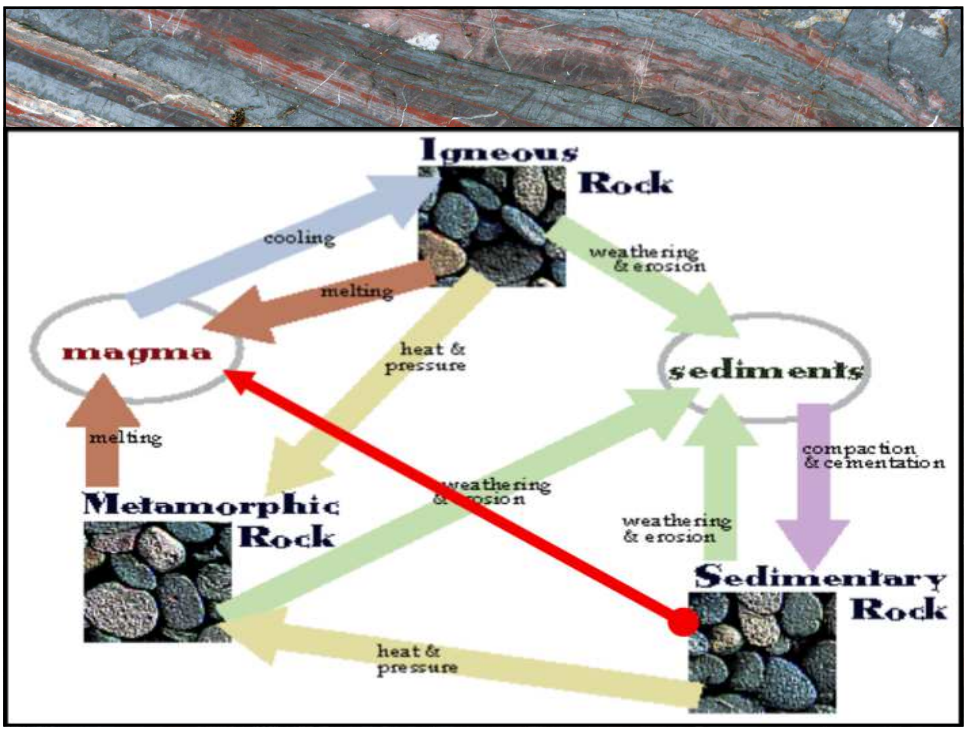
Rock- is a naturally formed solid that is usually made up of one or more types of minerals.

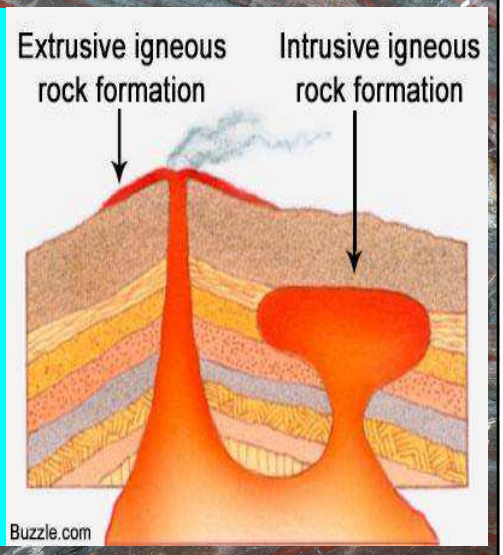
Three types of rocks:
1. Igneous
2. Sedimentary
3. Metamorphic



IGNEOUS ROCK (Latin)
"From Fire"

<u>Igneous rocks:</u> forms when molten rock cools and becomes solid. (solidifies)

