Name _____ Date _____ Class _____

Note-taking Worksheet

Minerals

Section 1 Minerals

A. _____—four characteristics

1. _____ occurring—formed by processes on or inside Earth with no input from humans
2. _____—not made by life processes
3. Element or compound with a definite chemical _____
4. Orderly arrangement of _____; all minerals are _____ solids.

B. _____—solid with atoms arranged in orderly, repeating patterns

1. Some crystals form from _____, hot melted rock below the Earth's surface.
   a. When magma cools _____, crystals are large.
   b. When magma cools _____, crystals are small.
2. Crystals can form from _____ as water evaporates or if too much of a substance is dissolved in water.

C. Mineral groups are defined by their _____.

1. **Silicates** contain _____, oxygen, and one or more other elements; they include most common rock-forming minerals.
2. Silicon and oxygen are the two most _____ elements in Earth's crust; they form the building blocks of many minerals.

Section 2 Mineral Identification

A. _____ and _____ are not enough to distinguish most minerals.

B. **Hardness** is a measure of how easily a mineral can be scratched; the _____ scale compares mineral hardness.

C. The way a mineral reflects _____ is its **luster.**

1. Can be _____ or nonmetallic
2. Nonmetallic lusters include dull, pearly, silky, and _____.

D. **Specific** _____ is the ratio of a mineral's weight to the weight of an equal volume of water; expressed as a number.

Meeting Individual Needs

Note-taking Worksheet (continued)

E. _____ is the color of a mineral in powdered form; but the streak test is useful only for minerals softer than the streak plate.

F. The way a mineral _____ can be a distinguishing characteristic.

1. Minerals with _____ break along smooth, flat surfaces.
2. Minerals with _____ break with uneven, rough, or jagged surfaces.

G. Some minerals have unique properties that involve _____ or magnetism.

Section 3 Uses of Minerals

A. _____—rare and beautiful minerals that are highly prized

1. The Cullinan diamond and the Hope diamond are famous _____ gems.
2. Gems have _____ applications in abrasives, lasers, and electronics.

B. Minerals can contain other useful _____.

1. An _____ is a mineral or rock containing a substance that can be mined at a profit.
2. Elements must be _____, or purified, from ores.
3. Some elements dissolve in fluids, travel through weaknesses in rocks, and in those weaknesses form mineral deposits called _____ mineral deposits.
4. _____ is a useful element derived from the minerals ilmenite and rutile.

Name Date Class

SECTION 1 Reinforcement

Minerals

Directions: *Use the table below and your text to answer questions 1–10.*

Rock-forming Minerals

Chemical classification	Mineral	Elements
Silicates	potassium feldspar	K, Al, Si, O
	plagioclase feldspar	Al, Si, O, Ca, Na
	amphiboles	Mg, Fe, Ca, Na, Al, Si, O
	pyroxenes	Al, Si, O, Fe, Mg, Ca, Na
	olivine	Mg, Fe, Si, O
	micas	K, Al, Si, O, (OH), Mg, Fe
	clay minerals	Al, Si, O, (OH)
	quartz	Si, O
Carbonates	calcite	Ca, (CO_3)
	dolomite	Ca, Mg, (CO_3)
Oxides	hematite	Fe, O
Sulfates	gypsum	Ca, (SO_4), H_2O
	anhydrite	
Halides	halite	Na, Cl

1. Draw a circle around each of the minerals listed below that does **NOT** belong to the silicate family.

   plagioclase amphibole gypsum mica pyroxene calcite quartz

2. Write the names and symbols of the two elements found in all silicate minerals.

   _____ and _____

3. To which chemical classification group does dolomite belong? _____

4. Give an example of a mineral that contains the (CO_3) group. _____

5. From what element do the sulfates get their names? _____

6. Give an example of an oxide. _____

7. Which of the rock-forming mineral groups makes up the largest group of minerals in Earth's crust?

   _____

8. Which group of rock-forming minerals contains the mineral gypsum?

   _____

9. What commonly used metal is extracted from hematite? _____

10. To which chemical classification group does halite belong? _____

Meeting Individual Needs

Name Date Class

SECTION 2 Reinforcement

Mineral Identification

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

Meeting Individual Needs