Lesson 4.4: Igneous Rocks

Task	Page(s)	Learning Target
1	2	I can describe how igneous rocks are formed and classified.
2	3	I can use observations to describe and classify igneous rocks.

Task 1 Learning Target: I can describe how igneous rocks are formed and classified.

Igneous Rock

A. How does igneous rock form?

B. What are some characteristics of igneous rock?

C. How does lava and magma compare?

D. Draw a picture of an erupting volcano and label using the following words/phrases: magma; lava; cools slowly; cools quickly; intrusive; extrusive

E. Complete the table using the terms below:

	Extrusive	Intrusive
Formed When		
Appearance		

melted rock cools on Earth's surface NO large crystals (basalt) magma cools slowly
Extrusive melted rock cools beneath Earth's surface lava cools quickly
large crystals (granite) Intrusive

F. Read the passage and study the table below. Then answer the questions that follow:

Can two different rocks with different names have the same mineral composition? The answer is yes. There are six major kinds of igneous rocks: granite, diorite, gabbro, rhyolite, andesite, and basalt. Geologists usually group these six kinds of igneous rocks in pairs, because each pair generally contains the same minerals. Study the table below to see which igneous rocks are the same but different.

Common Igneous Rocks			
Intrusive Rocks (Course-grained)	Granite	Diorite	Gabbro
Extrusive Rocks (Fine-grained)	Rhyolite	Andesite	Basalt
Minerals	Quartz, Feldspar, Muscovite, Amphibole	Amphibole, Feldspar, Pyroxene	Feldspar, Pyroxene, Olivine, Amphibole
Color	Light colored	Medium gray or green	Dark gray to black
→ → → → → → → → → → → →	Silica content of rock decreases		→ → → → → → → → → → → →
→ → → → → → → → → → → →	Rock color becomes darker		→ → → → → → → → → → → →

1. Which of the six major types of rock are intrusive and which are extrusive?
2. Compare granite with rhyolite. How are the similar? How are they different?
3. Compare the mineral composition of diorite with the mineral composition of andesite.
4. In what way is gabbro different from basalt? What can you infer about how these two kinds of igneous rocks form?
5. How is granite like gabbro?
6. Which rock has more silica in it, granite or basalt?
7. Is a rock with more silica in it more likely to be lighter or darker than a rock with less silica in it?

Task 2 Learning Target: I can use observations to describe and classify igneous rocks.

1. Draw a sketch of the 3 rock samples. Include labels. (minerals, crystals, gas pockets)

2. How would you classify each sample?

3. Describe the way they formed?

4. Why might they possess different colors?

5. Enrichment: How could you model the making of igneous rock with a bar of chocolate?