone and concrete with the sandpaper. Observe which weathers easier. Explain the sandpaper is similar to how sand wind and rain weathers rocks.

**General Tips:** The goal is to build background knowledge while leading an engaging discussion on any and all information that can be talked about on a given page. The items that you choose to bring up or focus on can be modified for the students you are working with. For example, if you have a student who can point to something in the picture, answer yes/no questions be sure to incorporate a lot more of that as you go through the book. On the same token, be sure to ask a lot of comprehension questions and critical thinking questions at the level appropriate for students working on those skills. There is something for everyone.

**Page 1:** We live on the planet Earth. There are a lot of rock on Earth. **Point:** rocks, sky, clouds **WH Questions:** What is there a lot of on Earth? **Yes/No:** Are there a lot of rock on Earth? Do rocks break? **Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students ask talk to each other about rocks and weathering.

**Page 2:** Big rocks break. Small rocks break. That is how we have so many different sizes of rocks on Earth.

**Point:** big rocks, small rocks, road **WH Questions:** What happens to rocks? What do big rocks break into? **Yes/No:** Do rocks break? **Applying/Analysis:** Have you ever seen rocks on the ground? Have students go outside and look at different sized rocks. **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk to each other about rocks.

**Page 3:** Did you know that sand and dirt is made from very, very small rocks that have broken? **Point:** small rocks, dirt **WH Questions:** What do very small rocks break into? **Yes/No:** Do large rocks break into sand and dirt? Do very small rocks break into sand and dirt? **Applying/Analysis:** Do you like to play in the sand? Do you like to play in the dirt? **Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students ask talk to each other about sand and dirt.

**Page 4:** Weathering is when rocks break into smaller pieces.

**Point:** rocks **Questions:** What is it called when rocks break into smaller pieces? What happens to rocks during weathering? **Yes/No:** Do rocks break into smaller pieces during weathering? **Applying/Analysis:** How do you think animals cause rocks to break into smaller pieces? How do you think the wind breaks rock into smaller pieces? **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk about the different ways that weathering occurs.

**Page 5:** When water crashes into large rock, it weathers it. Over time, large rock will break from the waves.

**Point:** rock, water, waves **WH Questions:** What can weather rock? **Yes/No:** Can water weather rock? **Applying/Analysis:** Do you like to swim in the water? Have you like waves? **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk to each other about how water weathers rock.

**Page 6:** Wind can break rock. Wind can make arches out of rock. Strong winds blow hard. The wind breaks off pieces of the rock. Wind can make arches out of rock. An arch is like a door made out of rock.

**Point:** wind, arch **WH Questions:** What can weather rock? What is a door made out of rock called? **Yes/No:** Can wind weather rock? **Applying/Analysis:** Have you ever been outside when it is windy? **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk to one another about wind.

**Page 7:** A lot of rocks have small cracks in them. Ice can get in between the cracks. This causes the rocks to break into smaller pieces.

**WH Questions:** What can weather rocks? What is frozen water called? What is ice? **Point:** ice, rock with cracks **Yes/No:** Is frozen water called ice? Is ice frozen milk? Is ice frozen water? Can ice get in the cracks of rocks? Can ice weather rocks? **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk about how ice weathers rocks.

**Page 8:** There are some animals that dig holes in the ground. Some of these animals dig to make burrows under the ground. Burrows are big holes and tunnels under the ground that is where the animals live. When the animals dig under the ground, they break rocks. That is called weathering. Groundhogs like to dig. Rabbits like to dig. Squirrels like to dig. Gophers like to dig. Have students view the following video of a gopher digging. <https://www.youtube.com/watch?v=jVDjjaYxSs>

**WH Questions:** What can break rocks? What animals dig under the ground? **Point:** gopher, dirt, hole **Yes/No:** Can animals cause weathering? Do some animals dig holes in the **Applying/Analysis:** Have you ever seen an animal dig holes into the ground? What animals have you seen digging? **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk to each other about animals that dig holes in the ground.

**Page 9:** Trees have roots under the ground. Tree roots can grow and become very big. As they grow under the ground, they can push up against rocks and break them. That causes weathering. Have student view this short video showing tree roots that have broken rocks.

<https://www.youtube.com/watch?v=V2iHZ8GG4To>

Have student view the following rap song about weathering and erosion.

<https://www.youtube.com/watch?v=d0jVywral14>

**Point:** dirt, roots, tree, rocks **WH Questions:** What can cause weathering? What part of a tree breaks rocks? **Yes/No:** Do the leaves of a tree break rocks? Do the roots of a tree break rocks? Can trees cause weathering? **Applying/Analysis:** Have you ever seen the roots of a tree? **Peer to Peer Interaction:** After you read the page, have students read/show/point/eye gaze at either the main idea word or picture to a partner or the entire group. Have students talk to each other how trees break rocks.