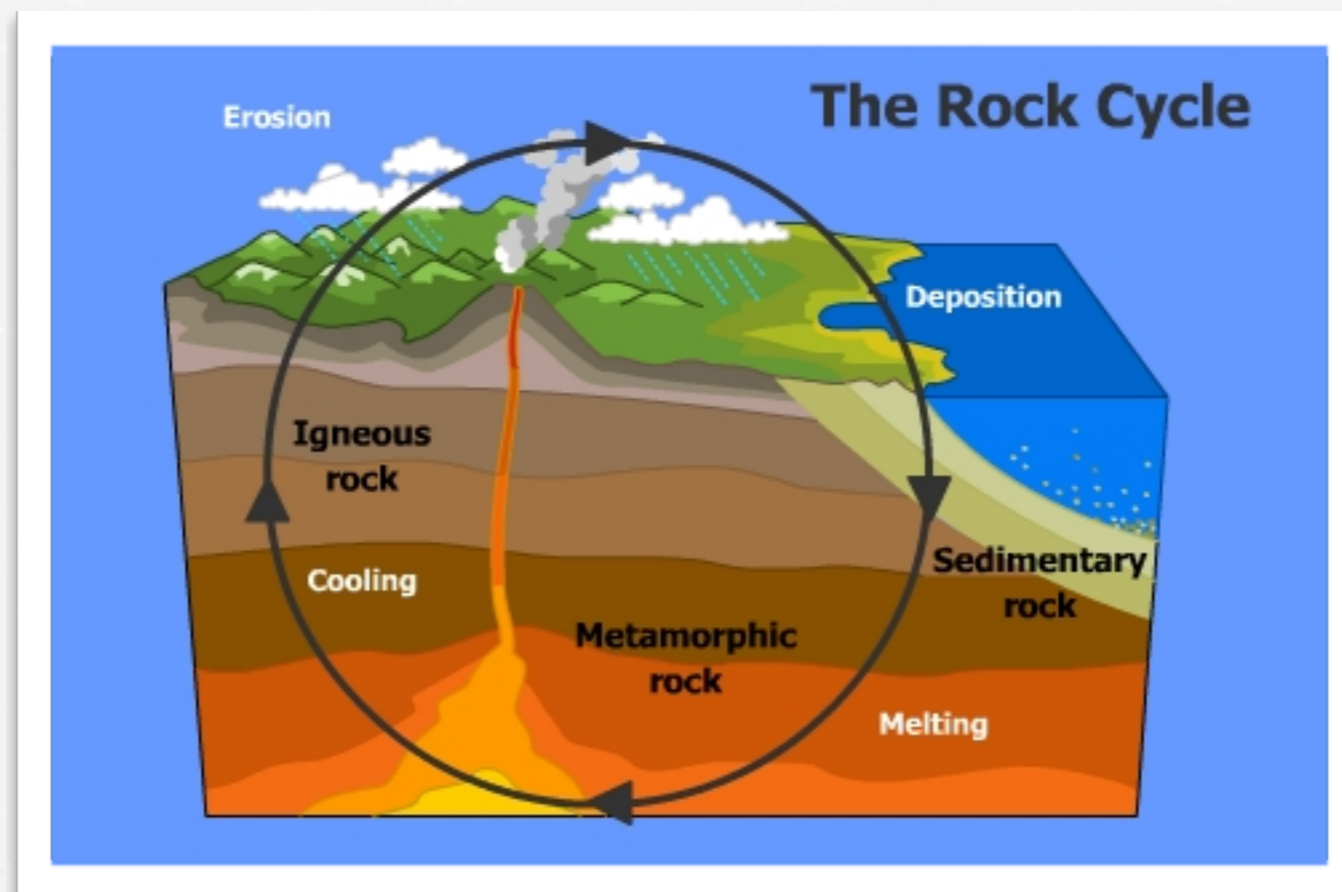


THE ROCK CYCLE

Weathering

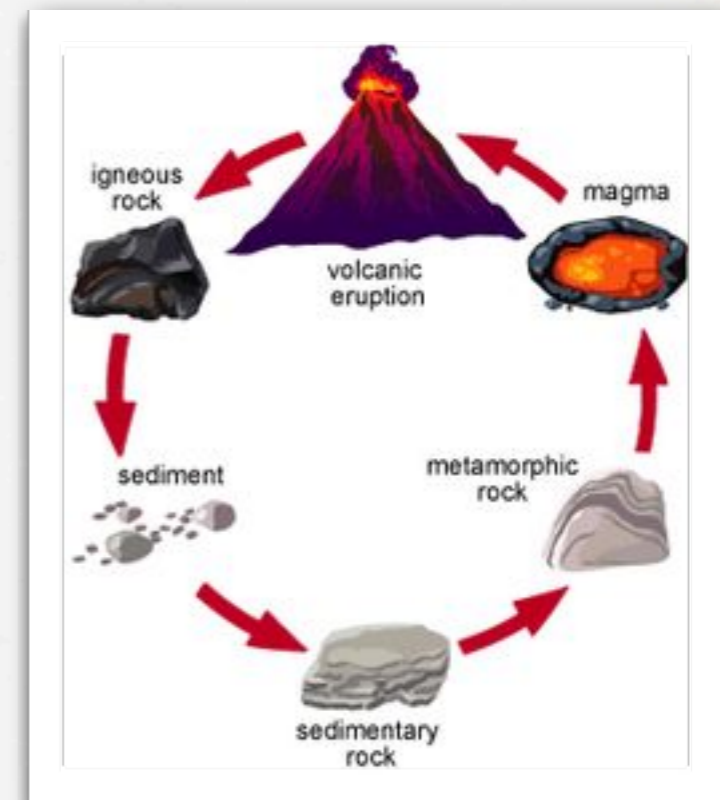


ROCK CYCLE

- ✿ Rocks are constantly changing!
- ✿ When magma or lava cools down, we get igneous rocks.
- ✿ When rock fragments and sediment is compacted or cemented, we get sedimentary rocks.
- ✿ And if we add heat and pressure to either an igneous or sedimentary rock, we can form a metamorphic rock!

ROCK CYCLE

- ❖ This process of rocks changing never stops. It is an ongoing process called the rock cycle.
- ❖ We can also break a rock down into its original components: smaller rocks, fragments and sediment.
- ❖ Most of this changing occurs naturally but sometimes it is due to human activity.



WEATHERING

- ✿ When larger rocks have been broken down or worn away into sediment.
- ✿ Rocks can be weathered mechanically, chemically, or biologically.



