

Name

Key

Parent Signature _____

Minerals Study Guide

1. List the 5 characteristics of minerals:

- A. Naturally occurring
- B. Inorganic
- C. Crystalline structure
- D. Solid
- E. Definite chemical formula

NICS Diner

2. List and define the 6 physical properties of minerals. (Also used to test minerals.)

Property	Definition
<u>Color</u>	<u>initial observation: least reliable</u>
<u>Streak</u>	<u>color of the powder of a mineral rubbed on tile</u>
<u>Luster</u>	<u>the way a mineral reflects light off a surface</u>
<u>Hardness</u>	<u>how easily a mineral can be scratched - Mohs scale</u>
<u>Cleavage</u>	<u>when a mineral breaks into smooth, flat surfaces</u>
<u>Fracture</u>	<u>when a mineral breaks into rough, jagged, irregular surfaces</u>

* Crystal shape (hexagonal, cubic, tetragonal)

3. Explain the 3 ways in which minerals can form.

- A. Precipitates - crystals form from minerals that "fall out" of a solution
- B. Evaporates - crystals form from minerals left behind after water evaporates
- C. Magma/Lava - magma cools, crystals grow

4. A student observes that an unknown mineral scratches a glass plate (hardness 5.5) and a sample of quartz (hardness 7). What else does the student know about the unknown mineral?

- A. Its hardness is between 5.5 and 7.
- B. Its hardness is greater than 7.
- C. Its hardness is less than 7.
- D. Its hardness is less than 5.5.

5. Which property causes halite to break into cubes? cleavage

6. Pyrite is metallic in appearance. This describes which property? luster

7. Which property of minerals does Mohs scale measure? hardness

8. Of the following minerals: mica, diamond, gypsum, and copper, which is an example of a gemstone?

9. Which family of minerals is the most common? silicates (92% of Earth's crust)

10. Classify the following as mineral or nonmineral: If a nonmineral, explain why?

- a. Fossils - Non mineral - organic
- b. Sulfur - mineral
- c. Pyrite - mineral
- d. Sugar - non mineral - organic
- e. plastic - non mineral - manmade

11. What is the difference between a rock and a mineral? rocks are made of minerals

12. Imagine that you are trying to determine the identity of a mineral. You decide to do a streak test. You rub the mineral across the streak plate, but the mineral does not leave a streak. Has your test failed? Explain.

No, you now know the mineral is harder than the streak plate

13. Why would cleavage be important to gem cutters, who cut and shape stones?

To know where the mineral breaks to cut it properly.

14. Imagine that you work at a jeweler's shop and someone brings in some gold nuggets for sale. You are not sure if the nuggets are real gold. Which identification tests would help you decide whether the nuggets are gold?

Streak, hardness, cleavage

15. Which property of minerals is the least reliable? Why? Color; many minerals can be the same color or the same mineral can be different colors

16. Suppose you are in a desert. You are walking across the floor of a dry lake, and you see crusts of cubic halite (rock salt) crystals. How do you suppose the halite crystals formed? Explain your answer.

By water evaporating leaving the salt behind; evaporites

17. How does the rate of cooling lava and magma affect crystal size?

lava cools quickly - small crystals form
magma cools slowly - large crystals form

Place the following terms/phrases into the concept map below: how they form, crystal, evaporites; color, properties, luster, precipitates, hardness, streak, cooling of lava or magma, mineral, cleavage/fracture