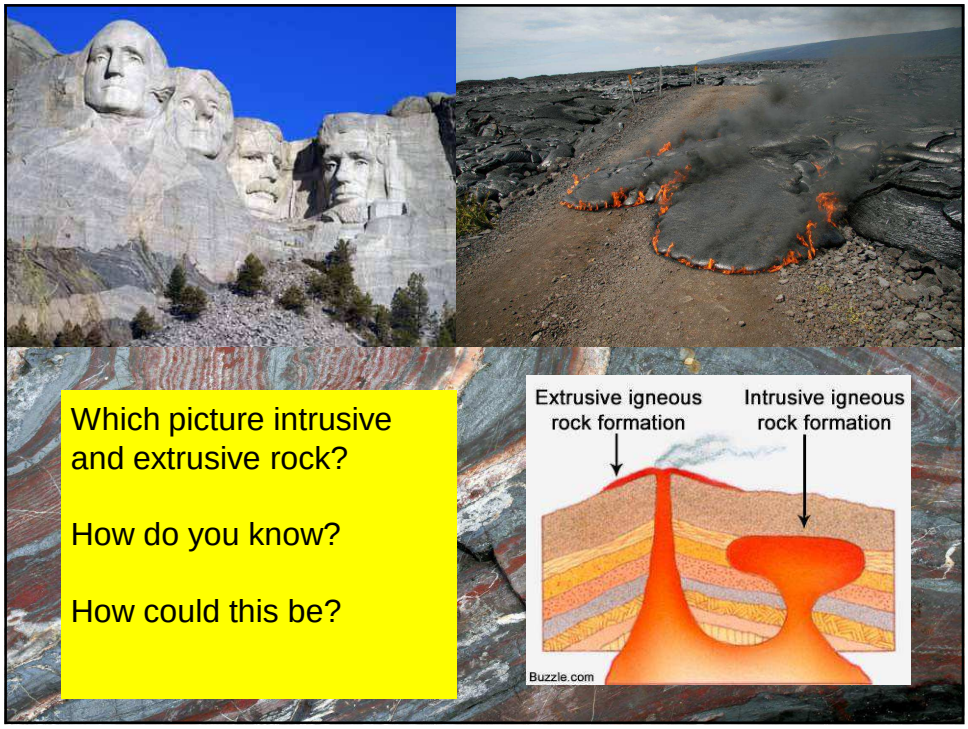
Form from Magma or Lava.



Texture of Igneous rock…

Intrusive Igneous rock
-Forms when magma cools within earth.
-High temp allows magma to cool slowly.
-Slow cooling allows time for LARGE mineral crystals to form.
-Examples: Granite, Diorite, Gabbro

Extrusive Igneous Rock
-Forms when lava cools on earths surface.
-The lower temp cause the lava to cool quick.
-No time for mineral crystals to form.
-Examples: Rhyolite, Pumice, Basalt, Obsidian


Which picture intrusive and extrusive rock?
How do you know?
How could this be?
Extrusive igneous rock formation
Intrusive igneous rock formation
Buzzle.com


Intrusive
Granite
Extrusive
Basalt
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Composition of Igneous Rock

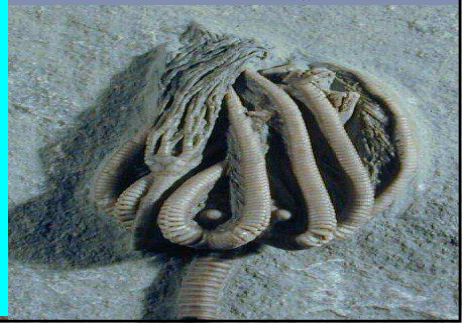
SILICA- a compound of silicon and oxygen. SiO_2

Felsic Magma - Thick magma, high in SILICA.
-Contains very little calcium, iron or magnesium.
-Typically LIGHTER in color and less dense.

Mafic Magma - Thin magma, low in SILICA.
-Contains lots of iron, calcium and magnesium.
-Typically DARKER in color and denser.

Sedimentary Rock- rocks that form when sediments become pressed or cemented together or when sediments precipitate out of solution.

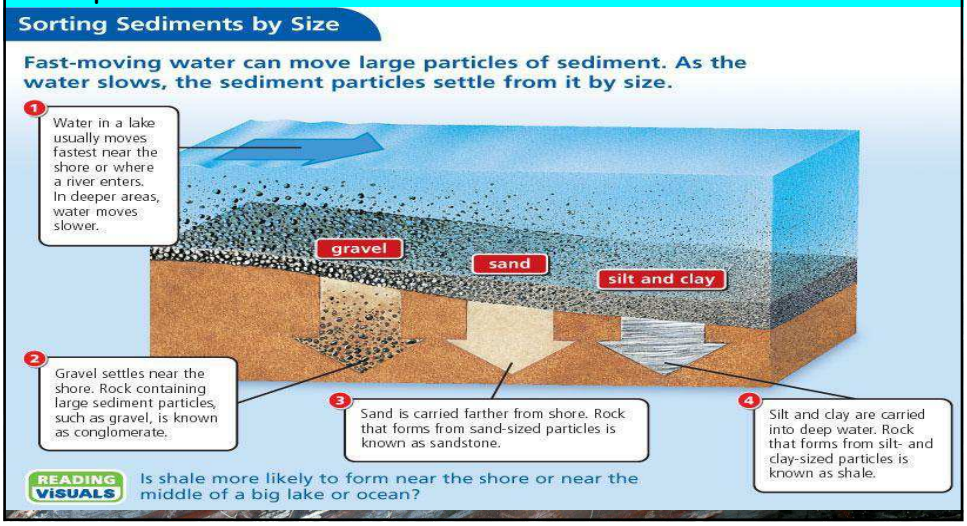
Sediments- Materials that settle out of water or air. These can be loose pieces of rock, minerals, plant and animal remains.



