



# The Rock Cycle



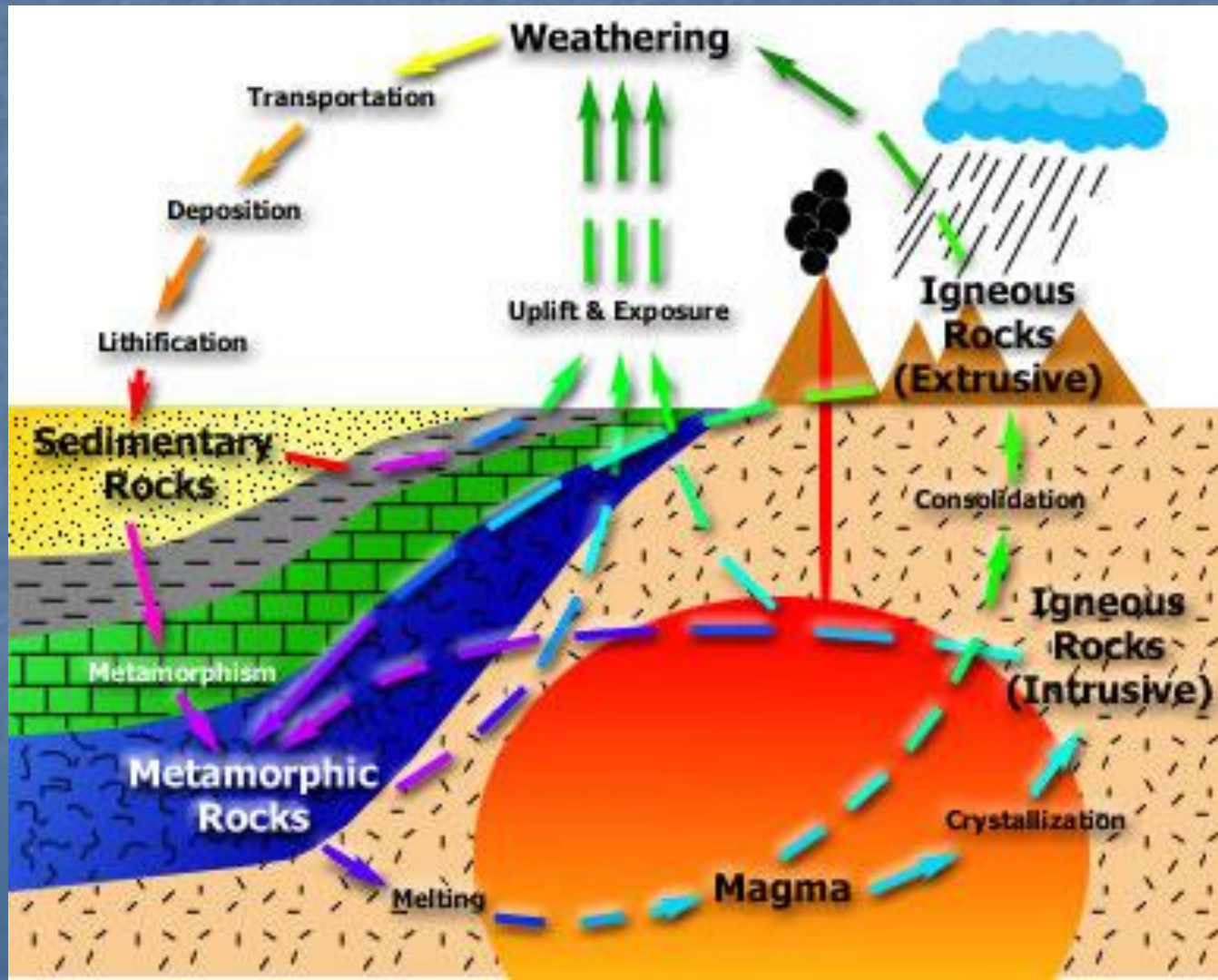
# What are Rocks???

- **Rocks** are the most common material on Earth. They are a naturally occurring collection of one or more minerals.



