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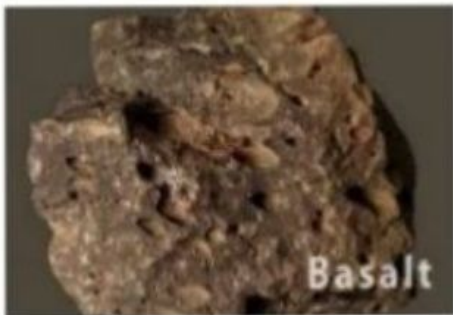
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ROCKS

- INTRODUCTION-

In geology, rock or stone is a naturally occurring solid aggregate of one or more minerals or mineraloids . A rock is an aggregate of minerals. It may be up of one mineral i.e monomineralic .

Classification of Rocks-



1. Igneous Rocks



2. sedimentary Rocks



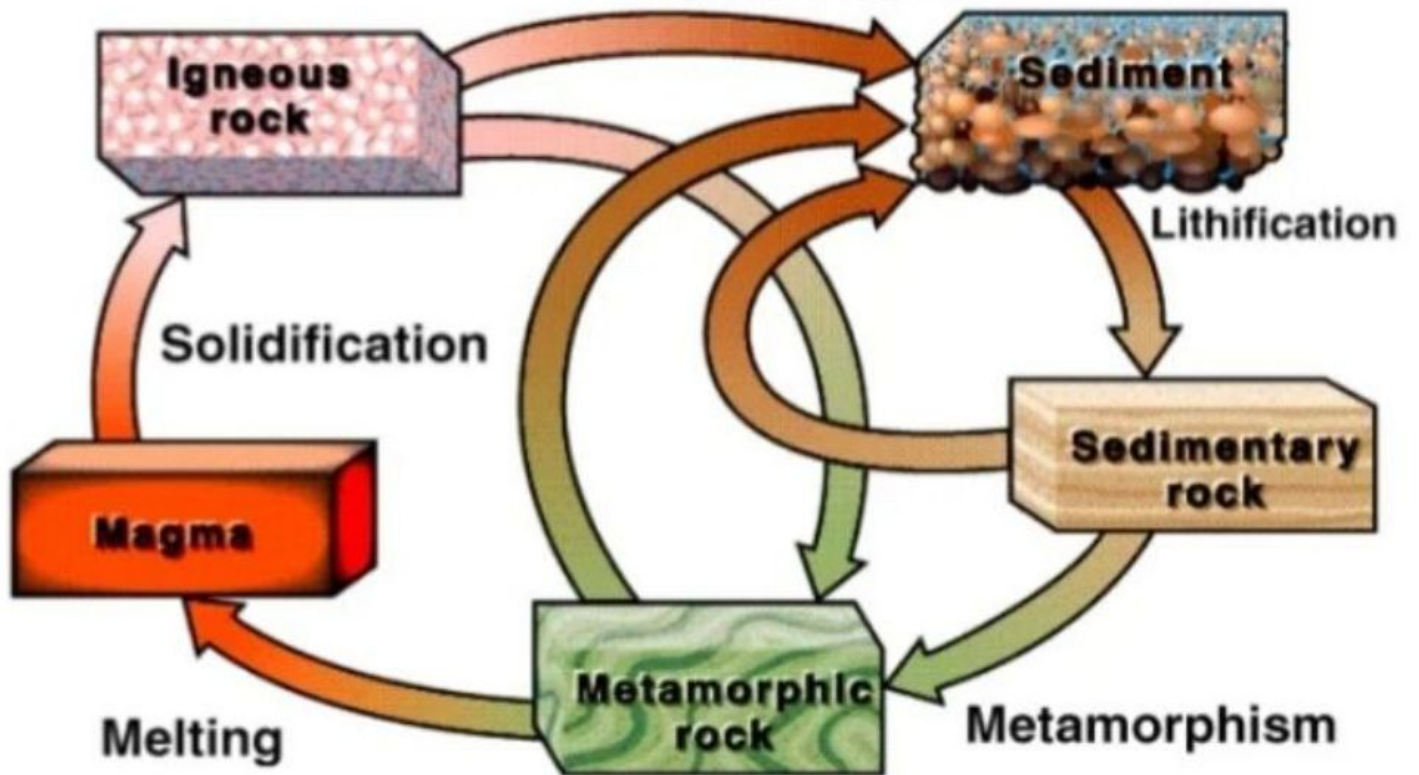
3. Metamorphic Rocks

ROCK CYCLE

- Equilibrium
- Interrelationships between
 - igneous rocks
 - sediment
 - sedimentary rocks
 - metamorphic rocks
 - weathering and erosion

The Rock Cycle

Weathering
and Erosion





IGNEOUS ROCKS

EXTRUSIVE

Volcanic- Fine-grained

INTRUSIVE

Plutonic- Coarse-grained

Igneous rocks

1. The rocks that have formed from an originally hot molten material through the process of cooling and crystallization are called as igneous rocks .

