GEOLOGICAL PROCESSES

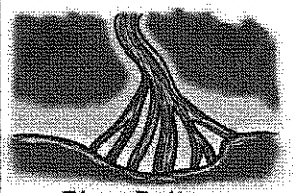
AND HOW THEY SHAPE OUR EARTH

There are many different types of geological processes; some slow, and some fast. They are constantly at work changing the face of our Earth, both destroying land, and creating new land.

EROSION

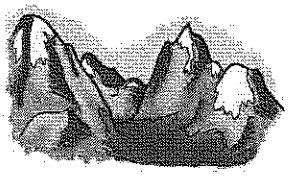
Erosion is the process of materials moving from their source to another location through weathering. There are several types of erosion, but the most common are erosion by wind, water, and ice.

EXAMPLES



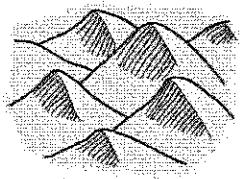
River Deltas: Water Erosion

Rivers carry sediment from farther upstream, and it is deposited at the ocean.



Glacial Valleys: Ice Erosion

Glaciers move materials from the mountains downslope as they move.



Sand Dunes: Wind Erosion

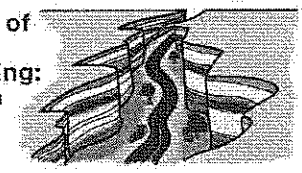
Wind moves the sand to new locations, building new dunes.

WEATHERING

Weathering is the breaking down of rock, soil, and minerals. The main types are physical (including freezing, abrasion, and thermal stress) and chemical (including dissolution, oxidation, and carbonation)

EXAMPLES

Example of Physical Weathering: Abrasion



Abrasion weathering can be caused by wind or water carrying particulate matter, and as it passes rocks or other materials, the material is worn down.

Example of Chemical Weathering: Oxidation

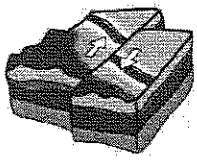
Oxidation is caused by the reaction of materials with oxygen. The most popular example of this is rust, which is oxidized iron. This can be seen in iron-rich rocks.

PLATE TECTONICS

Plate tectonics states that the Earth's crust is broken up into different "plates" that slowly move and interact with each other. Where these plates meet are often very geologically active. There are three types of plate boundaries.

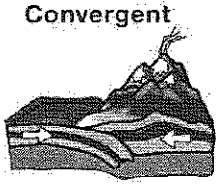
EXAMPLES

Transform



Transform boundaries occur where two plates slide along each other. Powerful earthquakes are common along transform boundaries.

Convergent



Convergent boundaries can result in either subduction (shown above, volcanos are commonly found here) or collision (resulting in uplift).

Divergent

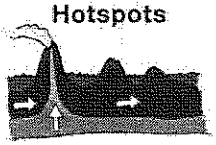
Divergent boundaries are the only constructive boundaries (resulting in newly created land). They occur where plates pull apart.

VOLCANISM

Volcanism refers to the phenomenon of magma from the Earth's mantle coming to the surface through openings. Volcanos are most common along Divergent and Subductive plate boundaries, and hotspots.

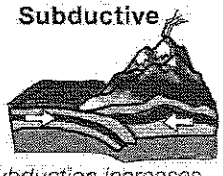
EXAMPLES

Hotspots



Hotspot are places where magma comes up through the crust, and as the crust moves from continental drift, a string of volcanos or islands are formed.

Subductive



Subduction increases volcanism due to the crust being pushed into the mantle. Often the material will rise to the surface as a volcano.

Divergent

Divergent zones will often have magma coming to the surface due to the gap created by the plates pulling apart from each other.