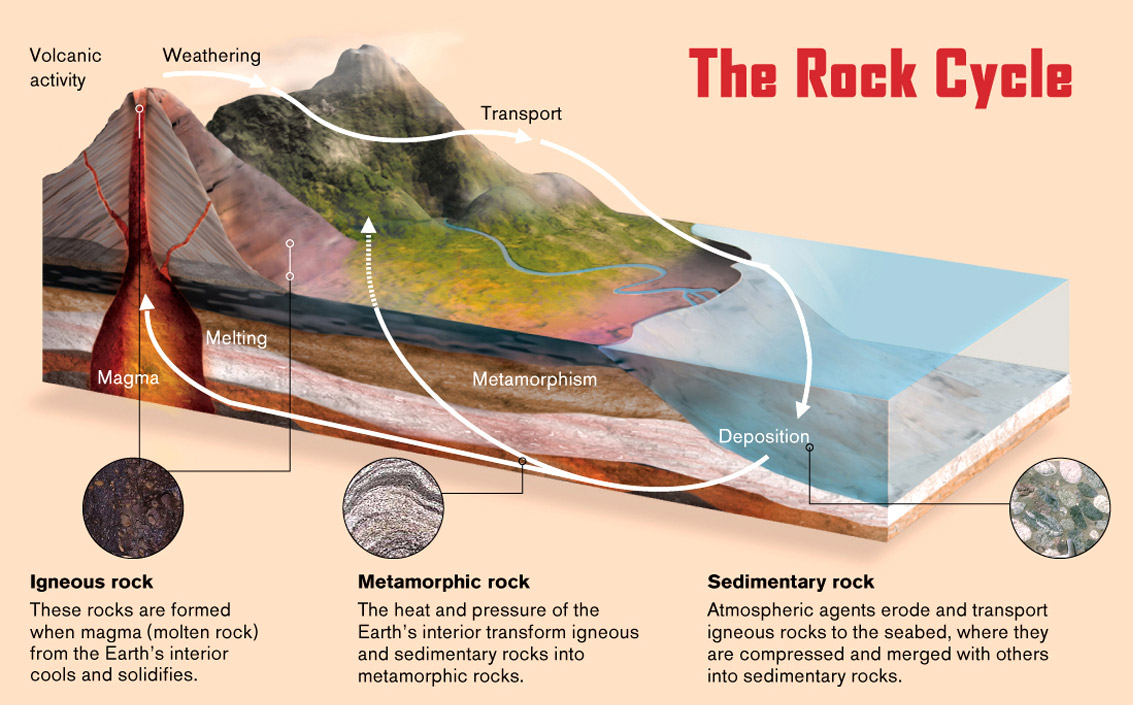
**Earth Science 11: Metamorphic Rocks**

**Textbook Pages:** 66-71



**Metamorphism**: when a rock encounters physical or chemical conditions significantly different from those it formed in.

* the rock changes state until an equilibrium with the new environment is reached.

**Metamorphism causes changes in:**

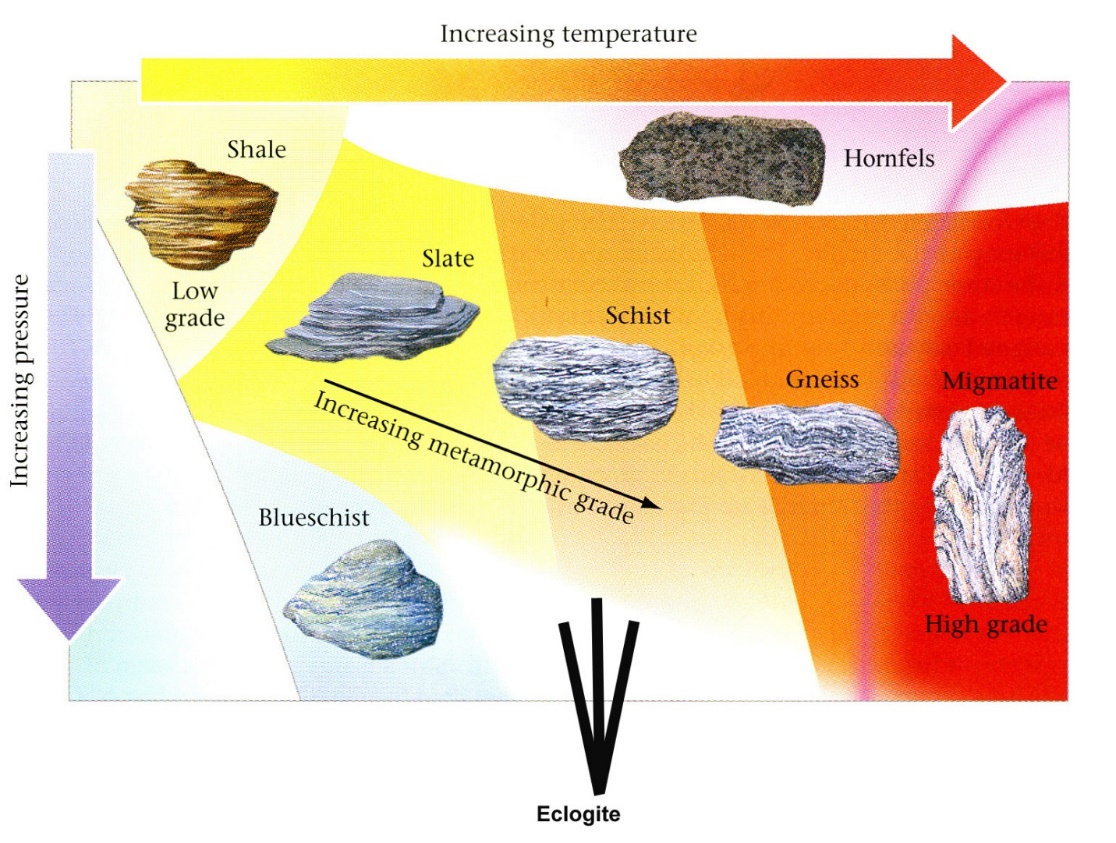
* rock texture (grain size)
* chemical composition (the minerals present)
* internal structure (density and porosity).

