

I. **Rocks** = _____

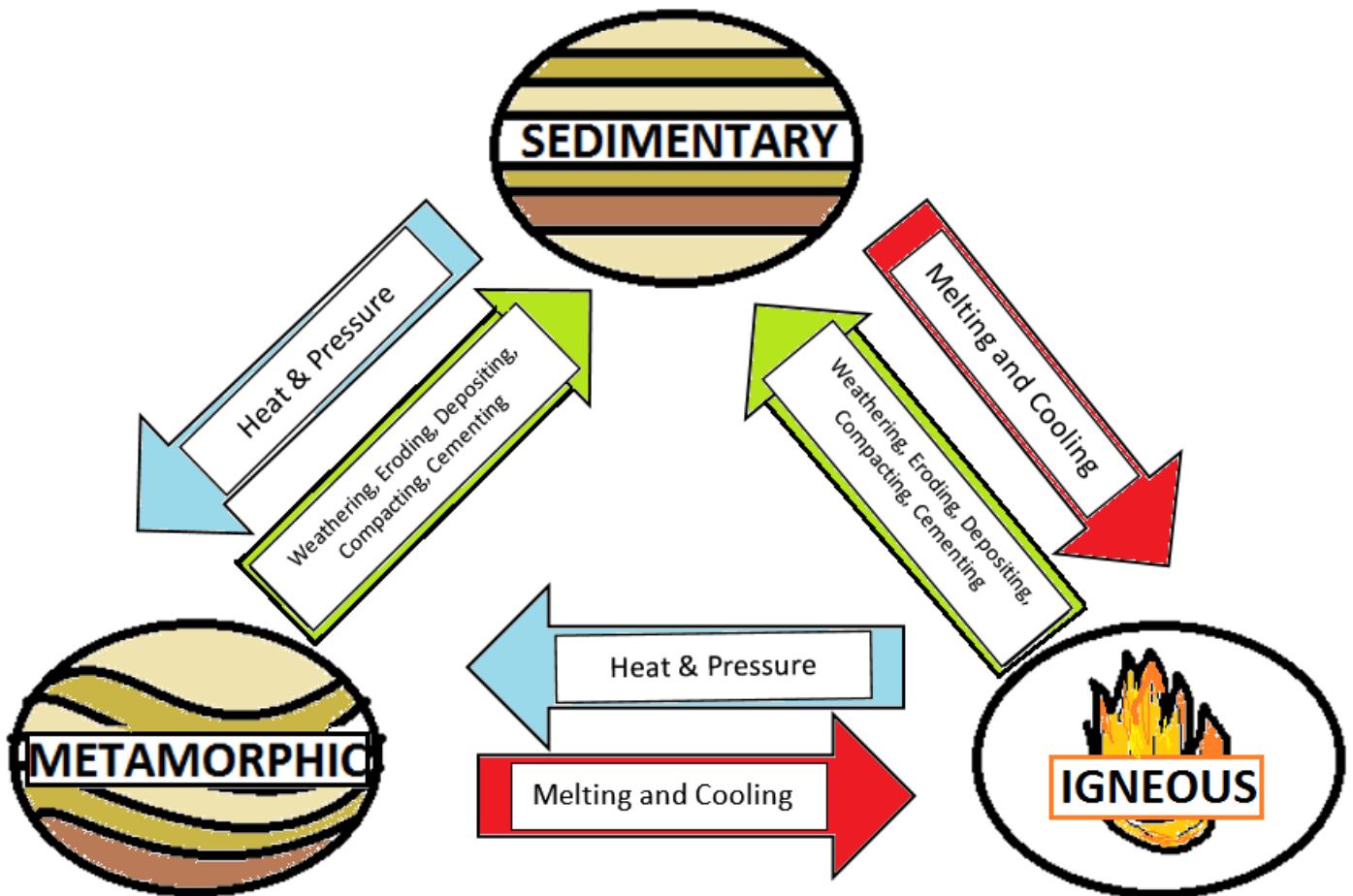
A. Three major types of rock:

