

Chapter 11: Rocks

Name: _____

Block: _____

Rocks vs. Minerals

A **rock** can be made of one or more _____, or can originate from _____ (unlike a mineral).

Compositions are listed on pg. _____ of the reference table

1.) Monomineralic rocks: made of _____ mineral, *usually* from _____ or _____.

Examples:

_____ (mineral-_____)

_____ (mineral-_____)

2.) Polymineralic rocks: _____ minerals

Ex: _____ -mixture of quartz, feldspar, micas, amphibole

3.) Biologic origin: Coal- _____

How are Rocks Classified?

► Three groups according to how they formed

► 1.) Igneous- _____

► 2.) Metamorphic - _____

► 3.) Sedimentary- _____

Rocks are further classified according to :

(1) _____ (2) _____

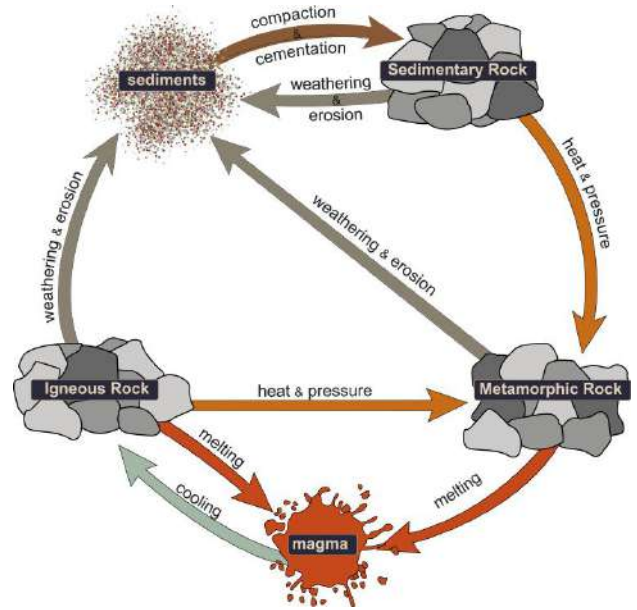
SEDIMENTARY ROCKS

Always involve _____ to form. Because they involve water, they are only found in the _____ of the earth's crust (a thin " _____ " covering the earth)

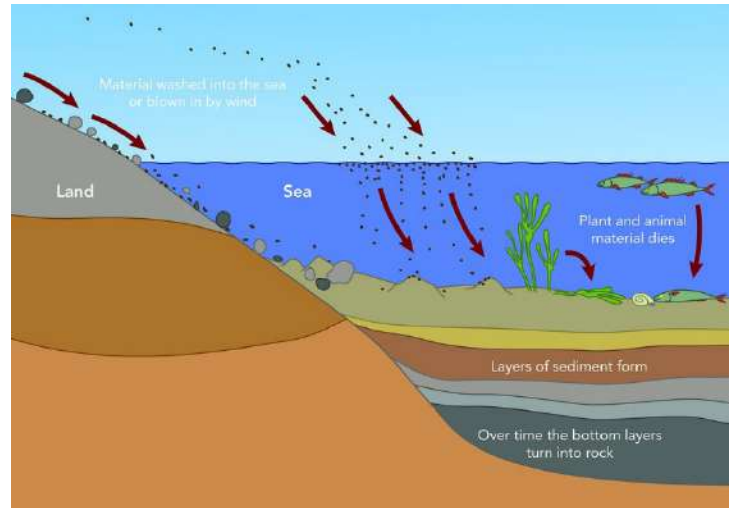
How do sedimentary rocks form according to pg. 6 of the ESRT?

1.

2.



Clastic rock environment of formation→



Sedimentary Rock Types (Texture)

1.)Clastic (fragmental) Sedimentary Rocks:

sediments in order of decreasing grain size:

Cements: dissolved minerals _____ out in the saturated water of pore spaces in sediment layers forming the “_____”

► Common cements in rock:

2.) Crystalline Sedimentary Rocks: Are made of mineral crystals from _____ or _____ - can be microscopic to coarse (_____) in size.

Example 1: Evaporation of _____ leaves behind _____ (halite crystals)



Example 2: Seawater becomes supersaturated with _____ (CaCO_3) which comes from seashells of marine organisms, dropping mineral deposits of _____ on the ocean floor = _____!

3.) Bioclastic Sedimentary Rocks:

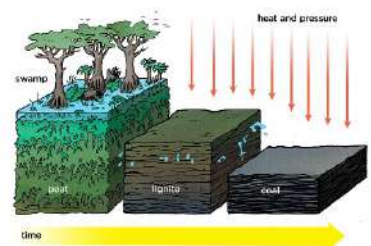
Example 1: _____ and _____ from dying organisms deposit on the ocean floor. Over time they will compact and cement together to form _____ (coquina version)



Example 2: dead _____ remains from marshy areas compact to form _____

► Sedimentary rocks are the only types of rocks which contain _____!

Which type of sedimentary rock do you think would preserve the imprint of an animal bone and/or leaf? _____



IGNEOUS ROCKS (cooling and solidification of molten rock)

Magma-_____

Lava-_____

Igneous rocks are classified according to

1.) Extrusive-_____

2.) Intrusive-_____

Igneous rocks are further classified according to _____.

