



Study Guide

Minerals

Chapter

3

Directions: Place the letter of the term beside the correct definition.

Definition

- _____ 1. naturally occurring, inorganic solid with a definite chemical composition and an orderly arrangement of atoms
- _____ 2. salt formed by the natural evaporation of seawater
- _____ 3. describes atoms arranged in a pattern over and over
- _____ 4. a solid in which the atoms are arranged in an orderly, repeating pattern
- _____ 5. melted rock that forms crystals
- _____ 6. the part of a solution that evaporates, leaving a mineral
- _____ 7. the process, in a dry climate, where the solution leaves the mineral
- _____ 8. number of common elements in Earth's crust
- _____ 9. group of rocks forming minerals that contain silicon and oxygen
- _____ 10. two most abundant elements in Earth's crust

Vocabulary

- a. crystal
- b. crystalline
- c. eight
- d. evaporation
- e. five
- f. halite
- g. magma
- h. mineral
- i. oxygen
- j. silicon
- k. silicate
- l. water

Directions: List four characteristics of a mineral.

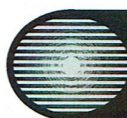
11. _____
12. _____
13. _____
14. _____

Directions: Arrange the eight most common elements in Earth's crust from most common to least common. (Hint: refer to Figure 5 in your textbook for additional help.)

Most common

Least common

15.	16.	17.	18.	19.	20.	21.	22.
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**Section 1 ■ Minerals—
 Earth's Jewels**

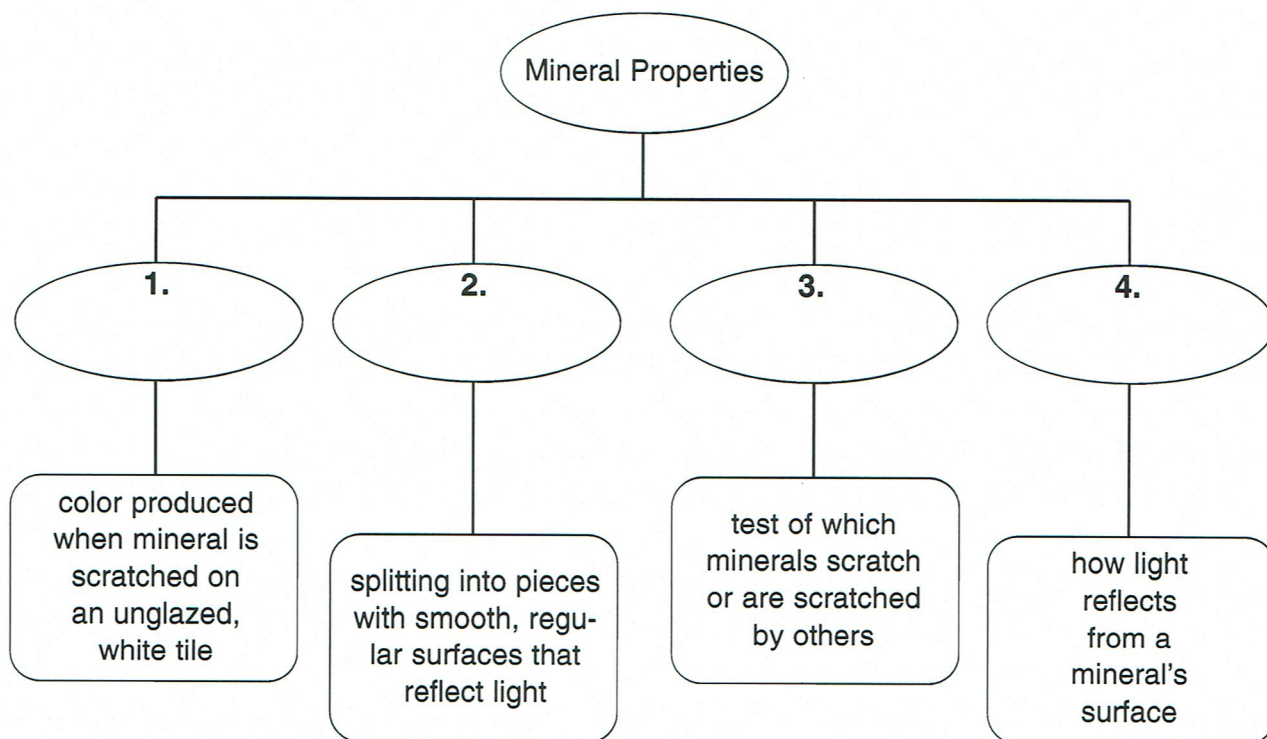
Directions: Use the following terms to complete the concept map below.

luster

streak

cleavage

hardness



Directions: Correctly complete each sentence by underlining the better of the two choices in parentheses.

