Identification of Minerals

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CHAPTER 1 Identification of Minerals

Lesson 3.2: True or False

Name_____ **Class**_____ **Date**_____

Write true if the statement is true or false if the statement is false.

_____ 1. You can usually identify a mineral by its color alone.

_____ 2. The color of a mineral is always same as the color of its powder.

_____ 3. The streak of a given mineral does not vary.

_____ 4. A mineral with a vitreous luster appears glassy.

_____ 5. The mineral pyrite has a non-metallic luster.

_____ 6. The Mohs hardness scale ranges from 1 to 100.

_____ 7. The cleavage of a mineral depends on its crystal structure.

_____ 8. Mica tends to form cubes when it cleaves.

_____ 9. Some minerals have a distinctive smell.

_____ 10. Certain minerals are attracted to a magnet.

Lesson 3.2: Critical Reading

Name_____ **Class**_____ **Date**_____

Read this passage based on the text and answer the questions that follow.

Mineral Hardness

Hardness is a mineral's ability to resist being scratched. Minerals that are not easily scratched are hard, and minerals that are easily scratched are soft. You can test the hardness of a mineral by scratching its surface with minerals of known hardness. Mineralogists use the Mohs hardness scale, shown in the **Table** 1.1, as a reference for mineral hardness. The scale lists common minerals in order of their relative hardness

TABLE 1.1: Mohs Hardness Scale

Hardness	Mineral
1	talc
2	gypsum
3	calcite
4	fluorite
5	apatite
6	feldspar
7	quartz
8	topaz
9	corundum

TABLE 1.1: (continued)

Hardness	Mineral
10	diamond

As you can see from the Mohs hardness scale, diamond has a hardness of 10. Diamond is the hardest mineral, so no other mineral can scratch it. Quartz has a hardness of 7. It can be scratched by all the minerals harder than 7 on the scale: topaz, corundum, and diamond. On the other hand, quartz can scratch minerals that are softer than 7, from feldspar to talc. Talc is the softest mineral, with a hardness of 1. All other minerals can scratch talc and it cannot scratch any other mineral.

You can use the minerals in the Mohs hardness scale to determine the hardness of an unknown mineral. Assume that you have a piece of a mystery mineral. To determine its hardness, you could try to scratch it with minerals on the Mohs hardness scale. Suppose you find that the mystery mineral is scratched by fluorite but not by calcite. Then it would have a hardness value between 3 and 4 on the Mohs hardness scale.

Questions

1. What is the hardness of a mineral?
2. Describe the Mohs hardness scale.
3. How can you use the Mohs hardness scale to determine the hardness of an unknown mineral?

Lesson 3.2: Multiple Choice

Name_____ **Class**_____ **Date**_____

Circle the letter of the correct choice.

1. A mineral's physical properties are determined by its
    a. vitreous luster.
    b. crystal structure.
    c. chemical composition.
    d. two of the above
2. Factors that may affect a mineral's color include
    a. mass.
    b. streak.
    c. cleavage.
    d. weathering.
3. To do a streak test, you scrape a mineral across a
    a. diamond crystal.
    b. piece of talc.
    c. porcelain plate.
    d. cleavage plane.
4. What is the least reliable property for identifying minerals?
    a. streak
    b. hardness
    c. color
    d. luster

5. A mineral with which type of luster is soft looking with long fibers?

    a. resinous
    b. earthy
    c. silky
    d. pearly

6. Which of the following minerals has the greatest density?

    a. gold
    b. pyrite
    c. quartz
    d. fool's gold

7. Which sequence shows minerals in the correct order from softer to harder?

    a. gypsum, apatite, corundum
    b. apatite, gypsum, corundum
    c. apatite, corundum, gypsum
    d. corundum, apatite, gypsum

Lesson 3.2: Matching

Name_____ Class_____ Date_____

Match each definition with the correct term.

Definitions

_____ 1. amount of mass per unit volume of a substance

_____ 2. how a mineral breaks when it does not break along a plane

_____ 3. color of the powder of a mineral

_____ 4. tendency of a mineral to break along certain planes

_____ 5. ability of a mineral to resist being scratched

_____ 6. ability of a mineral to glow under ultraviolet light

_____ 7. how light reflects off the surface of a mineral

Terms

a. cleavage

b. fluorescence

c. density

d. fracture

e. hardness

f. luster

g. streak

Lesson 3.2: Fill in the Blank

Name_____ **Class**_____ **Date**_____

Fill in the blank with the appropriate term.

1. Minerals with a(n) _____ luster are opaque and shiny like pyrite.
2. Minerals with a(n) _____ luster may look sparkly, glassy, or pearl-like.
3. The density of a substance is calculated by dividing the substance's mass by its _____.
4. The Mohs scale is a reference scale for mineral _____.
5. No other mineral can scratch the mineral _____.
6. The mineral with the lowest value on the Mohs scale is _____.
7. If a mineral bubbles when exposed to weak acid, it has the property of _____.

Lesson 3.2: Critical Writing

Name_____ **Class**_____ **Date**_____

Thoroughly answer the question below. Use appropriate academic vocabulary and clear and complete sentences.

Describe the mineral properties of color and streak. Explain why streak is more reliable than color for identifying minerals.