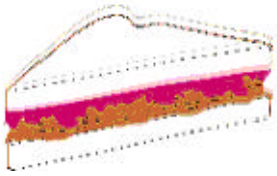
METAMORPHIC

objective: 3240-0503

Has this ever happened to you? You take a peanut butter and jelly sandwich to school. You check your backpack at lunch and find that your books have been sitting on the sandwich all day! The heat of the day and pressure of the books have mushed the sandwhich into a completely different shape (it still tastes great!)



Rocks that have changed shape or composition due to intense heat and pressure are called **metamorphic** rocks. Metamorphic rocks are created from sedimentary, igneous or other metamorphic rocks. They are formed deep inside the earth. Heat, and pressure from the rock above flatten and bend the rock or even exchange atoms, forming new minerals. The texture of metamorphic rocks are classed into two categories, nonfoliated and foliated.

NONFOLIATED

The crystals in **nonfoliated** rocks combine, change or rearrange, but they don't form parallel bands, because they are composed of mostly one mineral. Marble forms from limestone which is mostly composed of calcite. Quartzite forms from sandstone which is mostly the mineral quartz. Metaconglomerate forms from a conglomerate in which the grains are flattened. Even though limestone and marble are made of the same mineral calcite, sculptors would never use limestone for making statues. Marble is used because it is compact, easy to work with and the larger crystals of the mineral calcite gives it a shiny luster.

FOLIATED

In **foliated** metamorphic rocks, the compositon of the original rock is not apparent. This is true because as the heat and pressure have resulted in a recombination to form new minerals in the rock. The individual mineral grains may also be rearranged or rotated within the rock. Minerals may also recrystallize to form larger crystals. Three common foliated rocks are slate, gneiss and shcist. Slate is formed by the metamorphsis of usually shale. Because slate separates so easily along the bands of foliation, it is used to make roof and floor tiles. Schist is formed from more metamophism than a slate and has a compositon converted from basalt, granite sandstone and shale. **Gneiss** is formed by a high degree of metamorphism and has a composition similar to granite.

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