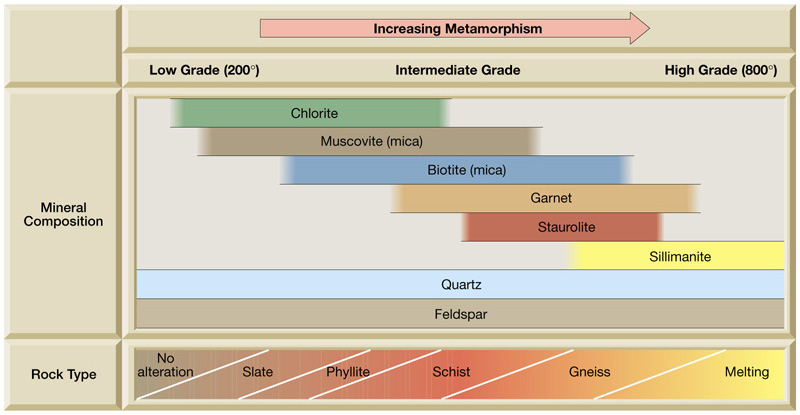
**Causes of Metamorphism**

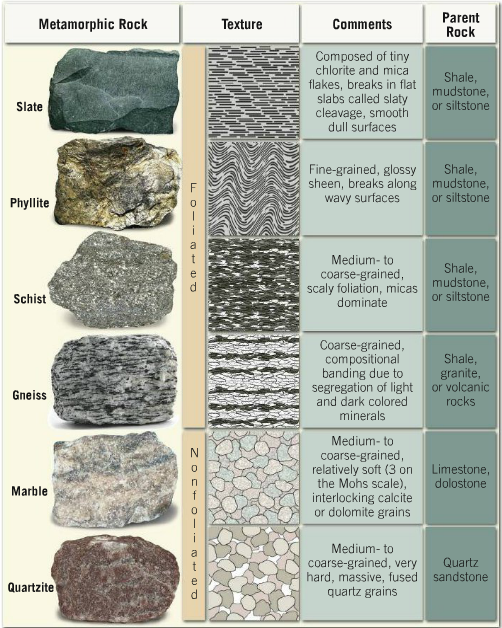
|  |  |  |
| --- | --- | --- |
| **Heat** | Increase in temperature causes recrystallization (transformation of existing minerals into new minerals | **What are two sources of heat inside earth?** |
| **Confining and Differential Pressure** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** pressure equal in all directions  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** pressure is not equal in all directions (minerals will be stretched perpendicular to the direction of greatest stretch – causes foliation) |  |
| **Chemically active fluids** | Iron rich fluids |  |

**Types of Metamorphism**

|  |  |
| --- | --- |
| **Contact** | **Regional** |
| Covers a small area and is caused by an increase in heat, typically from an igneous intrusion. | Covers a large area and is caused by an increase in heat and pressure, typically from a convergent plate boundary. |
|  |  |

**Metamorphic Grade**

* describes the degree to which a rock has undergone metamorphism. This is indication by index minerals which only form under specific temperature and pressure ranges.

**Metamorphic Rock Identification**

* The Descriptions and identifications of metamorphic rocks are based on the parent rock, mineral content and texture (foliated or non-foliated).

\*Complete Activity \*\* (pg. )in your workbook