

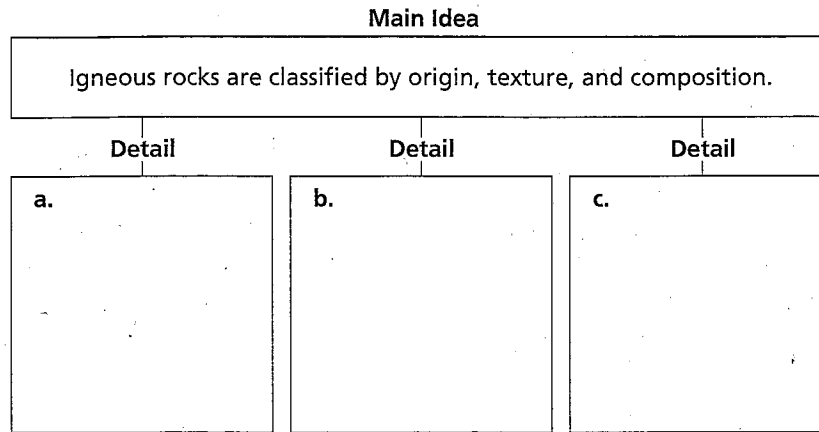
**Rocks** ▪ *Guided Reading and Study*

## Igneous Rocks

*This section describes the characteristics and uses of igneous rocks.*

### Use Target Reading Skills

*As you read about igneous rocks, fill in the detail boxes that explain the main idea in the graphic organizer below.*



### Classifying Igneous Rocks

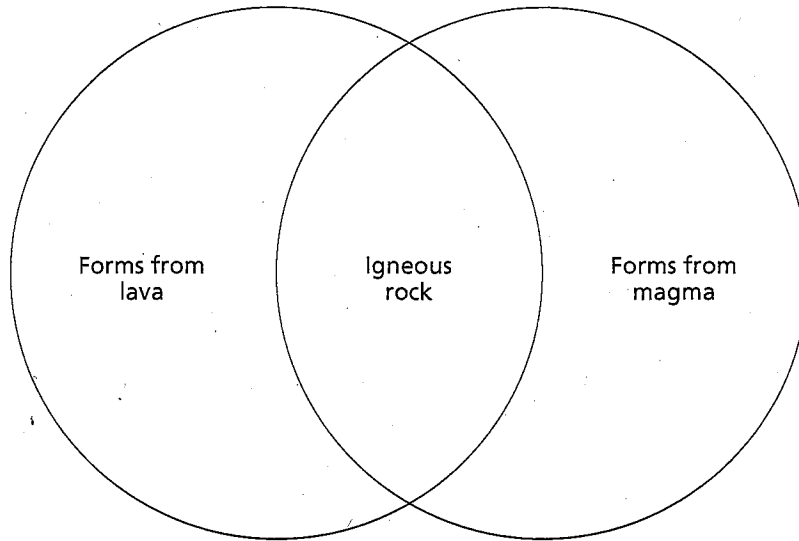
1. Circle the letter of the definition of igneous rock.
  - a. Rock that forms from minerals
  - b. Rock that contains iron
  - c. Rock that forms from magma or lava
  - d. Rock that contains crystals

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**Igneous Rocks** *(continued)*

2. Complete the Venn diagram by labeling each circle with the type of rock it represents.

a. \_\_\_\_\_ b. \_\_\_\_\_



c. Use the Venn diagram to explain how the types of rocks shown are alike and different. \_\_\_\_\_  
\_\_\_\_\_

3. Is the following sentence true or false? Extrusive rock forms beneath Earth's surface. \_\_\_\_\_

4. Circle the letter of each sentence that is true about basalt.

- a. It forms oceanic crust.
- b. It is the most common intrusive rock.
- c. It forms from lava.
- d. It forms beneath Earth's surface.