2. Magma-The hot molten material occurring naturally below the surface of the earth is called magma . It is called lava when erupted through volcanoes. Igneous Rocks are formed both from magma and lava.

(a) Volcanic Rocks-These are the igneous rocks formed on the surface of the earth by cooling and crystallization of lava erupted from volcanos. The grain size of the crystals formed in these rocks are very fine and microscopic.

(b) Plutonic rocks-These are igneous rocks formed at considerable depths generally between 7-10km below the surface of the earth

(c) Hypabyssal rocks-These igneous rocks are formed at intermediate depths , generally upto 2 kms below the surface of the earth.

Engineering uses of igneous rocks

- Basalt and other dark colour igneous rocks are very strong hence are used for foundations and road stones etc
- Are also used for foundation of dams and reservoirs.

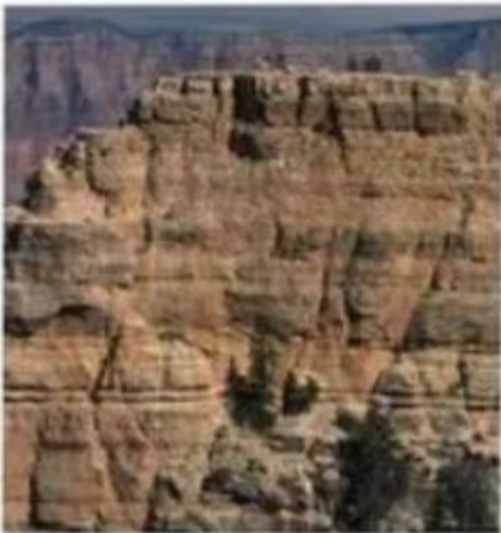
Dams



Reservoirs



Sedimentary Rock



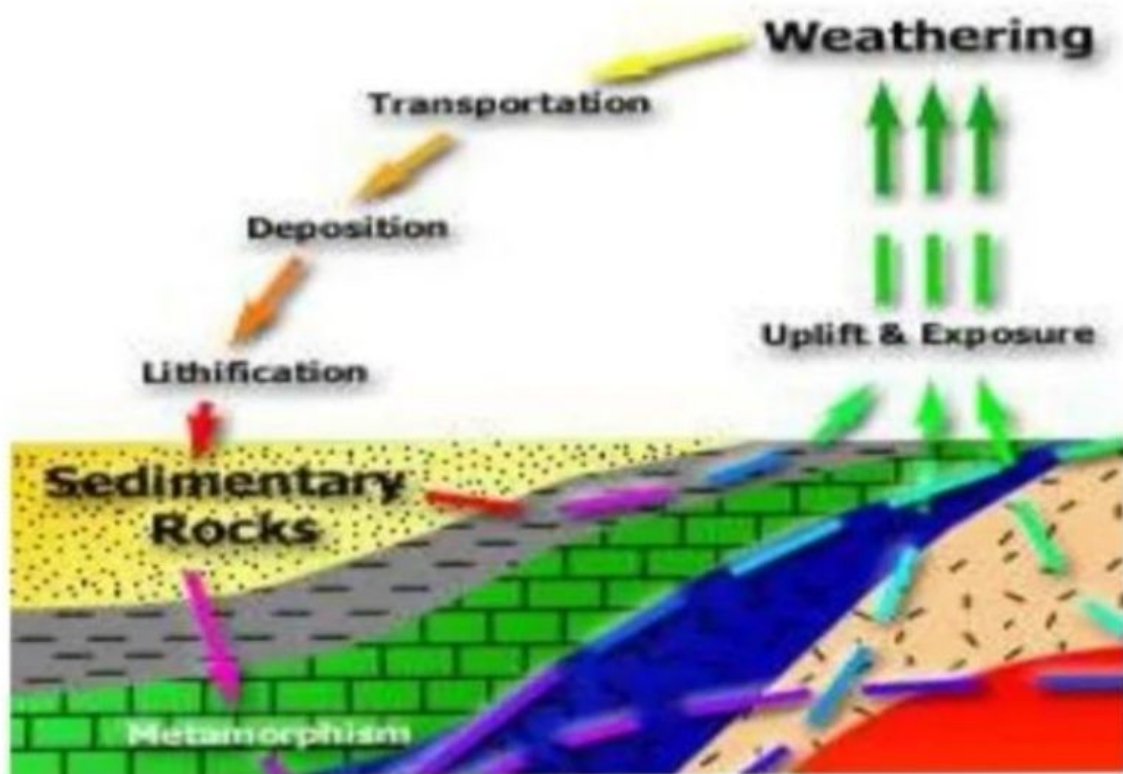
Sedimentary rocks are formed from the consolidation of sediments that are transported by water, wind or ice, or deposited by organisms.

