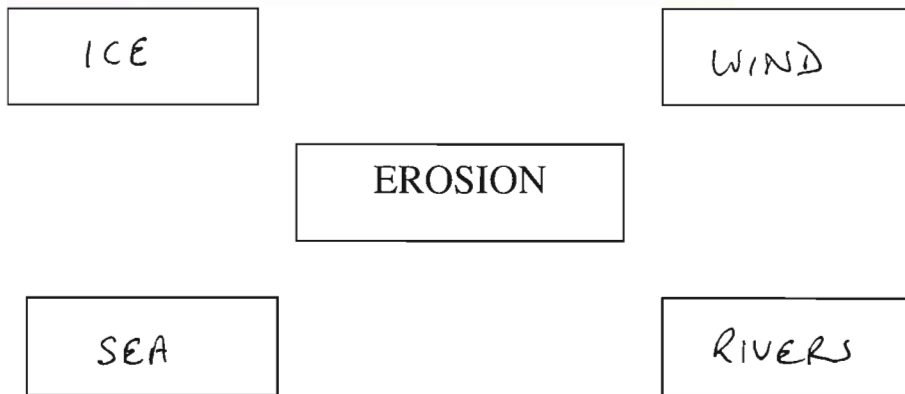


Weathering and Erosion

Erosion is done by forces which move and carry the eroded material away.



Weathering is the breaking down of rocks by the weather

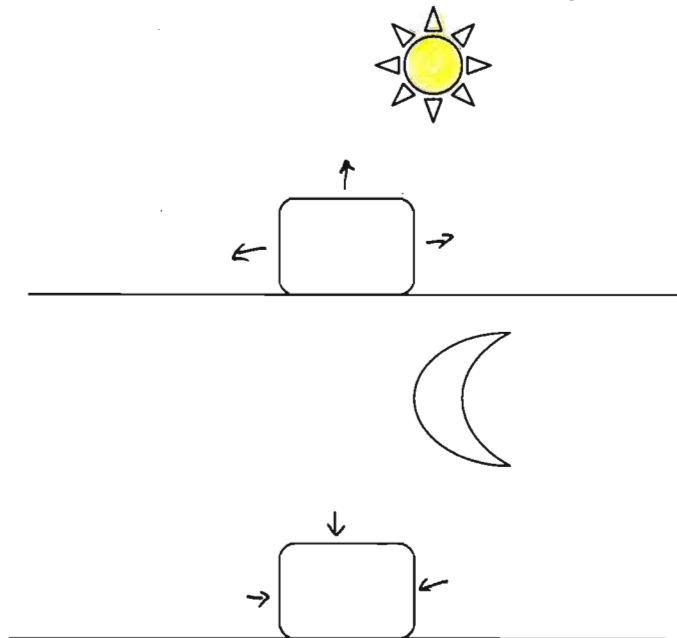
1. Physical/ Mechanical Weathering

(a) Exfoliation/Onion Weathering

Rocks are not good conductors of heat.

When the sun shines on a rock, the outside of the rock heats up and tries to expand. The inside of the rock remains cool.

This causes stress in the rock and eventually the outer layers flake off.