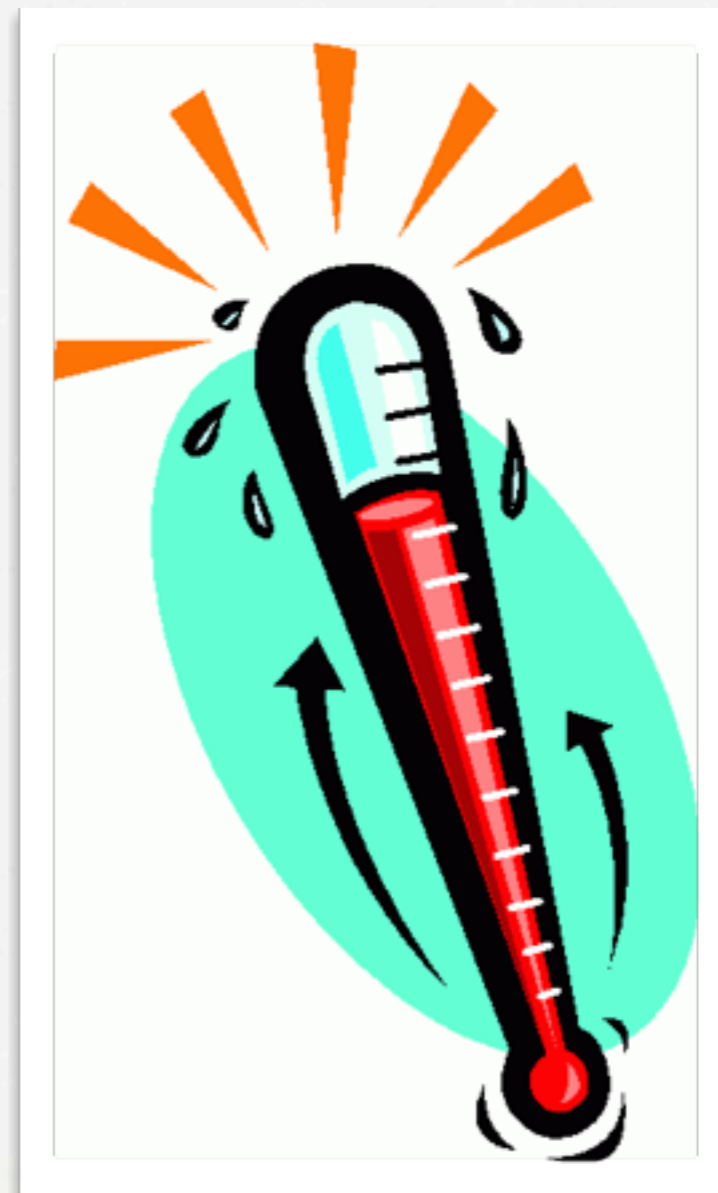
MECHANICAL WEATHERING

- ✿ The physical breakdown or disintegration of rocks.
- ✿ When gravity causes a rock to fall down a cliff and break apart, it is because of mechanical weathering.



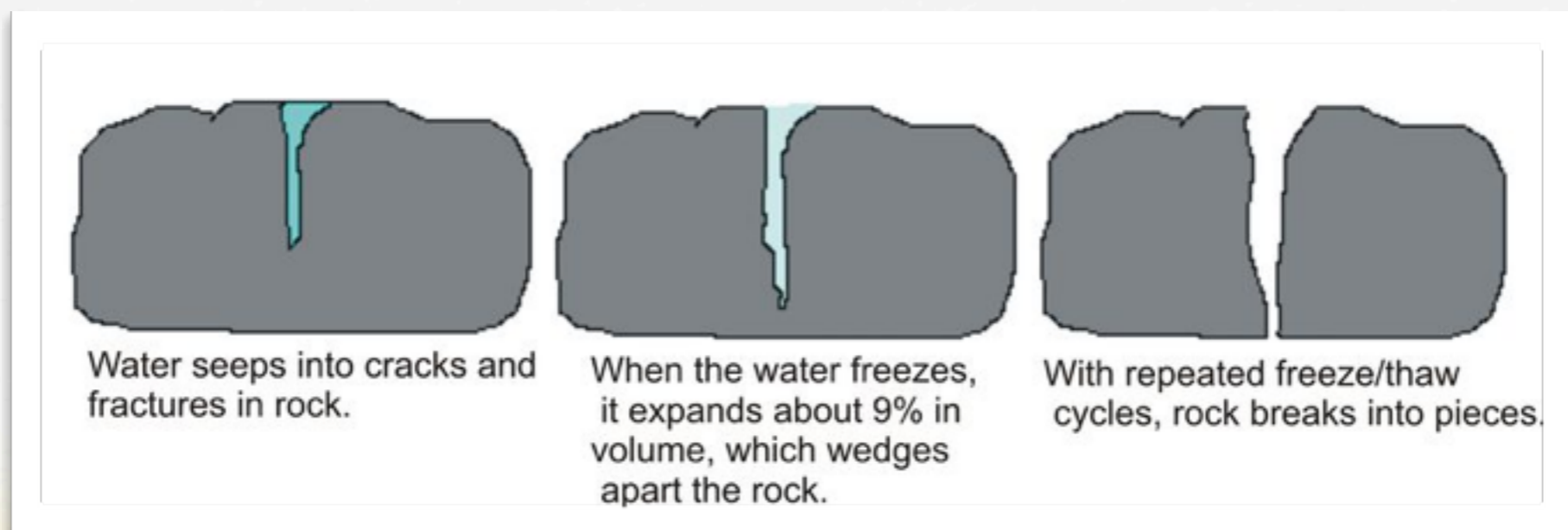
MECHANICAL WEATHERING

- ✿ When the days start to get warm, and temperatures at night begin to drop below freezing, rocks can start to break down. This is known as the **freeze-thaw period** and it can last for days.



