Name **Period** **Date**

UNIT	HANDOUT
3	_____

Igneous Rocks Notes

Objectives: Describe how igneous rocks form; explain how an igneous rock's origin affects it texture; explain how igneous rocks are classified.

Igneous rocks are formed by molten rock.

Igneous rocks form from _____. Molten rock is formed under earth's surface where temperatures ranging from _____can melt rock. Molten rock found inside earth is called _____. Molten rock on earth's surface is called _____. Each type of molten rock forms different types of igneous rocks. In order for a scientist to classify an igneous rock, they must look at the igneous rock's _____, the _____ of its _____ , and _____ _____.

Igneous rocks are classified by their origin.

An igneous rock is classified differently depending on where it forms. Igneous rocks that form when _____ cools inside earth is called _____ or _____ rock. _____ and _____ are common intrusive igneous rocks. Igneous rocks that form when _____ cools on earth's surface are called _____ rock. _____ and _____ are common extrusive igneous rocks.

Igneous rocks are classified by the grain size.

The grain size of an igneous rock (AKA: crystal size) depends on how quickly the molten rock that formed the rock _____. This results in four possible grain sizes for igneous rock: coarse-grained, fine-grained, porphyritic, and glassy.

Coarse-grained igneous rock forms when _____ cools _____ inside earth and results in _____ crystals. The high temperature inside earth allows magma to cool slowly. This gives the crystals more time form. The result is an _____ rock with coarse grain. An example of this rock is _____.

Fine grained igneous rocks forms where _____ cools _____ at earth's surface. The lower temperature on the surface causes the lava to rapidly

cool. This doesn't give the crystals much time to form. The result is an _____ rock with fine grain. An example of this rock is _____.

Porphyritic igneous rocks form both _____ and _____ crystals. The rock will first form from _____ inside the earth cooling _____. _____ crystals form during this time. At some point, the rock is brought to the surface where it finishes cooling _____. Small crystal form around and in between the large crystals. The rock now has both large and small crystals, called a _____ texture. An example of this rock is _____.

Glassy igneous rocks have no visible grain. These _____ rocks often form from _____ rapidly cooling on earth's surface. The cooling is so fast that the atoms cannot crystallize. This results in a _____, _____, and glassy rock. _____ is an example of this rock.

Igneous rocks are classified by their mineral composition

Many igneous rocks have the same crystal size and origin. Therefore, it is necessary to observe the rock's mineral composition to separate them. Most igneous rocks are composed of _____ minerals. These minerals contain a compound called _____, a combination of _____ and _____. Scientists measure the amount of silica in an igneous rock to help classify it. You can estimate the amount of silica in a rock by its color. Igneous rocks with high levels of silica are _____ in color. An example of this rock is _____. Igneous rocks with low levels of silica are _____ in color. An example of this rock is _____.

Igneous rocks are classified by all three characteristics

As with minerals, we cannot classify an igneous rock solely by one characteristic. It is possible for two rocks to have the same or similar mineral composition. For example, granite and rhyolite have the same composition. However, they have different _____. One is intrusive and the other is extrusive. The same is true of gabbro and basalt: same composition, different origin.