

## Chapter 3 Minerals

### Modified True/False

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

- \_\_\_ 1. A mineral is a crystalline *liquid*. \_\_\_\_\_
- \_\_\_ 2. Some minerals form when magma *cools*. \_\_\_\_\_
- \_\_\_ 3. The phrase "*crystal structure*" refers to the repeating patterns in which atoms are arranged in a crystal.  
\_\_\_\_\_
- \_\_\_ 4. Tests for hardness and *streak* help identify minerals. \_\_\_\_\_
- \_\_\_ 5. Two types of *cleavage* are metallic and glassy. \_\_\_\_\_
- \_\_\_ 6. Fracture is the tendency of a mineral to break along a smooth, flat surface. \_\_\_\_\_

### Multiple Choice

Identify the choice that best completes the statement or answers the question.

- \_\_\_ 7. Why do some rocks have large mineral grains while others have small mineral grains?  
a. The shape of the crystal structure affects the size of the mineral grains.    b. The location and temperature of the rock as it cooled from magma changes the size.    c. The hardness of the mineral effects how big it will grow.
- \_\_\_ 8. Why is color alone a poor way to identify a mineral?  
a. A minerals color can change.    b. A minerals color can darken over time.    c. Different minerals can be the same color.
- \_\_\_ 9. Alcoa is a company that mines minerals from the Earth. Why do they only mine ores and not other materials?  
a. Ores keep their company profitable.    b. Ores are easier to obtain than other minerals.    c. Mining ores is less harmful to the environment.
- \_\_\_ 10. Cubic zirconium is used as a cheaper alternative to diamonds because it looks similar to diamonds. How can a streak plate help you tell the difference?  
a. Diamond has a different color streak than the cubic zirconium.    b. Diamond will not leave a streak.    c. Cubic zirconium will scratch the diamond.
- \_\_\_ 11. Hard water is water that contains a lot of minerals and causes extra damage to pipes. What is one way to remove the minerals to "soften" the water?  
a. Boil the water in a closed container, and then catch the water as it condenses back into a liquid.    b. Let the water sit and the mineral wil settle on the bottom. Water can then be taken from the top.    c. Add a 'water softener,' such as salt.

- \_\_\_\_\_ 12. Luster can be classified into two general categories. What are they?  
a. cleavage and fracture      b. dull and glassy      c. metallic and nonmetallic
- \_\_\_\_\_ 13. What are the qualities of a stone that make it a gem stone?  
a. beauty and rarity      b. lightness and durability      c. usefulness and profitability
- \_\_\_\_\_ 14. A silicate mineral must contain  
a. silicon and oxygen.      c. carbon and hydrogen.  
b. oxygen and carbon.      d. silicon and carbon.
- \_\_\_\_\_ 15. The color of the powder that a mineral leaves on a piece of white, unglazed porcelain is called the mineral's  
a. color.      c. streak.  
b. luster.      d. scratch.
- \_\_\_\_\_ 16. A collector of minerals would want a sample of \_\_\_\_\_.  
a. salt      c. sugar  
b. coal      d. wood
- \_\_\_\_\_ 17. Muscovite mica will peel off in flat sheets. This is an example of the physical characteristic called \_\_\_\_\_.  
a. hardness      c. fracture  
b. streak      d. cleavage
- \_\_\_\_\_ 18. If the cost of separating a mineral from waste rock becomes too great, the mineral may no longer be classified as an ore. This happens because \_\_\_\_\_.  
a. the mineral can no longer be mined at a profit  
b. the mineral has lost its usefulness  
c. the demand for the mineral has decreased  
d. none of the above

**Completion**

*Complete each statement.*

19. Tendency to break along smooth, flat surfaces
20. The hardest known mineral
21. Tendency to break with rough or jagged edges
22. The measure of how easily a mineral can be scratched
23. Reflection of light from a mineral's surface
24. Name given to the scale of hardness
25. Color left by powdered mineral left on unglazed porcelain

**Matching**

*Match the descriptions with the correct terms.*

- |                              |                          |
|------------------------------|--------------------------|
| a. usefulness, profitability | d. automobiles, aircraft |
| b. lightness, durability     | e. beauty, rarity        |
| c. ilmenite, rutile          |                          |