Formation of Sedimentary Rocks

- **Weathering** is the breaking down of rock into sediments
- **Erosion** involves weathering and the transportation of sediments
- **Deposition** is the process when water, wind, ice or gravity loses energy causing sediments to drop
 - Larger sediments are deposited first, smaller sediments are dropped later

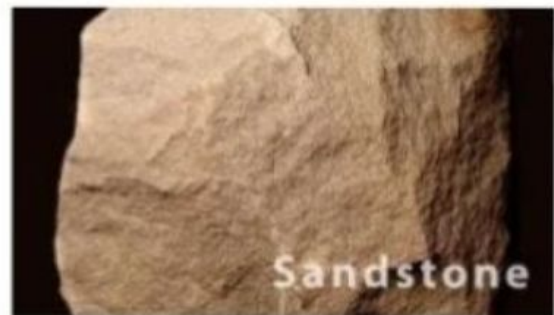


FORMATION CYCLE OF SEDIMENTARY ROCKS

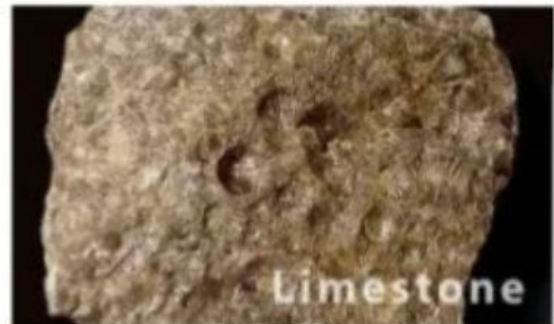


Classifications of sedimentary rocks

1. Clastic (fragmental) - made by compaction and cementation of fragments and are identified by size of fragments.



2. Non-clastic - non-clastic sedimentary rocks form from chemical reactions, chiefly in the ocean.



SEDIMENTARY ROCKS



Breccia



Chert



Coal



Conglomerate



flint



Iron Ore



Limestone



Oil Shale



Rock Salt



Sandstone



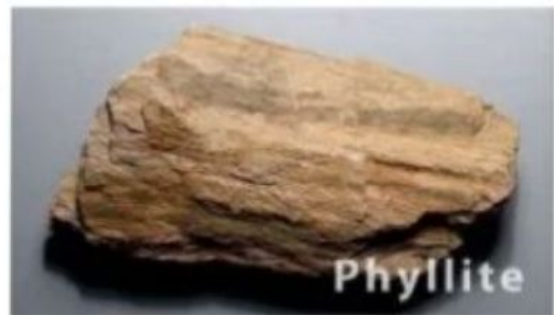
Shale



Siltstone

METAMORPHIC ROCKS

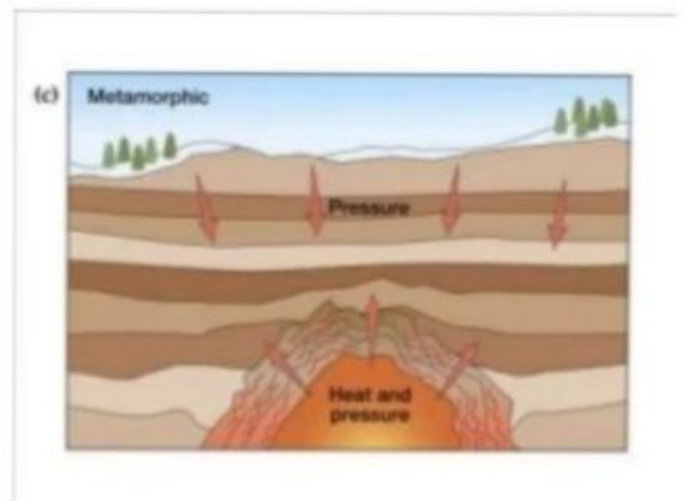
- The rocks which have formed through the operation of various types of metamorphic processes on the pre-existing igneous and sedimentary rocks involving changes in textures, structures and mineralogical compositions.



METAMORPHIC ROCK FORMATION

1. Metamorphic rock form by heat and pressure changing one type of rock into another type of rock.

2. Metamorphic rocks form near intrusions , at plate subduction zones and in deep mountain roots.



CLASSIFICATION OF METAMORPHIC ROCKS

Foliated Rocks



Foliated rocks have distinct banding or layers that formed perpendicular to pressure.

Non-foliated Rocks



Non-foliated rocks are crystals with blocky shapes and do not have banding.