

ACTIVITY 4.4: Metamorphic Rocks

Objective: To identify metamorphic rocks.

Materials: Metamorphic Rock Classification Key, more mystery rocks, HCl, hand lens, Metamorphic Rock Chart, and writing instrument.

Procedure: Follow these instructions to guide you in your use of the Metamorphic Rock Classification Key and in the identification of metamorphic rocks.


1. The Metamorphic Rock Classification Key classifies metamorphic rocks according to texture and then according to composition.
2. Determine whether or not your rock is foliated. The foliated rocks occupy about the top half of the Key.
3. Next, decide whether the rock is very fine, fine, medium, or coarse-grained. You should now know the name of your rock.
4. If there is still a problem in identification, such as with quartzite or marble, it is necessary to consider the composition. With these two rocks, for instance, decide whether they contain quartz or calcite.
5. Refer to the Metamorphic Rock Chart. From the information provided on the Key, you can fill in the formation about Texture, Parent Rock, Metamorphic Environment, and Rock Name.

Below is your last practice run:

A foliated, coarse-grained, banded rock is _____

A non-foliated, coarse-grained rock composed of quartz is _____

A foliated, very fine-grained rock is _____

		Rock Name	Composition	Parent Rock	Metamorphic Environment
Foliated	Very fine-grained	Slate	Abundance of dark, flaky, and/or silicate minerals (micas, chlorite, talc, serpentine, hornblende, etc.) quartz	Shale	Increasing  Regional
	Fine-grained	Phyllite		Shale	
	Medium-coarse grained (oriented)	Schist		Slate/Phyllite	
	Medium-coarse grained (banded)	Gneiss		Feldspar abundant; varying amounts of quartz and dark silicate minerals (such as amphiboles, pyroxene, micas, and garnet)	Light to intermediate igneous rocks-granite, diorite
NonFoliated	Medium to coarse-grained	Quartzite	Quartz greatly predominant	Sandstone	Regional and Contact
	Fine to very fine-grained	Marble	Calcite and/or dolomite with or without Ca-Mg silicates	Limestone or dolomite	Regional or Contact
		Anthracite Coal	92-98% Carbon	Peat, lignite, bituminous coal	Regional or Contact

Metamorphic Rock Chart

Name	Texture	Composition	Parent Rock	Identifying Characteristics