

Name: _____

Weathering and Erosion Guided Notes

Weathering is the breakdown of _____

Physical Weathering

- Process by which rocks are broken down into smaller pieces by external conditions.
- Types of Physical weathering:
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.

Frost Wedging: form of _____ that involves the repeated freezing and thawing of water in areas with extremely cold weather.

When water freezes, it expands. If you have ever used ice cube trays, you may have noticed this.

Frost Heaving: upthrust of ground or pavement caused by the freezing of moist soil.

Water freezes first under rock fragments and boulders in the soil; the repeated freezing and thawing of ice gradually pushes the rocks to the surface.

Plant Roots: occurs when _____ and cause the rock to break. (just like the roots that crack the sidewalk)

Friction and Impact: Rocks are also broken up by friction and repeated impact with other rock fragments during transportation.

For example, a rock fragment carried along in a river's current continuously bounces against other fragments and the river bottom and eventually is broken into smaller pieces. This process occurs also during transportation by wind and glacial ice.

Burrowing of Animals: By digging for food or creating a hole to live, in the animal may break apart rock.

Temperature: Daily temperature changes, especially in those regions where temperatures can vary by 30 degrees celsius, result in the _____ of minerals, which weaken rocks. Extreme temperature changes, such as those produced by _____, can force rocks to shatter.

Chemical Weathering

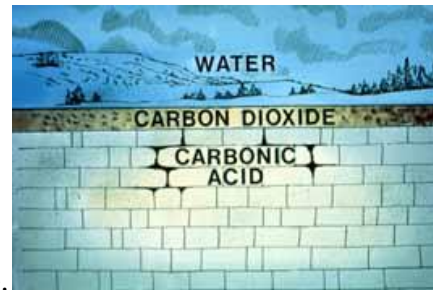
- The process that breaks down rock through chemical changes.
- The agents of chemical weathering:
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.

Water: Water weathers rocks by dissolving it.

Oxygen: _____ combines with _____ in the presence of water in a process called _____.

The product of _____.

Carbon Dioxide: CO_2 _____ in rainwater and creates carbonic acid.



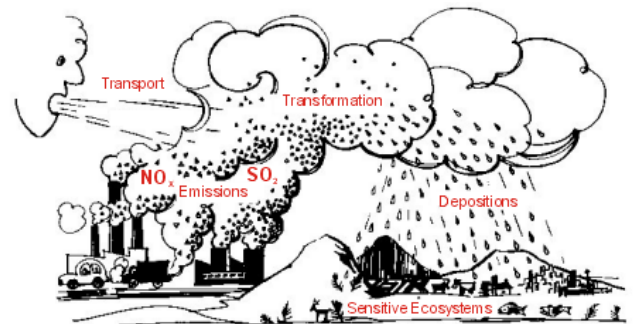
Carbonic acid easily weathers limestone and marble.

Living Organisms: Lichens that grow on rocks produce _____ that weather rock.

(Wait, what are Lichens? Lichens are a simple slow-growing plant that typically forms a low crustlike, leaflike, or branching growth on rocks, walls, and trees.)

Acid Rain: Compounds from burning coal, and gas react chemically with oil water forming acids.

Acid rain causes _____ chemical weathering



Karst Topography

- A type of _____ in rainy regions where there is limestone near the surface, characterized by caves, sinkholes, and disappearing streams.
- Created by _____.

Features of Karst Topography:

Sinkholes: Sinkholes are cavities in the ground that form when water erodes an underlying rock layer.

Two types of sinkholes exist. One forms when the roof of a cave collapses and exposes the underground cavern. The second type forms when water dissolves the rock underneath soil and creates an underground chasm.

Caves: Caves are formed by the dissolution of limestone.

Rainwater picks up carbon dioxide from the air and as it percolates through the soil, which turns into a weak acid. This slowly dissolves out the limestone along the joints, bedding planes and fractures, some of which become enlarged enough to form caves!

Disappearing Streams: In karst areas, streams often disappear into the ground usually at a sinkhole.

Erosion

Erosion is _____

Water Erosion: is caused by rains or rivers pushing dirt away from one place and moving it somewhere new. This changes the shape of rivers and makes deltas.

_____ and _____.

Ice Erosion: process of large chunks of ice, known as _____, erode an area over a long period of time with the help of gravity.

Wind Erosion: Wind erosion is a process where soil, rocks, or minerals are worn away by the wind.

It is strongest in areas with sparse vegetation, like the desert.

Wind erosion shapes and forms land masses around the world and on other planets in the galaxy.



As you can see from the picture above, wind erosion is powerful enough to carve through stone! Small sediment particles picked up by the wind will strike anything in their path. In this case, this rock was eroded with sand. The wind picks up sand and carries it forward. The sand can smooth down a stone by slowly grinding at its surface. This is like using sandpaper to make wood smoother.

Last but not least...

Mass Movements: Mass Movement is any one of several processes that move sediment downhill. The different types of mass movement include landslides, mudflows, slump, and creep.

Gravity is the number one cause of mass movement.

Mass movements can vary from being rapid or super slow it all depends on the type.