

Sec: _____ Name: _____

Experiment: Igneous Rocks
(E. Science 9-4-2b)

Purpose: To learn how igneous rocks are classified.

Materials: igneous rock specimens, A - F
hand lens or dissecting microscope
table 4 of text

Safety: Wear Safety Goggles.

Methods:

1. Examine each rock specimen with a hand lens or use of the dissecting microscope. Determine the texture of each rock sample. If the grains or crystals are large and easily seen, the texture is coarse. If the grains are so small that they are not easily distinguished, the texture is described as fine. Separate the rocks into groups based on the texture. Record each texture in results.
2. Determine the color of each rock. Is the rock light - colored, dark - colored, or intermediate? Regroup your samples based on color. Record color of each in results.
3. Examine the coarse - grained rocks to determine the minerals present (Appendix M and N).
4. Refer to Table 4 - 1 of the textbook and give each sample a name according to its composition and grain size.

Results:

rock sample	texture	color	minerals present	rock name
A				
B				
C				
D				
E				
F				

Conclusions:

1. What is the difference between the size of the grain in intrusive and extrusive igneous rocks?
2. If grain sizes within one sample are noticeably different, what type of rock is it?
3. What minerals must be responsible for the color of sample B?
4. Name one other igneous rocks that owe their colors to the presence of these minerals in sample B.

Discussion:

1. Why do igneous rocks of the same composition sometimes have different sizes of grains?
2. What two characteristics determine the identity of an igneous rock?
3. How does obsidian differ from most other igneous rocks?
4. From today's lab, which sample suggests that gases were escaping from them as they cooled.

5. Use the words listed to fill in the blanks

150	iron	slow	lava	fine
1000	lighter	dense	magma	large
silicon	abundant	formation	surface	igneous
granitic	basaltic	radioactive	crystals	pressure
intrusive	extrusive	minerals	magnification	

Rocks formed from molten Earth materials are _____ rocks. There are two kinds of molten materials: magma and _____. Most _____ originates 60 to _____ km below Earth's surface. Temperatures reach about _____ °C at these depths. _____ and heat caused by overlying rocks and _____ elements produce magma. When magma cools below Earth's surface, it forms _____ -grained, _____ igneous rocks. Minerals of extrusive rocks are so small that _____ is needed for identification. Igneous rocks can be classified by their _____. They can also be classified by types of _____ in them. _____ igneous rocks are dark - colored, heavy, and _____. They contain _____ and magnesium. _____ igneous rocks are _____ - colored and less dense. They contain a lot of oxygen and _____. Igneous rocks are the most _____ on Earth.

6a. Read Psalms 18:2, 19:14, 31:3, 62:2, 7. This is where King David refers to God as his rock. Record other words in these texts that describes, at least one of the ways, that King David views God.

6b. By using the word "rock" what imagery is King David trying to create about his Lord?