

Surface Processes

The earth's surface is constantly changing. Rocks are constantly being _____ and moved from one location to another. Weathering and erosion are the ways that rock is broken down and _____.

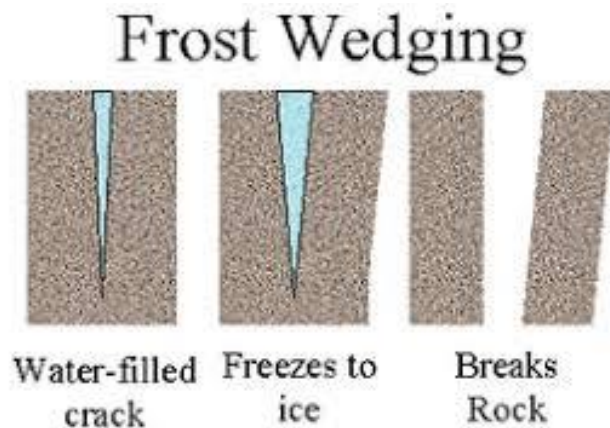
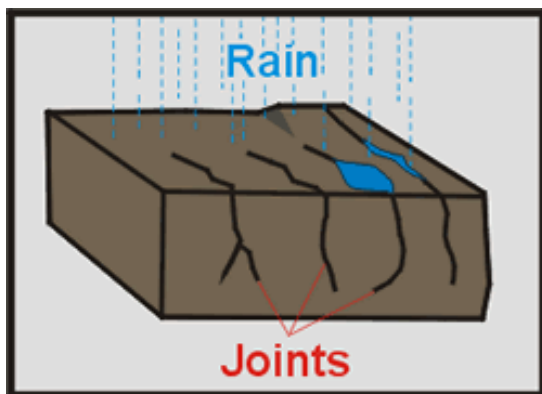
Weathering

Weathering is how rocks on the Earth's surface _____. There are three different types of weathering: biological, physical/ mechanical, and chemical.

Mechanical Weathering

Mechanical weathering is the process of breaking down rocks into smaller and smaller pieces. This can be done by _____, ice, and wind.

One example is frost wedging. _____ enters small holes or joints in the rock and when the temperature lowers it freezes. As water freezes it expands, causing the rock to crack. Later the water _____ again which allows to travel farther into the rock. When it freezes again it forces the rock to crack more, until eventually the rock _____.



In your own words, explain how a pothole would form in the road.



Where in the world are you likely to find potholes, and where are they unlikely? Why?

Chemical Weathering

Chemical weathering is the breakdown of rocks because their _____ composition has changed. Rocks will react with water, oxygen, carbon dioxide, and acid to dissolve minerals form new _____.

The _____ composition of a rock will determine the effects that the chemical weathering will have on it. Some rocks are made of minerals that will break down, while others will not.

For example, limestone and _____ are mostly made of a mineral called calcite. This mineral can completely _____ in acidic water. Thus, buildings and monuments made of limestone or marble will show signs of chemical weathering if they come into contact with an acid (like _____).



Biological Weathering

Living things can also break down rocks. In the same way that water can enter the rocks through small holes or joints, so can _____. When these roots grow, they exert _____ on the rock around them, causing the gaps to widen or even crack.



_____ can also contribute to weathering. Especially burrowing animals such as badgers and moles that can break up the rock underground or bring it to the surface, where it is _____ to other weathering forces. Some animals directly burrow _____ the rock, breaking it up.

As animals, humans also contribute to biological weathering. What are 3 different ways humans are contributing to biological weathering?

1. _____
2. _____
3. _____

Erosion

Erosion is the process of _____ rocks from one location and _____ them at another location.

Erosion includes _____ (the breakdown of rocks) as well as the movement of those weathered rocks.

There are three major processes by which rocks are eroded: water, wind, and glaciers.

Rates of Weathering

There are four major factors that affect the rate at which rocks weather:

- Climate
- Rock type and composition
- Surface area
- Topography

Read the textbook pages 168-170, which describe the different factors that affect weathering, and answer the following questions.

1. Where is chemical weathering most common and why?

2. Where is physical weathering most common, and why?

3. Many statues are built of marble for the rock's beauty and ability to be carved. If the statue was designed for a park in Vancouver, would this be a good idea, and why?

4. What rock would be better?

5. Why would North Vancouver (mountainous) have more erosion than Richmond (flat)?

Question 6 back side →

6. The paddock clam creates these small holes in the rock. How does this increase the rate of weathering?