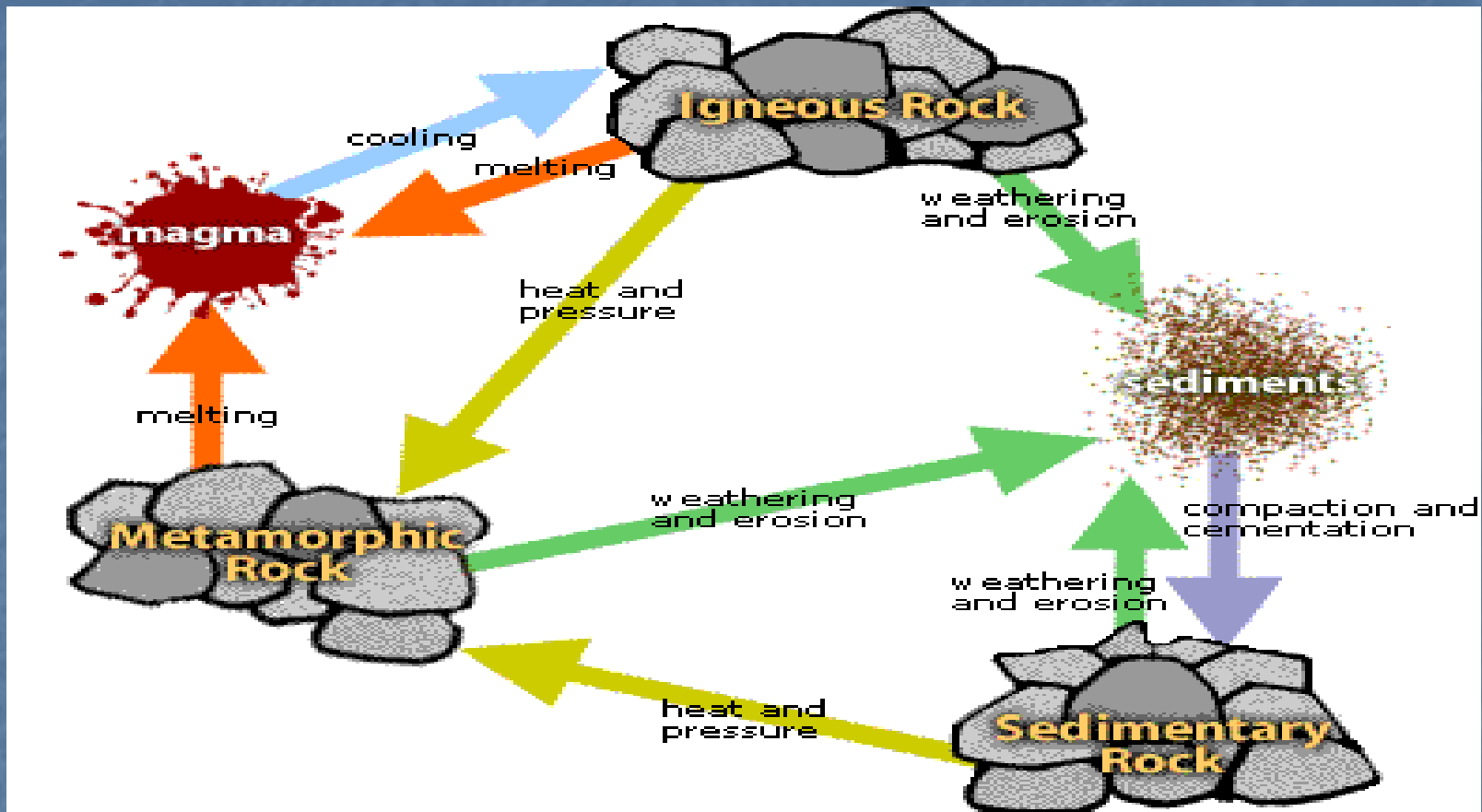
# The Rock Cycle...