- \_\_\_ 26. properties that make titanium useful for tennis rackets and wheelchairs
- \_\_\_ 27. minerals mined for titanium
- \_\_\_ 28. products in which titanium is used
- \_\_\_ 29. qualities of a stone that make it a gemstone
- \_\_\_ 30. qualities of a mineral that classify it as ore

*Match each item with the correct statement below.*

- |             |             |
|-------------|-------------|
| a. luster   | e. density  |
| b. cleavage | f. ore      |
| c. hardness | g. fracture |
| d. mineral  |             |

- \_\_\_ 31. naturally formed, inorganic solid with a definite crystalline structure
- \_\_\_ 32. tendency of some minerals to break along smooth, flat surfaces
- \_\_\_ 33. natural mineral deposit that is large enough and pure enough to be mined for profit
- \_\_\_ 34. the ratio of mass to volume of a substance
- \_\_\_ 35. the way a surface reflects light
- \_\_\_ 36. a material's resistance to being scratched
- \_\_\_ 37. tendency of a mineral to break along a curved surface

## Chapter 3 Minerals

### Answer Section

#### MODIFIED TRUE/FALSE

1. ANS: F, solid

PTS: 1

2. ANS: T

PTS: 1

3. ANS: T

PTS: 1

4. ANS: T

PTS: 1

5. ANS: F, luster

PTS: 1

6. ANS: F, cleavage

PTS: 1

#### MULTIPLE CHOICE

- |  |        |             |                                       |
|--|--------|-------------|---------------------------------------|
| 7. ANS: B  | PTS: 1 | DIF: Medium |                                       |
| OBJ: Effect of cooling rate of magma on mineral size |        |             | LOC: Factors affecting mineral growth |
| 8. ANS: C  | PTS: 1 | DIF: Easy   |                                       |
| OBJ: Using color for mineral identification          |        |             | LOC: Tests for mineral identification |
| 9. ANS: A  | PTS: 1 | DIF: Medium | OBJ: Define ore                       |
| LOC: Understanding ores                              |        |             |                                       |
| 10. ANS: B   | PTS: 1 | DIF: Medium | REF: Properties of the streak test    |
| LOC: Tests for mineral identification                |        |             |                                       |
| 11. ANS: A   | PTS: 1 | DIF: Hard   |                                       |
| OBJ: Minerals form from evaporated solution          |        |             | LOC: How minerals form                |
| 12. ANS: C   | PTS: 1 | DIF: Easy   | OBJ: Understanding luster             |
| LOC: Tests for mineral identification                |        |             |                                       |
| 13. ANS: A   | PTS: 1 | DIF: Easy   | OBJ: Identify the properties of gems  |
| LOC: Properties of gems                              |        |             |                                       |
| 14. ANS: A   | PTS: 1 | DIF: 1      | REF: 1                                |
| OBJ: 2   |        |             |                                       |
| 15. ANS: C   | PTS: 1 | DIF: 1      | REF: 2                                |
| OBJ: 1   |        |             |                                       |
| 16. ANS: A   | PTS: 1 | DIF: B      | OBJ: 1/1                              |
| 17. ANS: D   | PTS: 1 | DIF: A      | OBJ: 3/2                              |
| 18. ANS: A   | PTS: 1 | DIF: A      | OBJ: 6/3                              |

**COMPLETION**

19. ANS: cleavage

PTS: 1

20. ANS: diamond

PTS: 1

21. ANS: fracture

PTS: 1

22. ANS: hardness

PTS: 1

23. ANS: luster

PTS: 1

24. ANS: Mohs

PTS: 1

25. ANS: streak

PTS: 1

**MATCHING**

26. ANS: B PTS: 1

27. ANS: C PTS: 1

28. ANS: D PTS: 1

29. ANS: E PTS: 1

30. ANS: A PTS: 1

31. ANS: D PTS: 1 DIF: 1 REF: 1

OBJ: 1

32. ANS: B PTS: 1 DIF: 1 REF: 2

OBJ: 2

33. ANS: F PTS: 1 DIF: 1 REF: 3

OBJ: 1

34. ANS: E PTS: 1 DIF: 1 REF: 2

OBJ: 1

35. ANS: A PTS: 1 DIF: 1 REF: 2

OBJ: 1

36. ANS: C PTS: 1 DIF: 1 REF: 2

OBJ: 1

37. ANS: G PTS: 1 DIF: 1 REF: 2

OBJ: 1