Types of Rock: Igneous

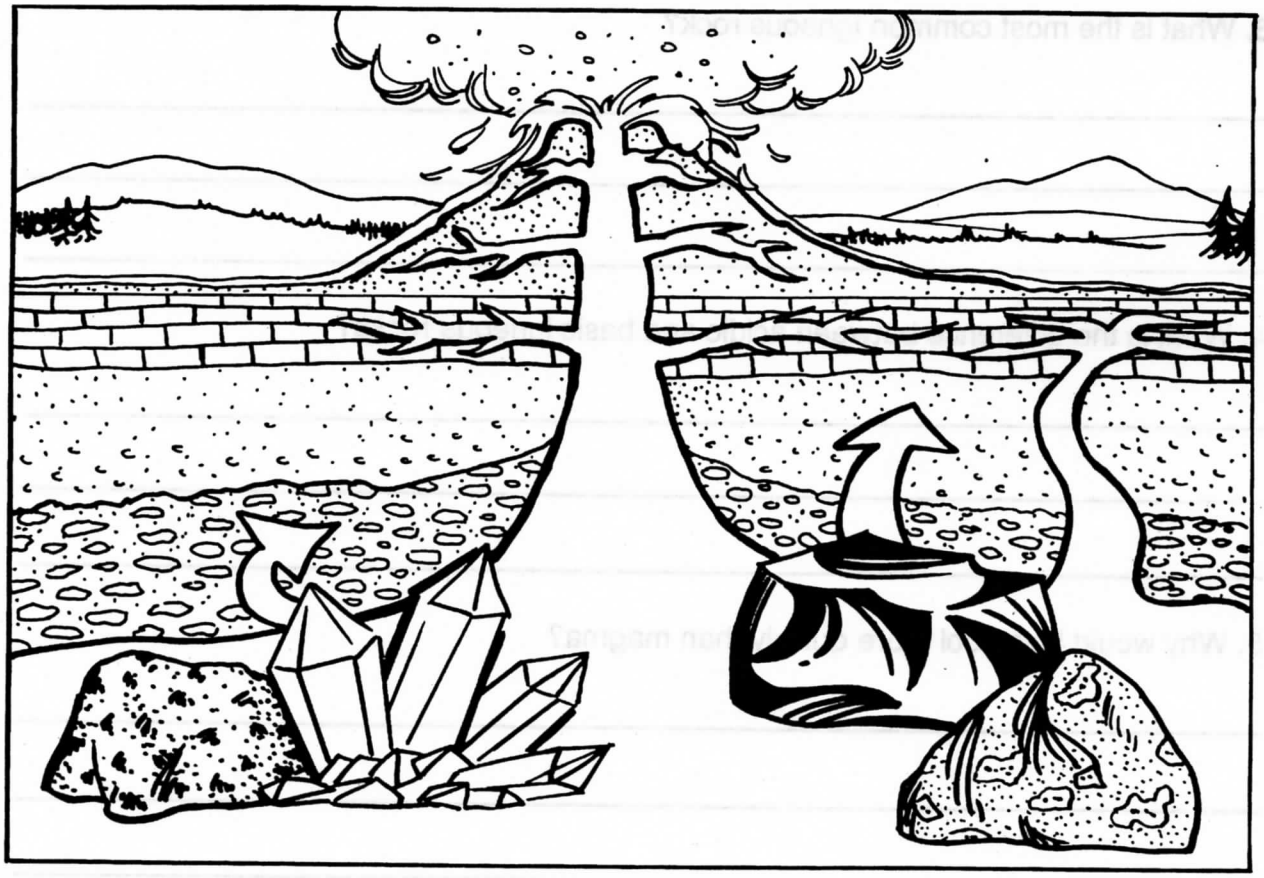
Igneous rock is the most common material in the Earth's crust. In fact, 95 percent of the first ten miles of the Earth's crust is igneous rock. We don't always see igneous rock because it is often hidden by a thin layer of sedimentary rock.

Igneous rocks form from liquid rock, which is called magma. Most igneous rocks crystallize and solidify below the Earth's surface. They are called intrusive igneous rocks. Rocks that form on the surface from volcanic lava are called extrusive igneous rocks.

All igneous rocks are identified on the basis of composition and texture. There are only about a dozen minerals that determine the composition of these rocks. The rate at which the rocks cool from the liquid magma determines their texture. Slow cooling produces coarse-textured minerals, and fast cooling causes fine-textured minerals. Granite, for example, cools very slowly, maybe over a period of 10,000 years. Basalt, on the other hand, which forms from lava, cools fairly rapidly. Basalt's cooling process may take only days or even hours.

Igneous rocks can be further divided into two groups: acidic rocks and basic rocks. Acidic rocks are those that have a high silica content. They are light in weight and color. Basic rocks are rich in iron and magnesium. These rocks are dark and heavy.

Granite is the most abundant igneous rock. It can be made up of a variety of minerals. A single specimen may be made up of feldspar, quartz, mica, and hornblende.



Granite and quartz (left) are intrusive igneous rocks, while obsidian and basalt (right) are extrusive igneous rocks.

Name _____ Date _____

For the student:

1. How is igneous rock formed?

2. How does the rate of cooling affect the type of igneous rock formed?

3. What is the most common igneous rock?

4. What is the difference between acidic and basic igneous rocks?

5. Why would lava cool more quickly than magma?