a cycle that continuously forms and changes rocks



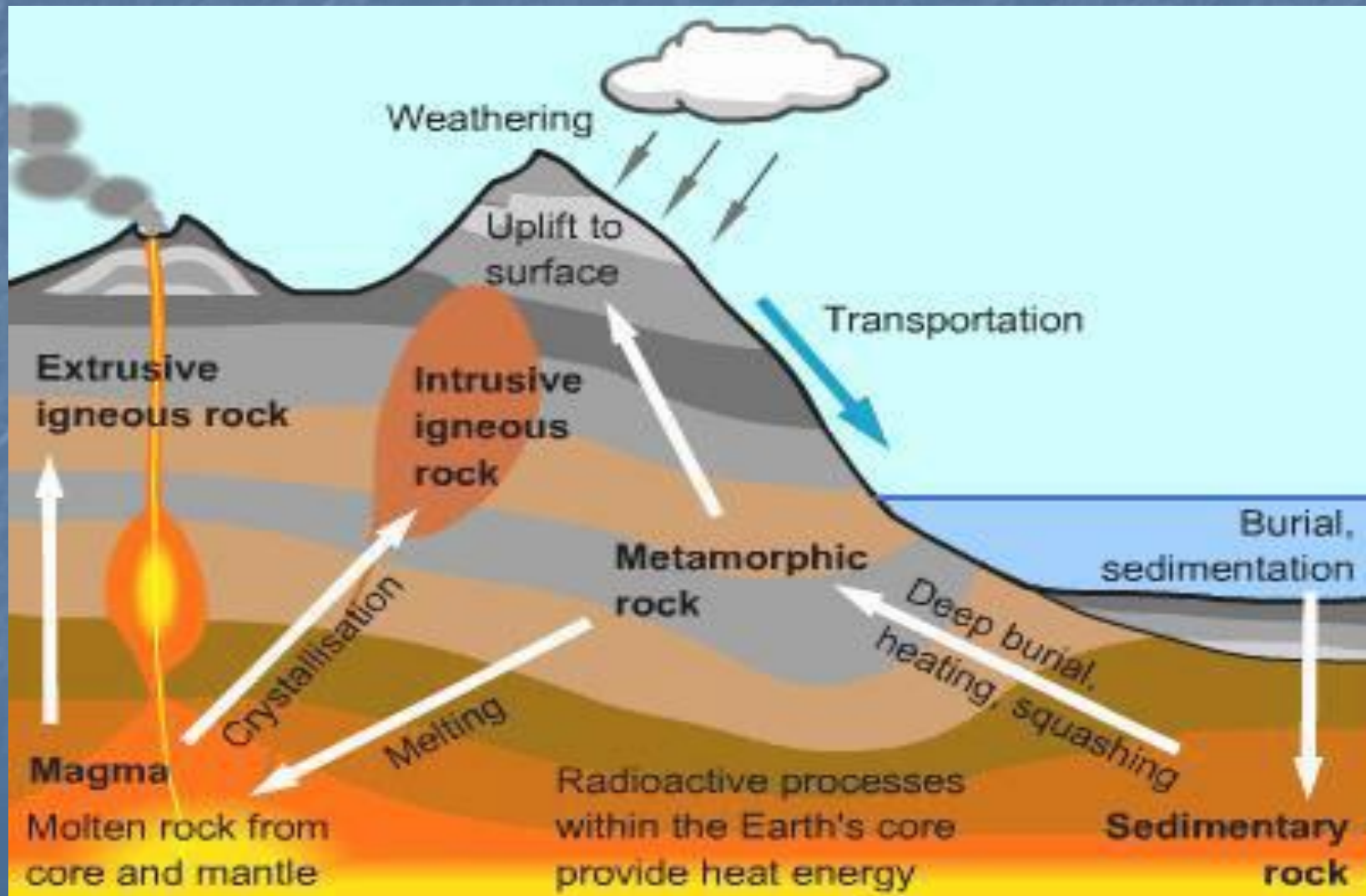


The **rock cycle** is used to explain how the **three** rock types change to each other.



- Earth movement can change a rock from one type to another through time

# Convection is the driving force of the rock cycle !



Rock divisions occur in *three* major families based on how they formed: igneous, sedimentary, and metamorphic.

