

11/4/16

Elements Found in Some Minerals							
	Al	C	Ca	Fe	Na	O	Si
Calcite		✓	✓			✓	
Feldspar	✓		✓		✓	✓	✓
Olivine			✓	✓		✓	✓
Mica	✓					✓	✓
Quartz						✓	✓

- According to the chart, which mineral contains the greatest variety of elements?
 A Calcite
 B Feldspar
 C Olivine
 D Quartz
- About 92 percent of the rock-forming minerals in Earth's crust are silicates. Silicates are compounds that contain silicon, oxygen, and one or more metals. According to this definition, which of these is not a silicate?
 F Calcite
 G Feldspar
 H Olivine
 J Mica
- According to the chart, which element is found only in calcite?
 A Al
 B C
 C Fe
 D Na
- A reasonable hypothesis based on the data is that the two most abundant elements in Earth's crust are ____.
 F C and O
 G Ca and Si
 H Al and O
 J Si and O

Name _____
 Date _____
 Hour _____

III. Applying Concepts

Writing Skills

Directions: Answer the following questions using complete sentences.

1. Why are ilmenite and rutile considered to be ores?

2. Today, most mining for ores involves digging beneath Earth's surface. Why is this necessary?

3. Why is sugar **NOT** a mineral?

4. What is the relationship between magma and minerals?

5. What are two ways in which the crystals of a mineral may form? Include an explanation of how the space where they form may affect the crystal.

6. Why are many minerals silicates.

3. How would a collector of minerals determine the hardness of an unknown mineral specimen?

4. What three qualities of titanium make it a good material for producing hip or knee replacements?

5. Coal, like graphite, is composed of carbon. Unlike graphite, coal is formed from decayed, once-living matter. Is it a mineral? Explain your answer.

6. Explain why most quartz is not considered a gemstone while amethyst, which is a kind of quartz, is a gemstone.

Skill: Comparing and Contrasting

7. Extracting minerals for human use can have both advantages and disadvantages. List two advantages and two disadvantages.

Skill: Concept Mapping

8. In the process of mining for bauxite ore, what is the first item: processing to get aluminum, locating the mineral, or mining the bauxite?

Skill: Classifying

Directions: Classify the following materials by writing **M** for mineral, **G** for gem, **O** for ore, and **N** for none. Some may have more than one label.

_____ 9. diamond

_____ 10. hematite

_____ 11. sphalerite

_____ 12. halite

_____ 13. quartz

_____ 14. pyrite

_____ 15. magma

that makes the statement false and write the correct word on the line after the statement.

- _____ 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. Some crystals are formed from minerals dissolved in liquids. _____
- _____ 5. When liquid evaporates, mineral molecules may come together to form crystals. _____
- _____ 6. Minerals that are different in other properties may be alike in color. _____
- _____ 7. Tests for hardness and streak help identify minerals. _____
- _____ 8. Two types of cleavage are metallic and glassy. _____
- _____ 9. Fracture is the tendency of a mineral to break along a smooth, flat surface. _____
- _____ 10. Minerals called ores are mined because they contain beautiful substances. _____

Directions: Match the descriptions in Column I with the terms in Column II. Write the letter of the correct pair of words in the blank at the left.

Column I

- _____ 11. properties that make titanium useful for tennis rackets and wheelchairs
- _____ 12. minerals mined for titanium
- _____ 13. products in which titanium is used
- _____ 14. qualities of a stone that make it a gemstone
- _____ 15. qualities of a mineral that classify it as ore

Column II

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

Directions: For each of the following, write the letter of the term or phrase that best completes the sentence.

- _____ 16. Most minerals are composed of _____ combined with other elements.
a. carbon and hydrogen c. calcium and oxygen
b. silicon and oxygen d. chlorine and sodium
- _____ 17. A crystal is always _____.
a. a hexagon b. a cube c. a liquid d. none of these
- _____ 18. One important use for titanium is _____.
a. soft drink cans c. automobile body parts
b. lawn furniture d. cooking equipment
- _____ 19. A mineral is classified as an ore as long as _____.
a. it's rare and valuable c. it's profitable and useful
b. it can be used for jewelry d. it's solid and natural
- _____ 20. Titanium ores can occur as _____.
a. vein mineral deposits c. magma-formed rocks
b. beach sands d. all of the above
- _____ 21. Crystals may be _____.
a. cubic b. monoclinic c. tetragonal d. all of these
- _____ 22. All of the following are minerals EXCEPT _____.
a. salt b. quartz c. sugar d. gold
- _____ 23. Most common rock-forming minerals are _____.
a. gems b. ores c. silicates d. oxides
- _____ 24. A salt crystal is _____ in shape.
a. cubic b. hexagonal c. tetragonal d. monoclinic
- _____ 25. One of the softest minerals is _____.
a. graphite b. diamond c. corundum d. amethyst

II. Understanding Concepts

Directions: Answer the following questions on the lines provided.

1. List four characteristics all minerals share.

2. What partly determines the type of mineral formed by cooling magma?
