

## Essential Question: Why is soil important to all living things?

### Activity 3. What is weathering?

**Purpose:** To describe how rock is broken down by **physical, chemical, and biological weathering** of rocks.



**Vocabulary:**

- **Physical Weathering** – the breakdown of rock due to a physical force
- **Chemical Weathering** – the breakdown of rock through a chemical reaction
- **Biological Weathering**– the breakdown of rock by a living thing

**Background:** Before soil can form, the bedrock needs to be broken down into sand, clay and silt. For this to occur the bedrock has to undergo physical, chemical, or biological **weathering**.

- Many different things cause **physical weathering**. For example: Wind-blown sand, water freezing & thawing in cracks in rocks and hot the cold temperature swings break big rock into smaller rocks.
- Chemicals break down rocks too. This is **chemical weathering**. Some examples are: Water (a chemical) can simply dissolve rocks like limestone and rock salts. Water can also react with many types of rock, changing the identity of the rock into a type that is easy to breakdown. Acid in rain can break down rock too.
- Plants & animals can break down rock too. This is **biological weathering**. For example: Many trees & other plants extend their roots into cracks in rocks, then grow wider. This action physically “cracks” the rock into smaller parts. Microorganisms in the soil also help to decompose, or break down, organic matter in the soil. Also, animals burrow in the soil & expose small rock to the elements.

**Research:** Complete the table below to show your understanding of each type of **weathering**. Use this website & the [online notes](http://www.geolsoc.org.uk/ks3/gsl/education/resources/rockcycle/page3561.html) to help: <http://www.geolsoc.org.uk/ks3/gsl/education/resources/rockcycle/page3561.html>

Physical Weathering	Chemical Weathering	Biological Weathering
Where does it occur?	Where does it occur?	Where does it occur?
How does it occur?	How does it occur?	How does it occur?

Chemical weathering can occur quickly in warm environments with a lot of rain.

<b>A: Physical Weathering</b>	Observations
Initial appearance of rock	
Appearance after weathering	
How does physical weathering happen in nature?	

<b>B: Chemical Weathering</b>	Observations
Initial appearance of rock	
Appearance during & after weathering	
How does chemical weathering happen in nature?	

<b>C: Biological Weathering</b>	Google "Biological Weathering. Find two good images - report on each below.	
Describe each image.		
Sketch the key part of the image showing biological weathering.		

Write three questions that you think could show up on a test about this activity:		
<u>Level 1 Easy</u>	<u>Level 2 Medium</u>	<u>Level 3 Hard, but doable</u>