

EXERCISE B: ROCK “TRANSLATION DICTIONARY”

Rock “Translations”

One of the key skills required to understand the geology of the Northwest is learning how to identify and interpret the geologic meaning of rocks. In order to help you facilitate that task in the field, each person in the class will construct a portable geologic “translation dictionary.”

To make your dictionary you will need a metal key ring and 14 index cards in three colors (5 for igneous rocks, 5 for sedimentary rocks, and 4 for metamorphic rocks). First cut each card in half and use a hole punch to make a hole in the corner of each card (so that they can fit on the “key ring”). Choose one color card each for igneous, sedimentary, and metamorphic rocks.

Determine if each of the rocks listed below is igneous, sedimentary, or metamorphic and write the name of each rock on the top of the appropriately colored card. On the front side of each card write a description of the rock (that will help you identify it). Use your own words – don’t just copy a description out of a rock ID book! (We’ll look at a lot of these rocks in lab.) On the back side of each card write an interpretation of what the rock tells us about its geologic history (i.e., what type of information is “written” in the rock). *Basalt is given as an example below.*

You will be able to use your "dictionary" as a cheat sheet on the first exam - so be complete! You will turn it in for review at the end of your exam. Bring this dictionary to field trips and labs to use as a reference throughout the quarter, and feel free to add new rocks to it throughout the quarter.

Rocks to include in your dictionary:

| | |
|-------------------------|-----------------------------|
| Arkose | Marble |
| Basalt | Phyllite |
| Blueschist | Porphyritic Andesite |
| Chert | Pumice |
| Coal | Obsidian |
| Conglomerate | Quartz Sandstone |
| Diorite | Quartzite |
| Gabbro | Rhyolite |
| Gneiss | Schist |
| Granite | Shale |
| Greywacke | Siltstone |
| Hornfels | Slate |
| Limestone | Tuff |
| Lithic Sandstone | |

Example: Basalt

Front: A dark black, fine grained crystalline rock (made of olivine, pyroxene, and calcium plagioclase). It may contain phenocrysts of olivine or plagioclase.

Back: *Basalt cools from mafic magma that is formed by partially melting the mantle. It erupts at the Earth's surface. Basalt most commonly forms at divergent zone and hot spot volcanoes.*