



Changes to the Earth *Life Story of a Rock*

Estimated Time: 30 minutes

Age range: 4th grade

What you need: paper, pencil, coloring supplies (optional), a rock

New Words

Observe – to notice something closely using your senses.

Weathering- the natural process of the breaking down of rocks and minerals.

With permission, go outside of your home and find a rock that you can pick up, or if you have a rock collection, pick one to observe for this activity. Observe your rock closely. Draw a picture of your rock or describe it in the box below:

Do you think your rock has always looked the same? Rocks change very slowly over time through a process called **weathering**.

Weathering is the natural process of breaking down of rocks and minerals.

Different types of weathering change rocks at different speeds. It can take thousands or millions of years for a rock to change in size or appearance!

Learn about four types of weathering below:

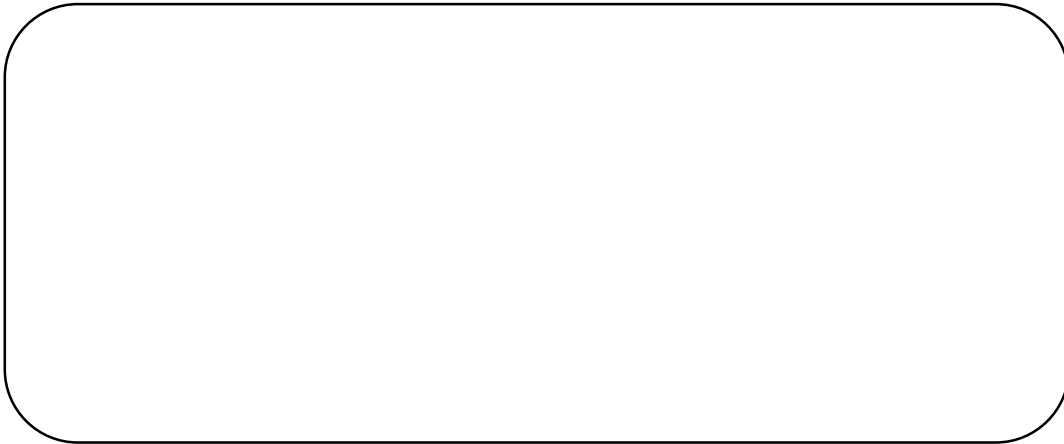
Cause of Weathering	Effects of Weathering
<p style="text-align: center;">Water</p> <p>When a rock is weathered by water, small pieces of rock (sediment) break off of the rock. Moving water carries the sediment, and it rubs against other rocks.</p>	<p>Rocks that are weathered by water become rounded and smooth.</p> 
<p style="text-align: center;">Vegetation</p> <p>When a rock is weathered by vegetation, plant roots break the rock down.</p>	<p>A plant may grow through the rock. You might also see moss or lichen growing on rocks. Moss and lichen are types of vegetation</p> 
<p style="text-align: center;">Wind</p> <p>Small pieces of rock (sediment) are carried by wind. When the wind blows against a rock, sediment breaks the rock down</p>	<p>Rocks that are weathered by wind look curved and sculpted.</p> 
<p style="text-align: center;">Freeze-Thaw</p> <p>When water gets into a crack or a hole in a rock it can freeze. When water freezes it expands, pushing on the rock around it. This freezing and thawing happens repeatedly, causing the rock to crack over time.</p>	<p>Rocks that have been weathered by freeze-thaw have a large, straight crack.</p> 

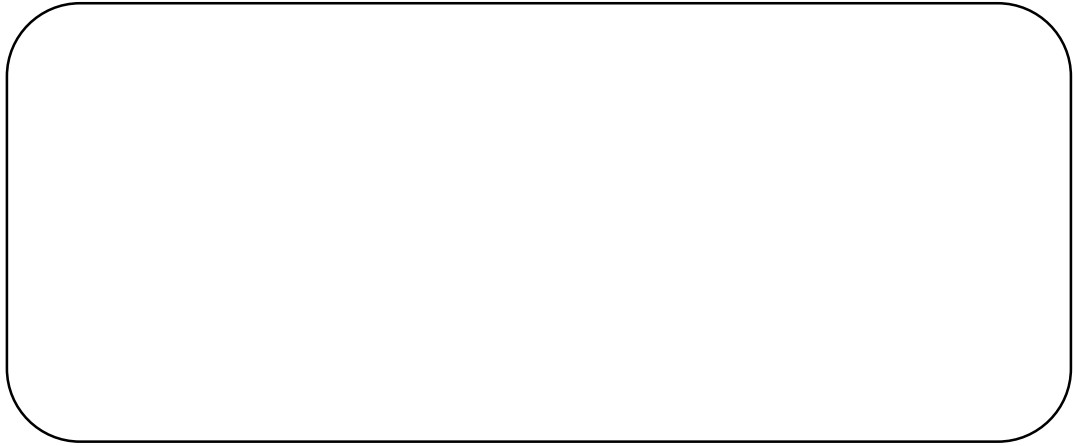
Activity:

Now it's your turn to tell the story of your rock. Write or draw the story of how your rock has changed over time. Consider including these ideas in your story:

- What did your rock look like 5,000 years ago?
- How was your rock weathered? How do you know?
- How did it end up where you found it today?
 - **Example:** 5,000 years ago, a piece of rock rolled off of a cliff in the Sierra Nevada Mountains. The rock tumbled down until it landed in a creek. In the creek, the rock started getting bumped by other rocks...

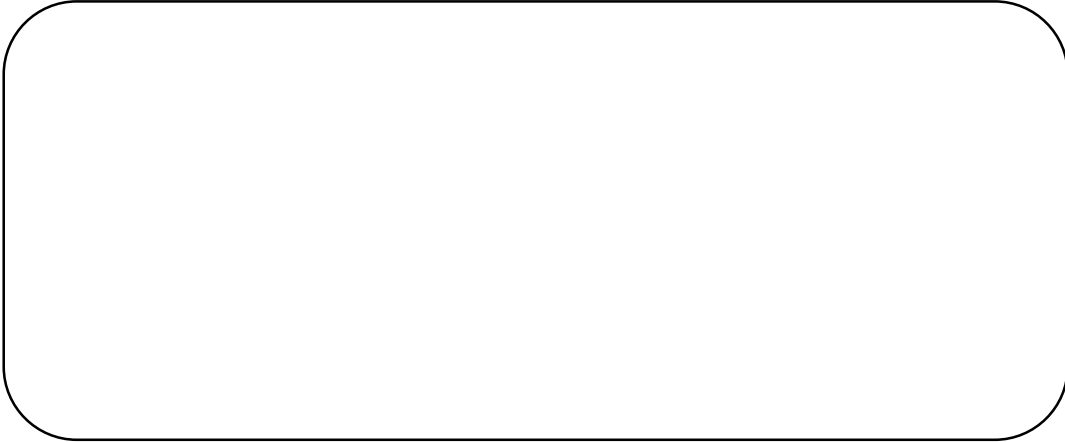
Be creative, and have fun writing and illustrating your story on the pages below. If you can't draw below, draw your pictures to illustrate your story on a different piece of paper.





A series of 20 horizontal lines for writing, arranged in a single column below the drawing box.

Pick a different type of weathering. How might the story of your rock have changed if it had been weathered by a different type of weathering? Write or draw your rocks new story.



Multiple horizontal lines for writing the story.