ROCKS

Rocks make up the major part of the lithosphere – all the inorganic part of the soil. They are all made up of minerals, generally an arrangement of several minerals. Rocks are classified in three major categories (igneous, metamorphic and sedimentary) depending on the process by which they were formed.

1) Igneous rocks

These rocks are formed by magma cooling. The minerals crystallize during cooling. They generally contain a lot of silicon that combines with other minerals to form silicates. They are classified according to the size of crystals that are observed.

A slow cooling of the magma inside the terrestrial crust creates relatively large crystals, generally visible to the naked eye – these are **intrusive igneous rocks**.

A rapid cooling of the magma means the formation of very fine crystals, invisible to the naked eye – **extrusive igneous rocks**.

	Low silicon content →		High silicon content
Size of crystals **large** — Intrusive	Gabbro	Diorite	Granite
Extrusive — **fine**	Basalt	Andesite	Rhyolite

Note: Volcanic rocks are extrusive igneous rocks of varied composition and appearance (e.g. pumice stone, obsidian, etc.)

2) Sedimentary rock

As their name implies, sedimentary rocks are made up of sediments – fragments of other rocks, eroded and transported by wind, water or ice. These fragments or sediments accumulate in layers to form new rocks that are qualified as sedimentary. They are classified according to the origin of the sediments.

Sedimentary rocks are of **detritic or clastic origin** when they are formed from fragments that accumulate and are compressed.
When the sediments are the result of crystals precipitating, then accumulating on ocean or lake bottoms to become cemented together, they are called **sedimentary rocks of chemical origin.**

Sedimentary rock of detritic origin		
Principal Component		Name
fine Size of components large	Clay	Clay Schist
	Silt	Silt
	Sand	Sandstone
	Grains	Conglomerate

Sedimentary rock of chemical origin	
Component	Name
Halite (NaCl)	Salt
Ca SO_4-2H_2O	Gypsum
$CaCO_3$	Limestone
CaMg $(CO_3)_2$	Dolomite

3) Metamorphic rock

Their name implies a metamorphosis. These rocks are the result of the transformation of other rocks (sedimentary or igneous) by heat or pressure.

Rock of origin	Increase in pressure and temperature 
Clay	Slate — Schist — Gneiss
Sandstone	Quartzite
Limestone	Marble
Basalt	Schist — Amphibolite
Granite	Granite — Gneiss

Bibliography

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