5. Circle the letter of each sentence that is true about granite.

- a. It is the most abundant intrusive rock in continental crust.
- b. It forms the core of many mountain ranges.
- c. It forms from magma.
- d. It forms on top of the crust.

6. The texture of an igneous rock depends on the size and shape of its \_\_\_\_\_  
\_\_\_\_\_

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7. Is the following sentence true or false? Igneous rocks with similar mineral compositions always have the same textures.  
\_\_\_\_\_

Match the type of texture of igneous rocks with how rocks of that texture form.

Type of Texture	How Rocks of That Texture Form
___ 8. fine-grained	a. Magma cools in two stages.
___ 9. coarse-grained	b. Lava cools rapidly.
___ 10. porphyry rock	c. Magma cools slowly.

11. Is the following sentence true or false? Intrusive rocks have smaller crystals than extrusive rocks. \_\_\_\_\_

12. A rock with large crystals surrounded by small crystals is called \_\_\_\_\_

13. What type of texture do extrusive rocks such as basalt have?  
\_\_\_\_\_  
\_\_\_\_\_

14. What is obsidian? \_\_\_\_\_  
\_\_\_\_\_

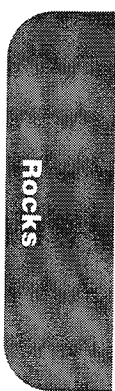
15. Describe the texture of obsidian. \_\_\_\_\_  
\_\_\_\_\_

16. Circle the letter of each sentence that is true about the silica composition of igneous rocks.

- a. Igneous rocks low in silica are usually dark-colored.
- b. An example of an igneous rock low in silica is granite.
- c. Igneous rocks high in silica are usually light-colored.
- d. An example of an igneous rock high in silica is basalt.

17. Describe the different minerals that determine the color of granite.  
\_\_\_\_\_  
\_\_\_\_\_

18. How do geologists determine the mineral composition of granite?  
\_\_\_\_\_  
\_\_\_\_\_



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**Rocks** ▪ *Guided Reading and Study*

**Igneous Rocks** *(continued)*

**Uses of Igneous Rocks**

19. Why have people throughout history used igneous rocks for tools and building materials? \_\_\_\_\_  
\_\_\_\_\_

20. Describe three ways granite has been used throughout history.  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_

21. Complete the table that shows the ways igneous rocks are used.

How Some Igneous Rocks Are Used	
Type of Igneous Rock	Way It Is Used
Basalt	Gravel for construction
a.	Cleaning and polishing
b.	Soil mixes

c. Use the information in the table to draw a conclusion about the uses of igneous rocks. You may use more than one sentence.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Rocks** ▪ *Review and Reinforce*

## Igneous Rocks

### Understanding Main Ideas

*Fill in the blanks in the table below.*

Origin of Igneous Rock	Resulting Texture
Slow cooling of magma far beneath Earth's surface	1. _____
Extremely rapid cooling of lava in which no crystals form	2. _____
Rapid cooling of lava in which tiny crystals form	3. _____

*Answer the following questions on a separate sheet of paper.*

4. What is the most common extrusive rock? Where is it found?
5. What is the most common intrusive rock? Where is it found?
6. Explain how the silica content of molten material affects the color of igneous rocks.
7. What qualities of igneous rocks have long made them useful for tools and building materials?
8. Describe one use each for the igneous rocks granite, basalt, and pumice.

### Building Vocabulary

*Fill in the blank to complete each statement.*

9. Igneous rock formed from lava that erupted onto Earth's surface is called \_\_\_\_\_ rock.
10. Igneous rock formed from magma below Earth's surface is called \_\_\_\_\_ rock.

**Rocks** ▪ *Enrich*

## The Same but Different

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**

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

Answer the following questions on a separate sheet of paper.

1. Which of the six major kinds of rock are intrusive and which are extrusive?
2. Compare granite with rhyolite. How are they 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 from this 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 likely to be lighter or darker than a rock with less silica in it?