1. **Igneous rock** = formed from _____

2. **Sedimentary rock** = formed when **sediment** (_____) get _____ together to make a new rock

3. **Metamorphic Rock** = When _____ rock is changed by _____ and/or _____

B. **Rock Cycle** = shows the processes in which rock _____, is _____, and _____ again.



1. Much of the rock in Earth's crust has passed through the rock cycle _____.

2. These rocks help us to know the _____. Once a rock _____, it's age clock starts over.

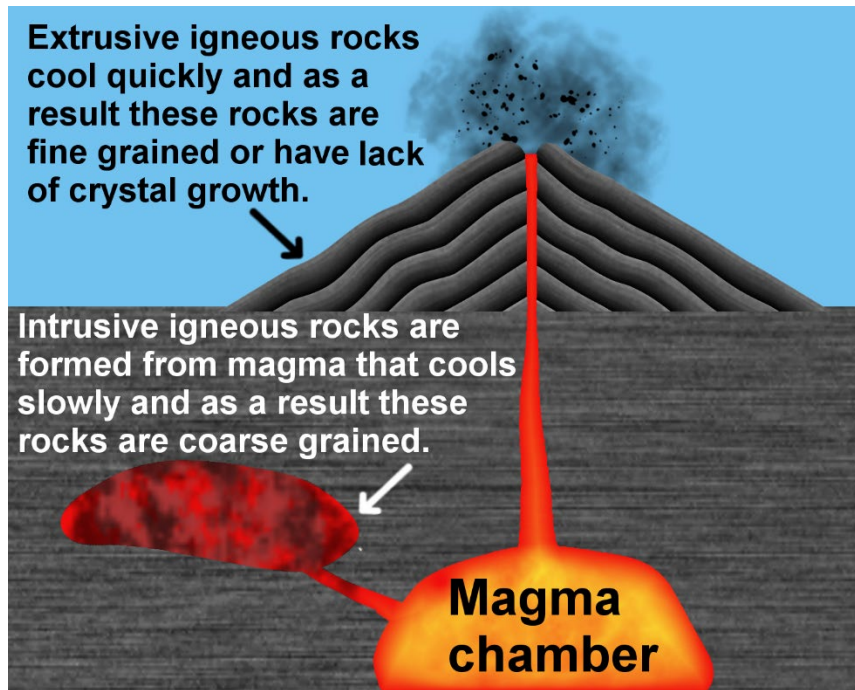
3. The oldest rocks we have ever found on earth are _____ years old.

II. Igneous Rock = _____

A. Igneous rocks are classified according to _____ the magma cools and hardens.

1. **Intrusive** igneous rock: formed when magma _____
 - a. _____ cool
 - b. _____ crystals because the molecules/ atoms have time to _____

2. **Extrusive** igneous rock: formed when lava _____
 - a. _____ cool
 - b. can have _____ or _____ cool it
 - c. _____ crystals because the molecules / atoms don't have time to line up
 - d. can have _____ because of hardening before gases escape



B. Igneous rocks are also classified according to the _____ and crystal size of rocks.

1. _____ **grained** texture: _____ igneous rocks normally have large _____ because they cool very _____ within the Earth. (_____ - most common rock—75% of crust)



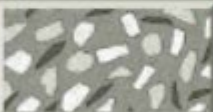


2. _____ **grained** texture: _____ igneous rocks normally have small _____ grains too small to see. (_____, _____)

3. _____ texture: both _____ and _____ crystals. (_____, _____)

4. _____ texture: When magma cools quickly _____ _____ are able to grow and a glassy texture forms. (_____)

5. _____ (Porous) texture: If there are a lot of dissolved _____ in the magma and the magma cools _____ this can produce a rock full of holes, or vesicles.
 (_____, _____)

