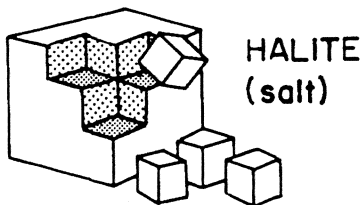


1. What causes the characteristic crystal shape and cleavage (breaking along flat surfaces) of the mineral halite as shown in the diagram below?



- (1) metamorphism of the halite
- (2) the internal arrangement of the atoms in halite
- (3) the amount of erosion the halite has undergone
- (4) the shape of other minerals located where the halite formed

2. Minerals are identified on the basis of

- (1) the method by which they were formed
- (2) the type of rock in which they are found
- (3) the size of their crystals
- (4) their physical and chemical properties

3. The mineral mica breaks evenly along flat sheets mainly because of its

- (1) atomic arrangement
- (2) chemical composition
- (3) hardness
- (4) density

4. Scratching a mineral against a glass plate is a method used for determining the mineral's

- (1) color
- (2) hardness
- (3) luster
- (4) cleavage

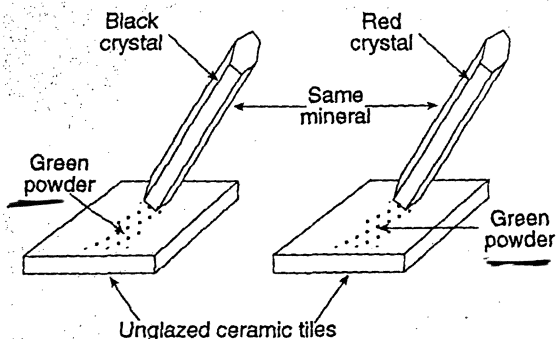
5. One of the most abundant minerals in beach sand is quartz. Which property of quartz could account for its abundance?

- (1) hardness
- (2) texture
- (3) color
- (4) luster

6. The physical properties of minerals result from their

- (1) density and color
- (2) texture and color of streak
- (3) type of cleavage and hardness
- (4) internal arrangement of atoms

7. The diagram below shows the results of one test for mineral identification.

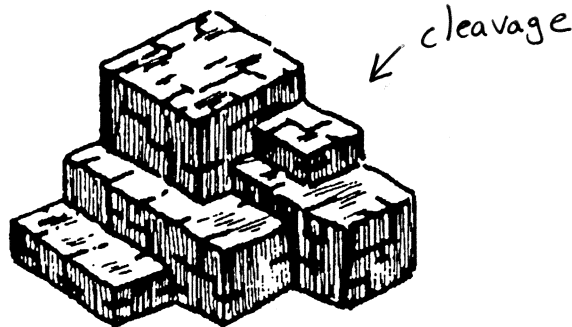


Which mineral property is being tested?

- (1) density
- (2) fracture
- (3) streak
- (4) luster

8. Base your answer to the following question on the Earth Science Reference Tables and the diagram and table below.

Mineral Sample A



Mass = 210 grams

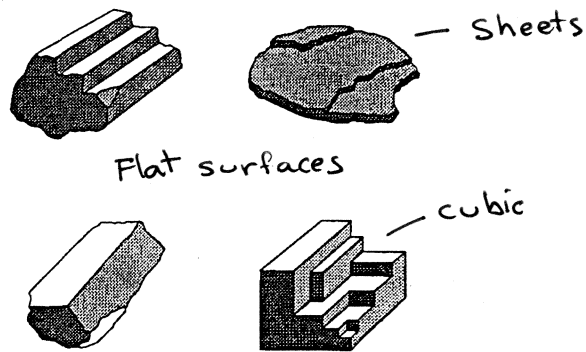
Mineral Density Table

Mineral	Density (g/cm ³)	Mineral	Density (g/cm ³)
Gypsum	2.3	Hornblende	3.2
Orthoclase	2.6	Chalcopyrite	4.2
Quartz	2.7	Pyrite	5.0
Calcite	2.7	Magnetite	5.2
Dolomite	2.9	Galena	7.5
Fluorite	3.2	Copper	8.9

The original shape of mineral sample A was altered when it was hit with a rock hammer. Which physical property caused the mineral to break as it did?

- (1) hardness
- (2) luster
- (3) cleavage
- (4) streak

9. The diagrams below represent fractured samples of four minerals.



Which mineral property is best illustrated by the samples?

- (1) hardness
- (2) streak
- (3) cleavage
- (4) density

10. Differences in hardness between minerals are most likely caused by the

- (1) internal arrangement of atoms
- (2) external arrangement of flat surfaces
- (3) number of pointed edges
- (4) member of cleavage planes

11. Base your answer to the following question on the *Earth Science Reference Tables*, the data table below and your knowledge of Earth science.

MINERAL HARDNESS

Moh's Hardness Scale	Approximate Hardness of Common Objects	
Talc	1	
Gypsum	2	Fingernail (2.5)
Calcite	3	Copper penny (3.5)
Fluorite	4	Iron nail (4.5)
Apatite	5	Glass (5.5)
Feldspar	6	Steel file (6.5)
Quartz	7	Streak plate (7.0)
Topaz	8	
Corundum	9	
Diamond	10	

Moh's scale arranges minerals according to their relative

- (1) resistance to breaking (3) specific heat
 (2) resistance to scratching (4) specific gravity

12. Which two elements listed below are most abundant by weight in the Earth's crust? *ESR Tp. 1*

- (1) silicon and oxygen (3) oxygen and magnesium
 (2) hydrogen and iron (4) hydrogen and calcium

13. Base your answer to the following question on the diagram below and the *Earth Science Reference Tables*. The diagram shows the elements found in four minerals.

■ = element present

	O	Si	Al	Fe	Ca	Na	C
Quartz (2)	■	■					
Feldspar (5)	■	■	■	■	■	■	
Olivine (4)	■	■		■	■		
Diamond (1)							■

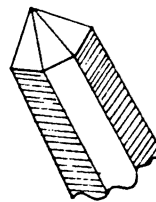
Which mineral contains the ^{many} greatest variety of elements?

- (1) quartz (3) feldspar
 (2) olivine (4) diamond

14. Which element combines with silicon to form the tetrahedral unit of structure of the silicate minerals?

- (1) oxygen *SiO* (3) potassium
 (2) nitrogen (4) hydrogen

15. The crystal characteristics of quartz shown in the accompanying diagram are the result of the



- (1) internal arrangement of the elements from which quartz is formed
 (2) shape of the other rock crystals in the area where the quartz was formed
 (3) amount of weathering that the quartz has been exposed to
 (4) age of the quartz crystal

16. Which object is the best model of the shape of a silicon-oxygen structural unit?