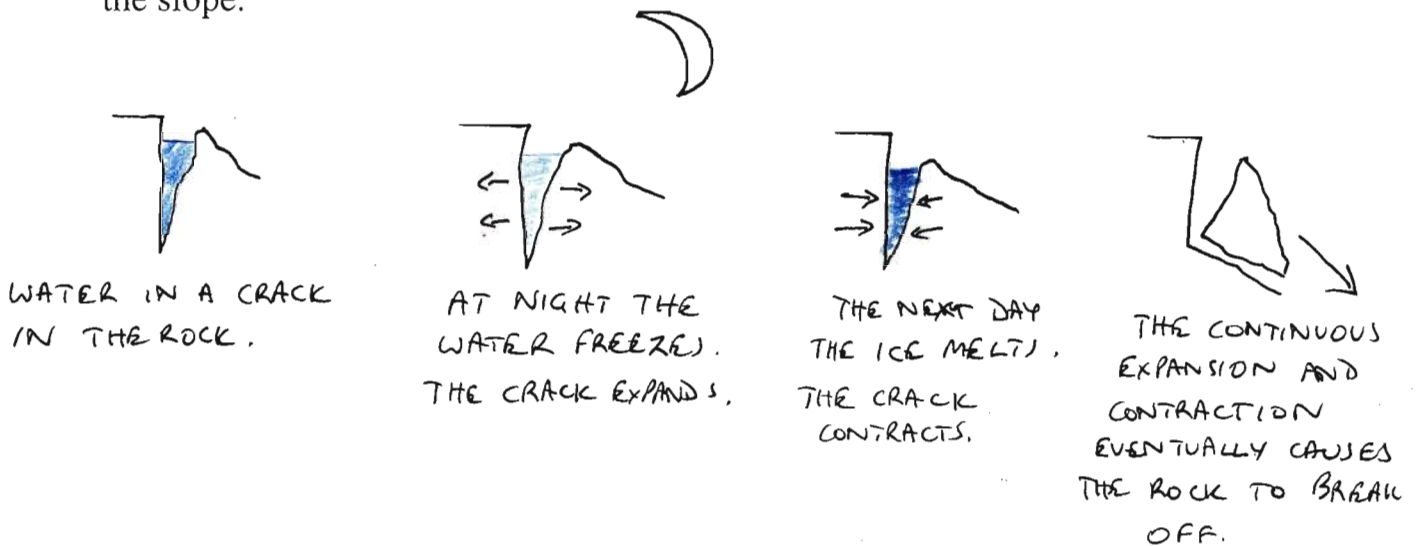


This type of weathering will happen more in hot countries because the outside of the rock will be heated more than it would be in cooler countries.
It will also happen more to darker-coloured rocks because they will absorb more heat.

(b) Frost-Shattering/Freeze-Thaw Action

Water in cracks in the rocks freezes and expands.
As the temperature rises the next day the ice melts.

This continuous expansion and contraction of the crack eventually forces the rock apart. The rock falls off and forms scree at the bottom of the slope.



This type of weathering will occur more in colder countries where the temperature is constantly going above and below zero.
It will also happen more to rocks that have a lot of joints and cracks.

(b) Albedo

This means the ability of different colours to absorb light. Dark colours absorb; light colours reflect.

Rocks which are made up of differently coloured crystals experience internal pressure as the sun is absorbed by the darker coloured parts which try to expand.

A type of rock affected by this would be granite because it has a lot of black bits in it.

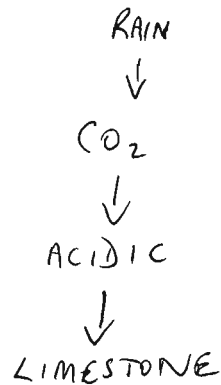
This type of weathering is more likely in hot countries.

2. Chemical Weathering

As rain falls through the atmosphere, carbon dioxide dissolves into the water making it slightly acidic.

As this rain falls onto limestone (calcium carbonate) it turns it into calcium bicarbonate which can dissolve in water.

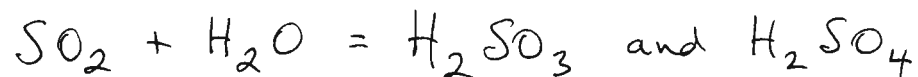
In this way the limestone is weathered away.



Chemical weathering takes place more quickly in areas, such as tropical rain forests which have lots of rainfall and which are hot. This is because the heat increases the speed of the chemical reaction.

Man affects chemical weathering by:

(1) burning coal in power stations which releases sulphur dioxide. This can make the rain into a weak acid.

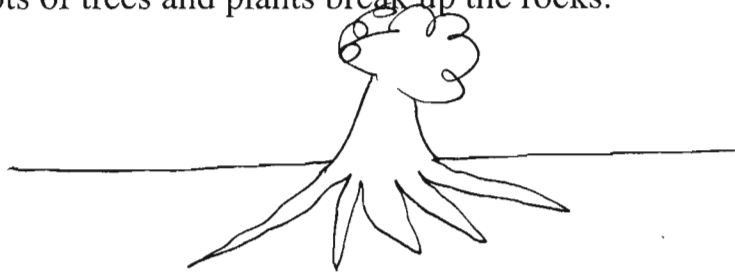


(2) The exhausts of car engines releasing nitrogen oxides. This particularly affects towns and cities.

3. Biological Weathering
This is done by living things.

(a) Roots

The roots of trees and plants break up the rocks.



(b) Burrowing Creatures

Rabbits, worms, ants etc. make the cracks in rocks bigger.

(c) Lichens

These are found on the damp side of buildings, gravestones etc. As they die, organic acids are formed which weather the rock.

4. Rock Types

Rocks with cracks and joints are more likely to be affected by frost-shattering and by roots and burrowing animals creatures than rocks without joints.

Darker-coloured rocks will absorb more heat than lighter coloured rocks.

Limestone is the rock type most affected by chemical weathering.