Table 1 Classification of Major Igneous Rocks

Composition		Granitic	Andesitic	Basaltic	
Dominant Minerals		Light silicates	Light and dark silicates	Dark silicates	
T E X T U R E	Coarse-grained (intrusive)		Granite	Diorite	Gabbro
	Fine-grained (extrusive)		Rhyolite	Andesite	Basalt
	Porphyritic		"Porphyritic" precedes any of the above names whenever there are appreciable phenocrysts.		
	Glassy		Obsidian (compact glass) Pumice (frothy glass)		
Rock Color (based on % of dark minerals)		0% to 25%	25% to 45%	45% to 85%	
					

C How magma forms:

1. _____ - as hot rocks rise, pressure releases and _____
2. _____ - a rise in _____ causes minerals to melt
3. _____ - when fluids mix with rock (like _____) melting points get _____ and minerals _____

III. Sedimentary rock = deposited _____ (tiny chunks of rock) are _____
 _____ to form solid rock in layers (_____) ABOVE _____.

A. Processes that convert loose sediment to sedimentary rock

1. _____ = _____, _____, _____, _____, _____, or
 _____ break off sediments
1. _____ = sediments are _____ and _____ by wind, water,
 ice, etc.
2. _____ = sediments are _____ (usually in the bottom of a body of
 _____)
3. _____ = sediment is _____ and the _____ in between grains is
 _____ by the _____ of the overlying layers
4. _____ = sediments are _____ together

B. Types of sedimentary rocks are determined by processes in which the rocks
 form and their composition

1. _____ = forms when water _____ and
 minerals are _____ (rock salt, gypsum, travertine, dolomitic limestone,
 stalactites, and stalagmites)
2. _____ = forms from the remains of

 - a. _____ - buried plants and animals
 - b. fossiliferous _____ - small fossilized shells of marine creatures
 - c. _____ – large shells glued together
3. _____ = broken fragments of rocks reconnected
 together to make a new rock
 - a. Groups of clastics based on the _____ of the _____
 1. _____ : pebbles and gravel (_____ grains)
 2. _____ : sand (_____ sized grains)
 3. _____ : clay (very _____ grains)

Sedimentary Rock Examples and special features

Clastic- rock fragments



Conglomerate- large fragments



Sandstone medium sediment

Chemical- minerals and water



Chemical limestone

Organic- Made from shells, skeletons, fossils and minerals



Fossiliferous limestone

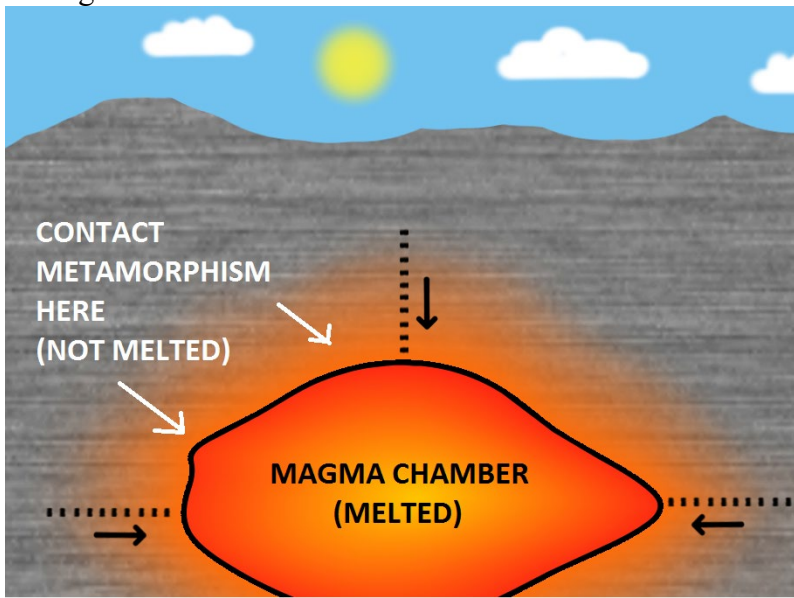
Table 2 Classification of Major Sedimentary Rocks