MECHANICAL WEATHERING

- ✿ Water seeps into cracks in rock. When the temperature drops at night, the water turns to ice and pushes the cracks apart even further.
- ✿ This process is called **frost wedging** because the ice forms a wedge that pushes the rock apart.



MECHANICAL WEATHERING

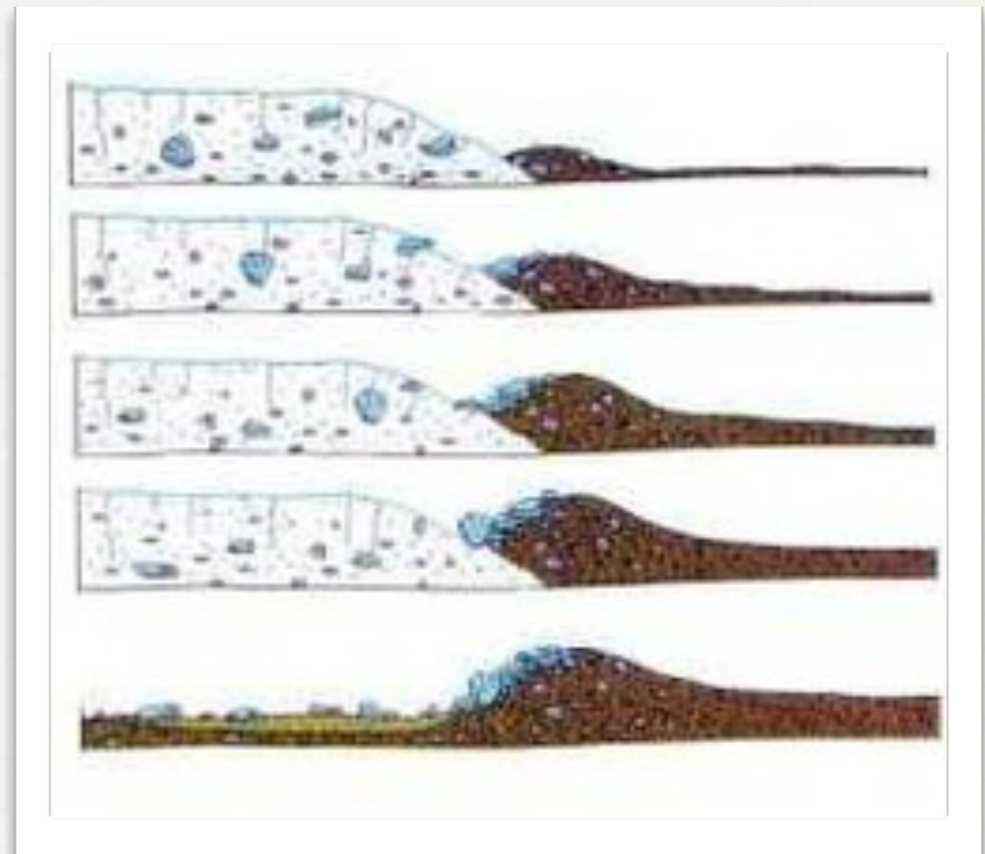
- ✿ Wind and water can wear away the surface of a rock as well. The small pieces of rock that are worn away can be carried to another place where it builds up.
- ✿ The process of the surface of a rock wearing away is called **erosion**.



Hopewell Rocks

MECHANICAL WEATHERING

- ✿ The process of the smaller pieces of rock building up is called **deposition**.
- ✿ In a dust storm, sediment and granules are carried by the wind from one place to another.
- ✿ In a riverbed, the impact of a single raindrop can loosen soil particles.