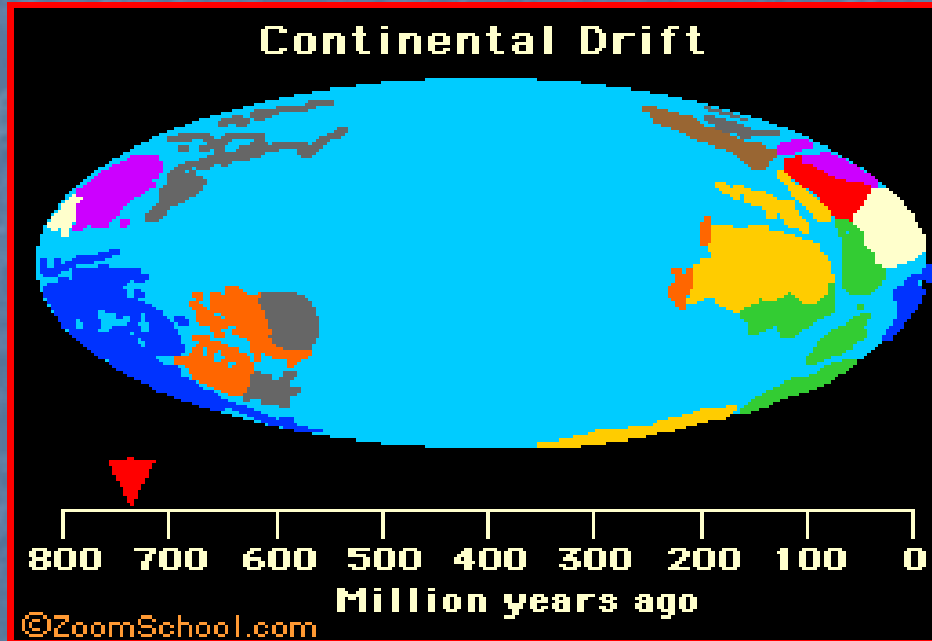
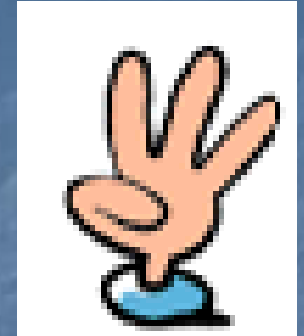


Plate tectonic movement is responsible for the recycling of rock materials. As the earth's plates slowly move, the rocks that make up the plates are continuously recycled and change from one form to another

# 3 Types of Rocks

How are they formed???



## 3 Rock Types

**Sedimentary**

Weathering and Erosion

**Metamorphic**

Heat, Pressure,  
Chemical Activity

**Igneous**

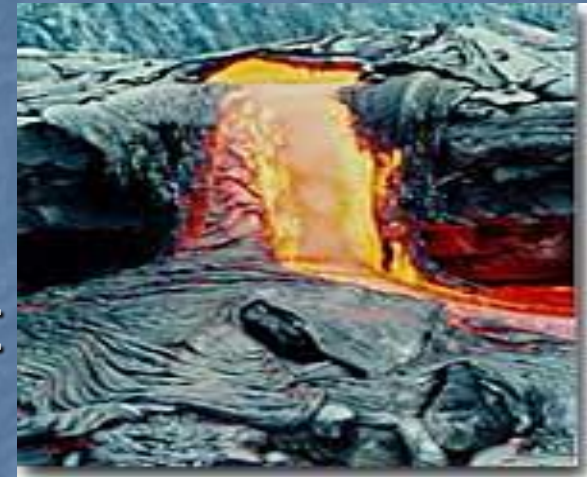
Melting,  
Cooling,  
and  
Solidification



# IGNEOUS ROCKS



- Igneous rocks form when molten rock cools and becomes solid.



- Molten rock is called magma when it is below the Earth's surface. It cools and hardens to form INTRUSIVE igneous rocks.
- It is lava when it is above and then cools and hardens to form EXTRUSIVE igneous rock.



# Types of Igneous Rocks



**Granite** rocks are igneous rocks which were formed by slowly cooling pockets of magma that were trapped beneath the earth's surface. Granite is used for long lasting monuments and for trim and decoration on buildings.



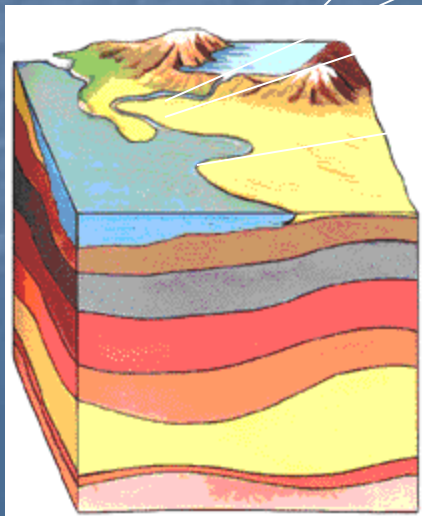
**Pumice** rocks are igneous rocks which were formed when lava cooled quickly above ground. You can see where little pockets of air had been. This rock is so light, that many pumice rocks will actually float in water. Pumice is actually a kind of glass and not a mixture of minerals. Because this rock is so light, it is used quite often as a decorative landscape stone.



**Obsidian** rocks are igneous rocks that form when lava cools quickly above ground. Obsidian is actually glass and not a mixture of minerals. The edges of this rock are very sharp.