Clastic Sedimentary Rocks				Chemical Sedimentary Rocks	
Sediment Type	Sediment size		Rock Name	Composition	Rock Name
Pebble (rounded)	> 2 mm		Conglomerate	Calcite (CaCO ₃)	Chemical limestone
Pebble (angular)			Breccia	Halite (NaCl)	Rock salt
Sand	1/16 to 2 mm		Sandstone	Biochemical Sedimentary Rocks	
Silt	1/16 to 1/256 mm		Siltstone	Composition	Rock Name
Clay	<1/256 mm		Shale	Calcite (CaCO ₃)	Biochemical limestone
				Plant remains	Coal

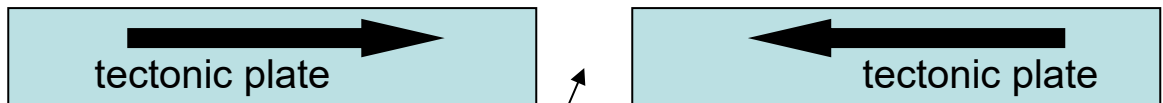
IV. Metamorphic rock = _____

A. types of metamorphism

1. _____ Metamorphism (_____) = happens deep underground near the edge of magma



2. _____ Metamorphism (_____) = happens underground when tectonic plates _____ rocks together from the sides

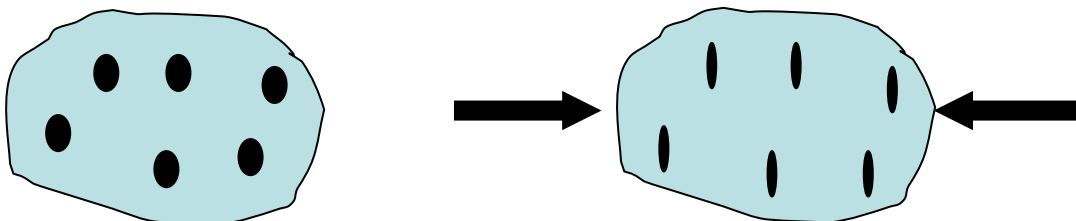


Forms here

B. Metamorphic Rock Classification

1. _____ Rocks = rocks have parallel bands because mineral grains have been squeezed flat from _____ pressure (uneven pressure) and some heat (Slate, Schist, Gneiss) They now have a "squished or _____" look.

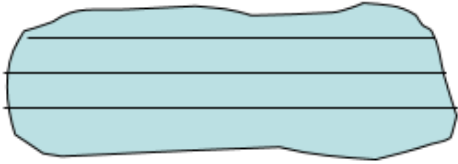
Granite (igneous) **Biotite Gneiss** (metamorphic)



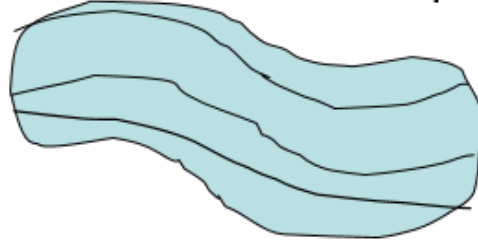
2. _____ rocks = Rocks that do not have _____ because they formed due to heat or _____ pressure (_____ in all directions)

HEAT CAUSES:

Limestone - sedimentary

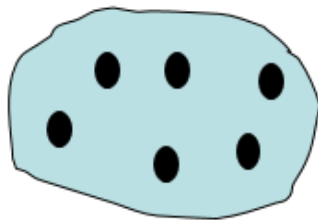


Marble - metamorphic



UNEVEN PRESSURE CAUSES:

Granite (igneous)



**Granatoid
Gneiss**
(metamorphic)