CHEMICAL WEATHERING

- ❖ **Chemical weathering** involves the breakdown or decomposition of minerals as a result of a chemical reaction with water, with other chemicals dissolved in water, or with gases in the air.
- ❖ These chemical reactions can help speed up the process of erosion.



Limestone Cave

*Made from acidic rain water
and calcium carbonate*

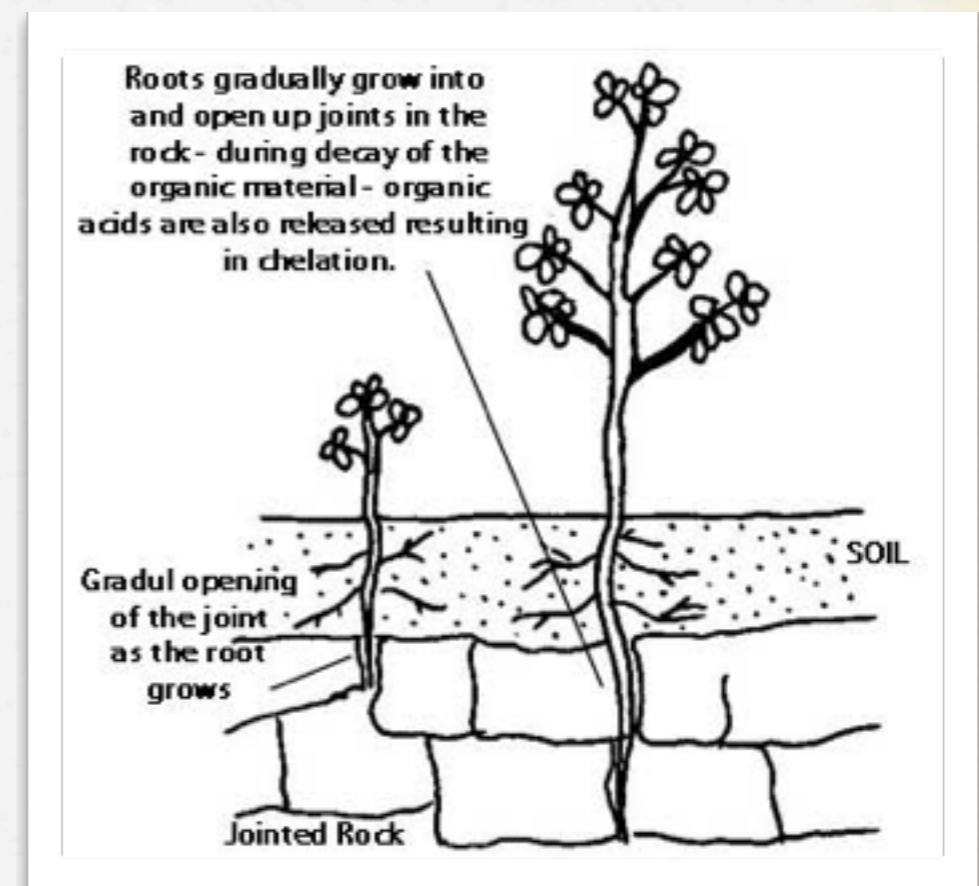
CHEMICAL WEATHERING

- ❁ **Example:** Acid rain contains dissolved chemical from pollution that is in the air. When this acid rain comes into contact with rocks, the chemicals dissolve the rock and the water washes bits of rock away.
- ❁ Acid rain also causes metal to change colour.



BIOLOGICAL WEATHERING

- ❁ **Biological weathering** is the physical or chemical breakdown of rock caused by living organisms.
- ❁ The organisms can be plants, animals, bacteria or even fungi.



BIOLOGICAL WEATHERING

- ❁ **Example:** A plant growing next to a rock can grow into the cracks of a rock just like ice forms from water seeping into the rock. As the roots of the plant expand, the crack is pushed further apart until the rock breaks.



BIOLOGICAL WEATHERING

- ❁ Not only does the plant root push the cracks further apart, the roots also produce acidic fluids that cause the rock to dissolve. As the rock dissolves, sediment is carried away by wind and water. Eventually the rock dissolves so much that it breaks apart.