- ▶ Intrusive rocks- cool _____, thus will have _____ grains or _____

Examples:

- ▶ Extrusive rocks- cool _____, thus will have _____ grains or _____, and in some cases no crystals at all (non crystalline= _____)

Examples:

- ▶ Vesicular texture: When _____ molten rock contains volatiles (_____) trapped inside
 - When the gas releases, _____ features are recorded in the rock

Examples:

Igneous rocks are also classified by composition

- **(1) Felsic-** are rocks rich in _____ and _____ minerals like _____ and _____ in color (pink, white, clear, light grey)

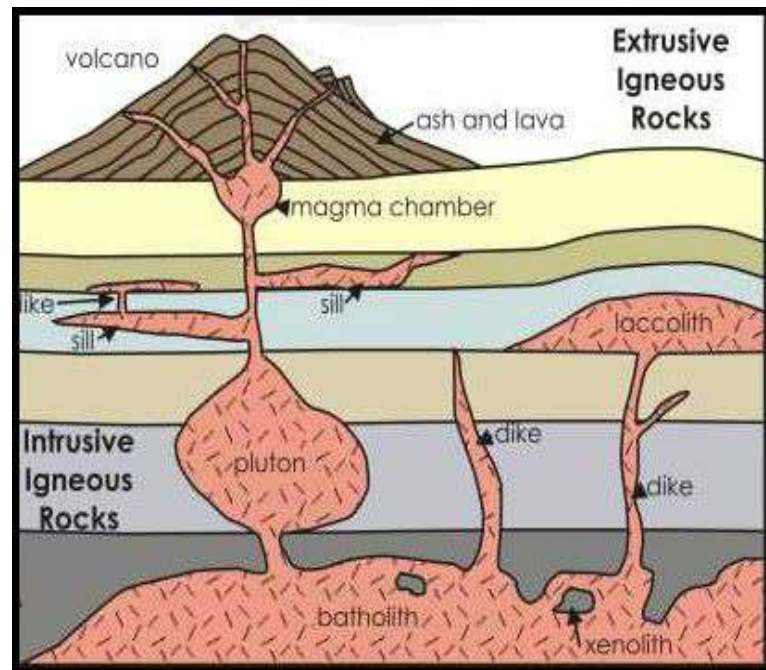
Examples:

- **(2) Mafic-** are rocks rich in _____ and _____ minerals like pyroxene, olivine, & hornblende and are _____ in color (black, green, dark grey)

Examples:

If a rock has roughly the same amount of felsic and mafic minerals it is _____

Examples:



Metamorphic Rocks (by heat and/or pressure)

- Any existing rock can be metamorphosed with _____ in _____ and/or _____

ex: Limestone → Marble

- The “parent rock” becomes _____

- _____ the size of crystals/grains
- and/or _____ minerals form

Texture:

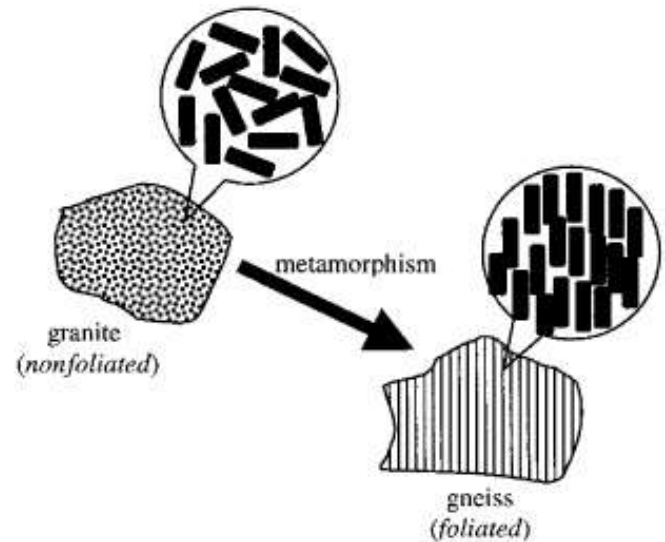
1. _____ Have “layers” of crystals formed by recrystallization where minerals align themselves under _____.

Examples:

2. _____ Minerals are _____ because they were not subject to high directional pressure

Examples:

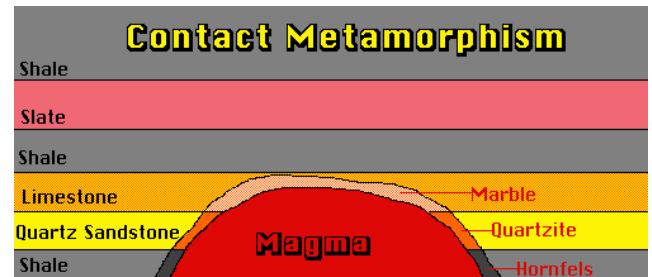
3. BANDING/Extreme Foliation: _____



The Two types of Metamorphism:

- _____: rocks come into contact with magma/lava of an intrusion/extrusion

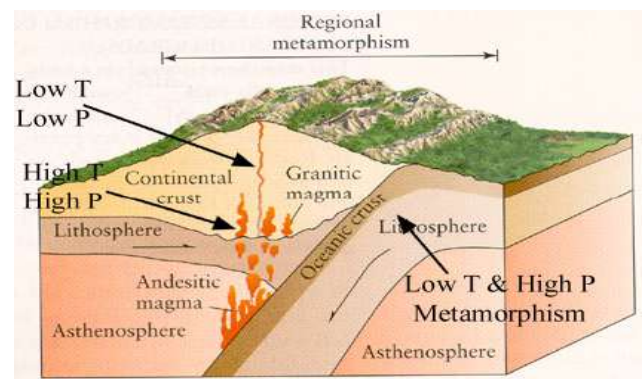
- With this _____, rocks metamorphose
- *These rocks show _____ as there is no directional pressure



- _____: Sections of the crust _____ over long periods of time deep within earth

The rocks at these collision zones are under _____

_____ thus show _____



The following rocks are in order of increasing metamorphic grade, according to the ESRT pg. 7

Shale (sedimentary) → _____ → _____ → _____ → _____