How do they form?

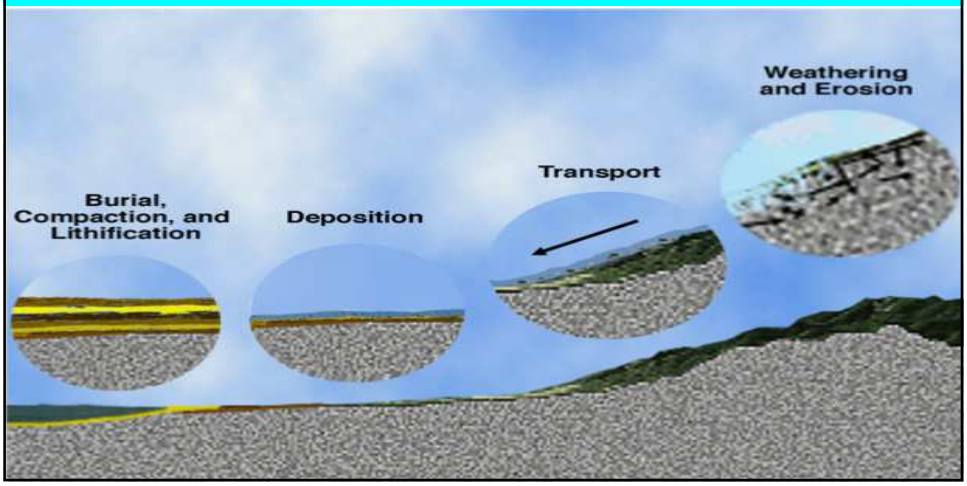
- From rock particles cementing together:
  - Gravel, Sand, Silt/Clay

Examples:



Four common steps in this formation:

1. WEATHERING AND EROSION: Break it apart.
2. TRANSPORTATION: Move it along.
3. DEPOSITION: Stop moving man.
4. COMPACTION AND CEMENTATION: Squeeze and glue it.



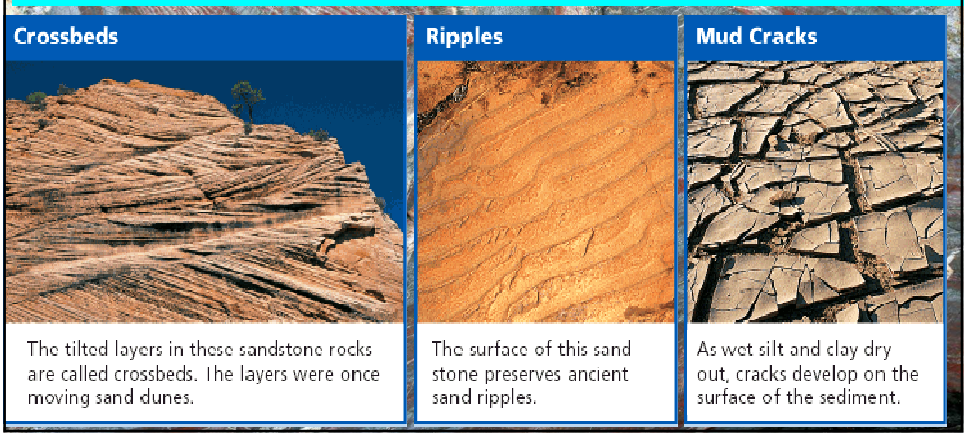
- From plants or shells cementing together:

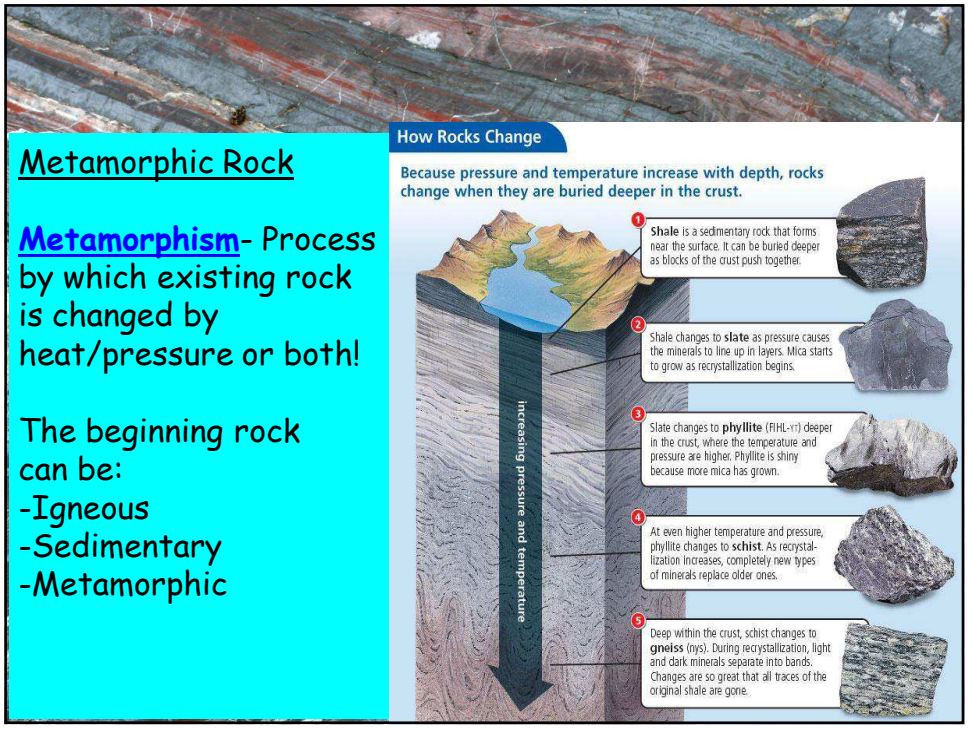
Examples:

-Coal, Limestone. FOSSILS found in these commonly.

Sedimentary rocks show the action of wind and water.
They tell us the story about past environments.

Example: Cross Beds- Wind or water movement.
Ripple Marks- Water movement commonly.
Mud Cracks- Dried up lake bed.

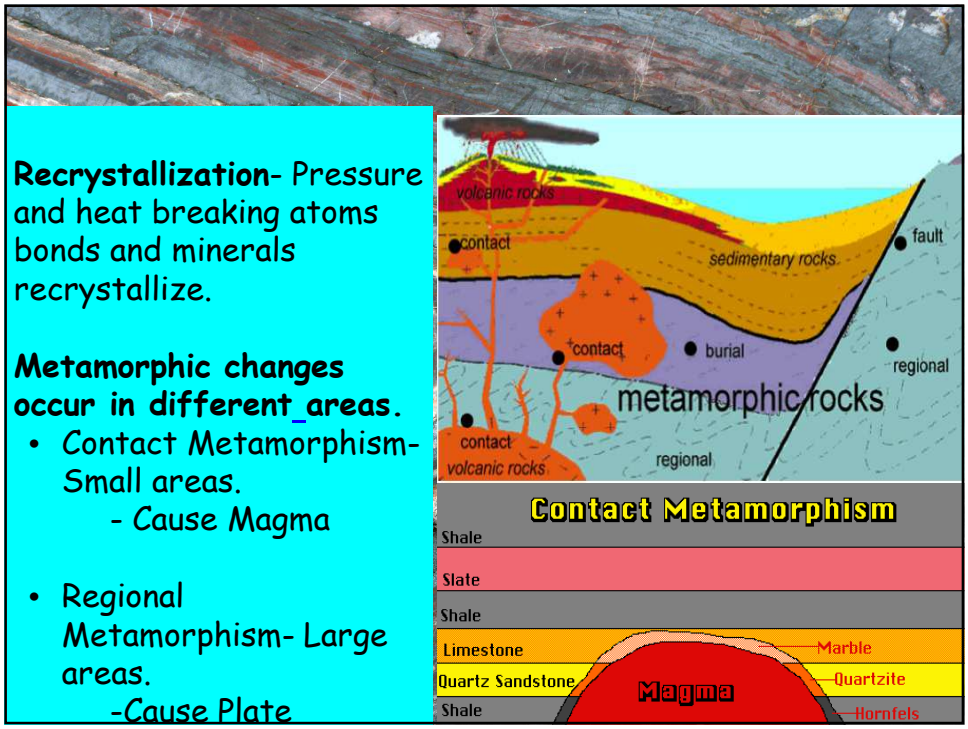




Metamorphic Rock

Metamorphism- Process by which existing rock is changed by heat/pressure or both!

The beginning rock can be:
-Igneous
-Sedimentary
-Metamorphic



Recrystallization- Pressure and heat breaking atoms bonds and minerals recrystallize.

Metamorphic changes occur in different areas.

- Contact Metamorphism- Small areas.
  - Cause Magma
- Regional Metamorphism- Large areas.
  - -Cause Plate

Metamorphic Rocks develop bands of minerals.
Foliation- arrangement of minerals in flat or wavy bands.

Foliated Rocks: when mineral grains line-up in parallel bands it is said that it has a "foliated texture".

Examples:
slate, phyllite, schist and gneiss

Non-Foliated Metamorphic Rocks: a metamorphic rock where no banding occurred. The grains change, grow, and rearrange but don't form bands.

Examples: quartzite, marble

(Sandstone = quartzite)
(Limestone = marble)