- A mineral is an (organic/inorganic) solid material found in nature.
- A crystal is a solid material with a (random/repeating) pattern of atoms.
- If a mineral has (streak/cleavage) it will break in pieces with smooth, regular surfaces.
- A (gem/crystal) is a rare mineral, such as a diamond, that can be cut and polished.
- A mineral is a(n) (ore/gem) if it contains something useful and can be sold for a profit.
- (Hardness/Specific gravity) compares the weight of a mineral with the weight of an equal amount of water.
- (Streak/Luster) describes how light reflects from a mineral.

SECTION

2

Study Guide

Mineral Identification

Chapter

3

Directions: In the blank at the left, put a check mark (✓) next to each statement that agrees with the textbook.

- _____ 1. The physical properties of a mineral can be seen or measured in some way.
- _____ 2. The physical properties of a mineral make it possible to identify the mineral.
- _____ 3. Any mineral can be identified by a careful check of one physical characteristic.
- _____ 4. Hardness is a measure of how easily a mineral can be located.
- _____ 5. Friedrich Mohs developed a scale which lists minerals according to their hardness.
- _____ 6. Quartz will scratch a piece of copper, so quartz is harder than copper.
- _____ 7. The luster of a mineral is described as metallic or nonmetallic.
- _____ 8. The luster of chrome would be described as nonmetallic.
- _____ 9. Color alone is not usually enough to identify a mineral.
- _____ 10. When some minerals are rubbed across unglazed porcelain, they leave a streak of powdered material.
- _____ 11. Graphite is a mineral that does not leave a clear streak.
- _____ 12. Topaz is a mineral that does not leave a clear streak.
- _____ 13. Most minerals cannot be broken.
- _____ 14. Mica shows clear cleavage.
- _____ 15. Quartz is a mineral with cleavage.

Directions: Match the mineral names in Column I with the descriptions in Column II. Write the letter of the correct description in the blank at the left.

Column I

Column II

- | | |
|---------------------|---|
| _____ 16. magnetite | a. light yellow color; metallic luster; greenish-black streak |
| _____ 17. pyrite | b. light color; fingernail will scratch it; leaves thick, powdery streak |
| _____ 18. talc | c. black color; black streak; dull metallic luster; is attracted to magnets |
| _____ 19. calcite | d. yellow color; scratched by copper penny; often found in flakes |
| _____ 20. gold | e. glassy luster; hardness of 3 |

SECTION 4.2 Identifying Minerals

In your textbook, read about mineral identification.

Use each of the terms below just once to complete the passage.

cleavage

color

fracture

hardness

luster

specific gravity

streak

texture

Geologists use physical properties to identify minerals. For example, the (1) _____ of a mineral is caused by the presence of different trace elements. The way a mineral reflects light from its surface is called (2) _____, which is described as metallic or nonmetallic. How a mineral feels to the touch is called (3) _____. A mineral's (4) _____ is the color of a mineral when it is broken up and powdered. A measure of how easily a mineral can be scratched is called (5) _____.

Another property describes how a mineral will break. If a mineral splits easily and evenly along one or more planes, it has the property of (6) _____, while minerals that break along jagged edges are said to have (7) _____. The density of a mineral is usually expressed as (8) _____, which is the ratio of the weight of a substance to the weight of an equal volume of water at 4°C.

Answer the following questions.

9. Can all minerals produce a streak on a porcelain plate? Why or why not?

10. Can minerals with cleavage have more than one cleavage plane? If so, give an example.

11. What is the difference between density and specific gravity?

12. How many minerals are represented on the Mohs scale of mineral hardness?
What is the range of hardness of those minerals?
