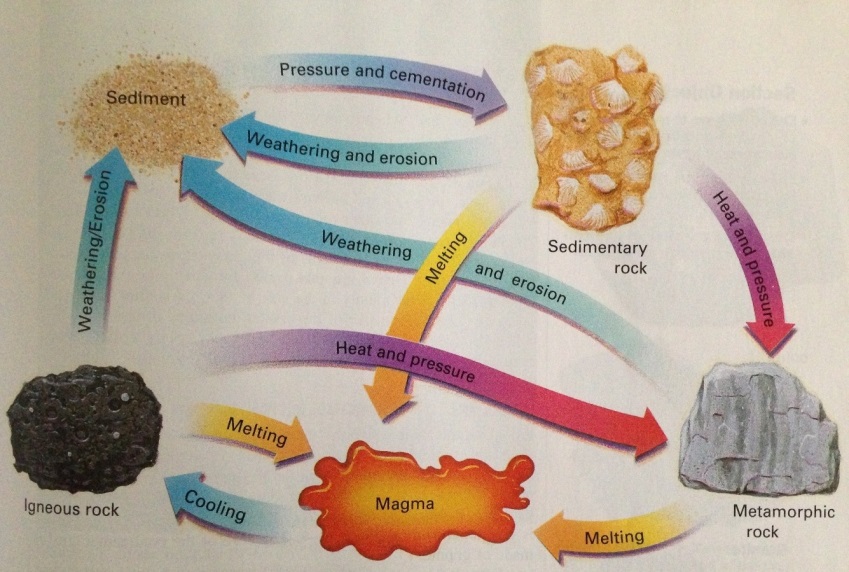
**Rocks**

* Magma – hot, molten rock from the Earth’s interior is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for all rocks.
* Three Major Types of Rock
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Sedimentary Rock
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Rock Cycle**

* Any of the 3 major types of rock can be changed into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Various geological forces and processes cause the rock to change from one major type to another and back again.



**Igneous Rocks**

* Formed when magma cools and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rock on Earth
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Plutonic) – Igneous rocks that are formed below the Earth’s surface
  + Slow rate of cooling, which results in the formation of large crystals (coarse-grained)
* Extrusive (Volcanic) – Igneous rocks that are formed at the Earth’s surface.
  + Rapid cooling – results in formations of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (fine-grained)

**Classifying Igneous Rocks**

* Igneous rocks are classified by texture and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ composition.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – size, shape, and arrangement of interlocking crystals
    - Fine-grained
    - Coarse-grained
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Glassy

**Fine-grained Texture**

* Extrusive Igneous Rock
  + crystals to small to be seen by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eye.
* Vesicles are common in fine-grained igneous rocks.
  + Vesicles are voids that are left by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that are formed as the lava is solidified.

**Coarse-grained Texture**

* Intrusive Igneous Rocks
  + Formed below the Earth’s surface
  + Slow cooling allowing for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ crystals to form
  + Crystals
    - roughly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in size
    - Can be seen by the unaided eye

**Porphyritic Texture**

* When magma that already contains some large crystals suddenly erupts at the surface, the remaining molten portion of the lava would \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Resulting Rock
    - Large crystals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a matrix of smaller crystals

**Glassy Texture**

* Formed during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eruptions, molten rock is ejected into the atmosphere, where it is cooled very quickly.

**Composition of Igneous Rocks**

* Igneous rocks are mainly composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ minerals.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Silicates – are rich in iron and/or magnesium and are relatively low in silica.
  + Olivine, pyroxene, amphibole, and biotite mica are common dark silicates.
* Light Silicates – contain greater amounts of potassium, sodium, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Quartz, muscovite mica, and feldspars (most abundant mineral group)

****

****

**Bowen’s Reaction Series**