# SEDIMENTARY ROCKS

The forces of wind, rain, snow, and ice combine to break down or dissolve (weather), and carry away (transport) rocks exposed at the surface.



Rain washes rock away

Little bits of Earth

Wash downstream

Layer after layer

Eroded Earth is pressed on top

**Any rock (igneous, sedimentary, or metamorphic) exposed at the Earth's surface can become a sedimentary rock**

# Types of Sedimentary Rocks



**Sandstone** rocks are sedimentary rocks made from small grains of the minerals quartz and feldspar. They often form in layers as seen in this picture. They are often used as building stones.



**Shale** rock is a type of sedimentary rock formed from clay that is compacted together by pressure. They are used to make bricks and other material that is fired in a kiln.

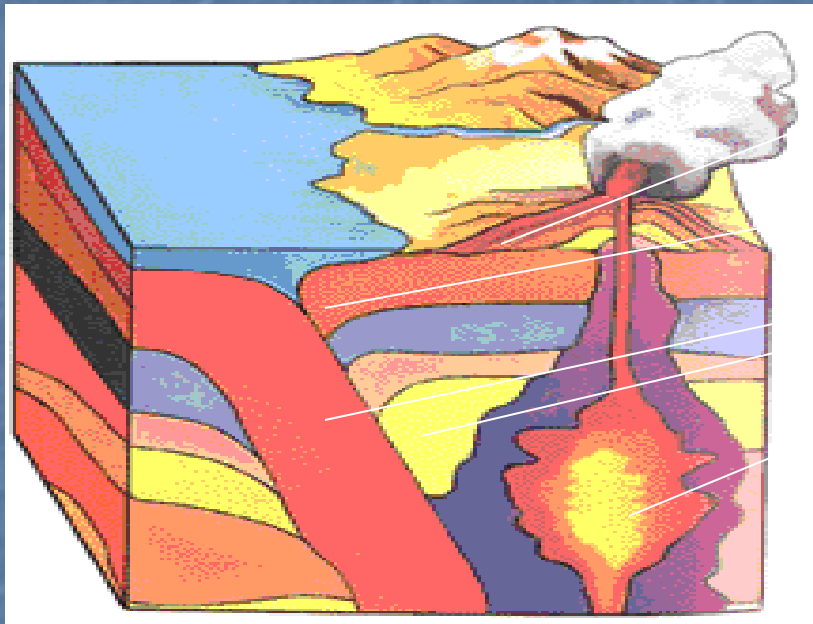


**Limestone** rocks are sedimentary rocks that are made from the mineral calcite which came from the beds of evaporated seas and lakes and from sea animal shells. This rock is used in concrete and is an excellent building stone for humid regions.



# METAMORPHIC ROCKS

The term "metamorphic" means "to change form."



Sediment sinks

Pressure and Heat

Sediment turns into Metamorphic rock

magma



Have you heard that caterpillars can metamorphose into butterflies? Well, rocks can metamorphose too!



Rocks metamorphose when they are in a place that is very hot and pressure is high

# Types of Metamorphic Rocks



**Schist** rocks are metamorphic. These rocks can be formed from basalt, an igneous rock; shale, a sedimentary rock; or slate, a metamorphic rock. Through tremendous heat and pressure, these rocks were transformed into this new kind of rock.



**Gneiss** rocks are metamorphic. These rocks may have been granite, which is an igneous rock, but heat and pressure changed it. You can see how the mineral grains in the rock were flattened through tremendous heat and pressure and are arranged in alternating patterns.

All rock (except for meteorites!) that is on Earth today is made of the same stuff as the rocks that dinosaurs and other ancient life forms walked, crawled or swam over.



While the stuff that rocks are made from stays the same, the rocks do not.

Over millions of years, rocks are recycled into other rocks. Moving tectonic plates help to destroy and form many types of rocks.





# Websites

- <http://www.minsocam.org/MSA/K12/rkcycle/rkcycleindex.html>
- <http://www.bbc.co.uk/education/rocks/rockcycle.shtml>
- <http://www.fi.edu/fellows/fellow1/oct98/create/sediment.htm>
- [http://www.windows.ucar.edu/cgi-bin/tour\\_def/earth/geology/rocks\\_intro.html](http://www.windows.ucar.edu/cgi-bin/tour_def/earth/geology/rocks_intro.html)
- <http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Continents.shtml>