

METAMORPHIC ROCKS

<http://www.youtube.com/watch?v=f3K6WLUFFS84>

- ▣ Rock formed from other rocks (igneous, sedimentary, or metamorphic) as a result of intense heat (from magma) and pressure (plate tectonics).
- ▣ Most metamorphic rock forms below the surface of the earth.

Metamorphic rock can form in 2 ways:

- ▣ 1) Contact Metamorphism: occurs when hot magma pushes through existing rock and changes the structure and composition of the surrounding rock. The original minerals may form larger crystals.

- ▣ 2) Regional Metamorphism: occurs when tectonic plates push against each other causing heat and pressure that chemically changes the minerals in the rock (most metamorphic is formed this way).
- ▣ Metamorphic Rocks are classified according to their structure

Foliated Metamorphic rock

- ▣ Pressure flattens the mineral crystals and pushes them into parallel bands.
- ▣ Minerals with different densities separate into different bands
- ▣ EX. Slate, schist, gneiss



Slate

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Schist

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Gneiss

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Nonfoliated Metamorphic Rock

- ▣ No visible parallel bands
- ▣ EX. Quartzite, marble

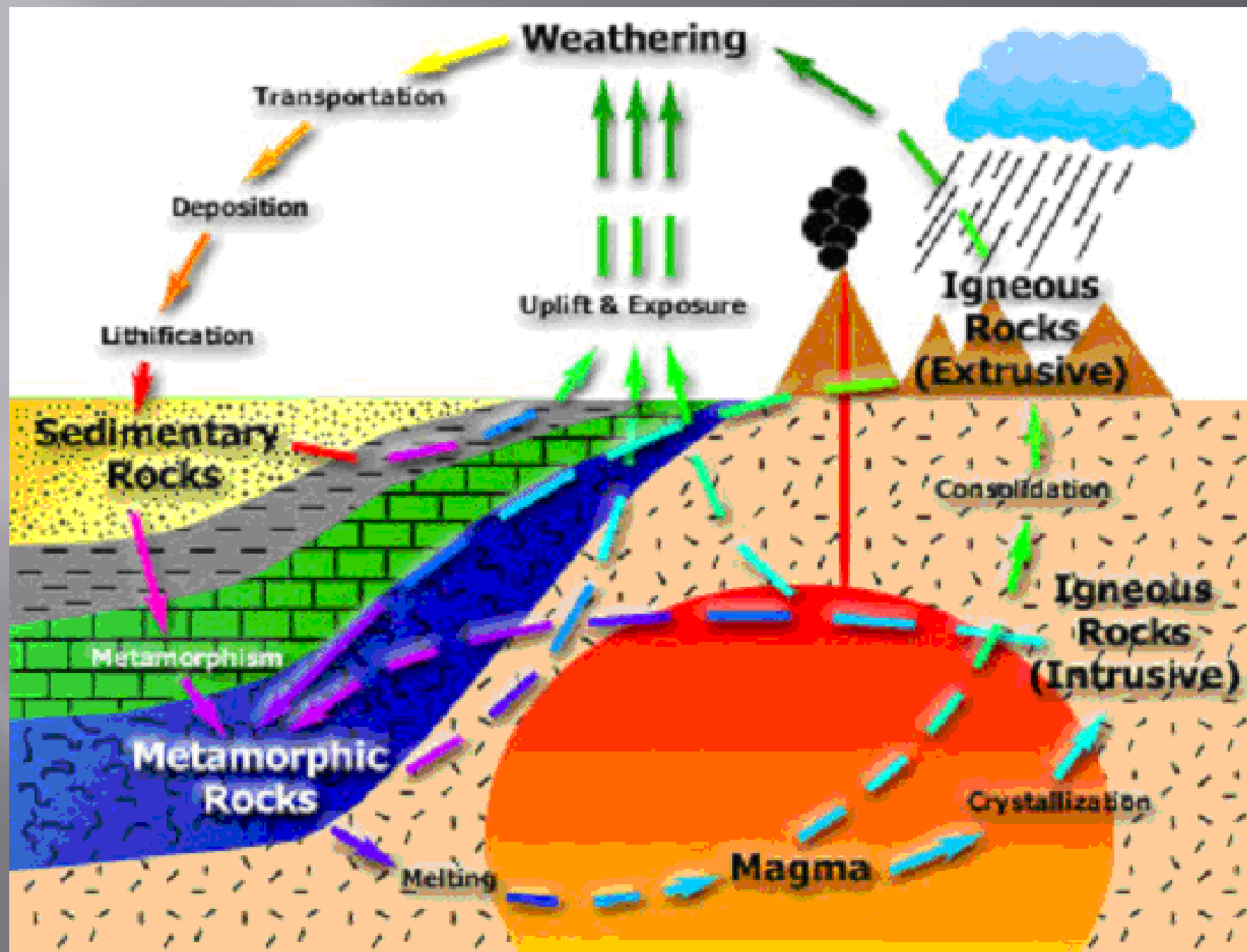


Parent rock: the rock From which a metamorphic rock is formed

- ▣ Limestone--> Marble (u)
- ▣ Shale--> Slate (f)
- ▣ Granite --> gneiss (f)
- ▣ Slate --> schist (f)
- ▣ Quartz --> Quartzite (u)
- ▣ Sandstone --> quartzite (u)
- ▣ Talc --> soapstone (u)
- ▣ Gneiss --> Schist (f)

Rock Cycle

- ▣ Rock materials are constantly being recycled and each rock type can become a different type on its journey through the rock cycle.
- ▣ Energy that drives the rock cycle are:
 - Heat
 - Mechanical



Cycling of Materials

- ▣ Formation and destruction of the three major rock types
- ▣ Forces responsible
 - Weathering and Erosion– create sediment
 - Deposition and Bedding – sediment is deposited
 - Heat and pressure – transform parent rock
 - Foliation – minerals pushed into bands
 - Melting – turns material into magma/lava