

Intermediate Science 7
Unit 4: Earth Crust
Topic 5: Rocks and Minerals



Student Name _____

Rock: is the hard, solid part of the earth. It is made of a combination of two or more minerals in various amounts.

Rocks have many uses:

- Tools
- Building material
- Monetary currency
- Jewelry
- Entertainment
- Keepers of history
- Provide direction



Minerals: a pure, naturally occurring solid substance found in rocks. There are more than 3000 different minerals. Minerals are made of chemicals - either a single element or a combination of elements. There are 103 known chemical elements.

Element is a pure substance that can not be further broken down into other substances. The majority of minerals consist of two or more elements

There are many properties of minerals

1) Luster: -used to describe the surface of a mineral when light strikes it.
 -a mineral may have a shiny, metallic luster {like gold or silver}, or a non-metallic, dull luster {soapstone}

2) Streak: -describes the powdery mark that some minerals leave when they are scratched against a hard surface.
 -the colour of the streak may be the same colour as the mineral, or different.

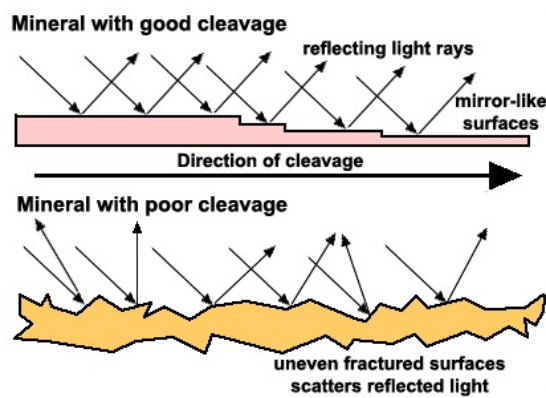
3) Hardness: -the hardness of a mineral can be determined by scratching one mineral against another...the harder mineral leaves a scratch on the softer one.
 -the German scientist, Friedrich Mohs developed “**Mohs Hardness Scale**” to develop the relative hardness of a mineral.
 The scale consists of *10 minerals* ranked in order of hardness. These 10 minerals are used as standards against which all other minerals are compared.

Moh's Hardness Scale	Hardness Chart Made of Things You Can Easily Find
Softest	
1. talc	soft pencil point
2. gypsum	fingernail
3. calcite	copper coin
4. fluorite	
5. apatite	pocket-knife blade
6. feldspar	steel file
7. quartz	sandpaper
8. topaz	
9. corundum	emery paper
Hardest	

4) Crystal: a naturally occurring piece of solid with, with straight edges, flat sides and regular . All minerals occur in the form of crystals, although some crystals may be too small to be seen with the naked eye (magnification). Each type of mineral has a certain type of geometric shape:

Cleavage: the tendency of a mineral to split most easily along a flat surface parallel to its crystal faces It is a smooth break

Fracture: When a crystal breaks Into pieces with rough and uneven surfaces.



5)Colour: we notice the color of a mineral first. Some minerals are easily identified by color because they are never any other color. For example, malachite is always green

6)Transparency : If the light enters and exits the surface of the substance in relatively undisturbed fashion, then the substance is referred to as transparent. If the light can enter and exit the surface of the substance, but in a disturbed and distorted fashion, then the substance is referred to as translucent. If the light can not even penetrate the surface of the substance, then the substance is referred to as opaque.

7) Magnetic : is the object attracted to a magnet

8) Effervescence: (Fizz) (NOTE: add vinegar to chalk - limestone)

PART A: MULTIPLE CHOICE

Instructions: Shade the letter of the correct answer on the computer scorable answer sheet provided.

- Which of the following is true for a rock?___.
 - A mixture of minerals, organic matter, volcanic glass, or other materials
 - Formed by heat and pressure
 - Made of fossils
 - Made of molten material
- Why are rocks important?
 - They can be used as building materials
 - Can be used to study the history of the Earth
 - Contains valuable resources
 - All are correct

3. What do all rocks have in common?
- (A) They are all of the same size
 - (B) They are all made of minerals
 - (C) They are all used for the same purpose.
 - (D) They are all of the same shape and colour
4. What are the e "basic building blocks" of minerals? _____.
- (A) Compounds
 - (B) Crystal
 - (C) Elements
 - (D) Minerals
5. A student found a sample of a solid material that was gray, shiny and made of all the same material. What category does this sample best fit?
- (A) Igneous rock
 - (B) Metamorphic rock
 - (C) Mineral
 - (D) Sedimentary rock
6. Which of the following refers to the way a mineral shines?
- (A) Cleavage
 - (B) Color
 - (C) Hardness
 - (D) Luster
7. What is the test called that leaves behind a powder of a mineral?
- (A) Cleavage
 - (B) Scratch
 - (C) Streak
 - (D) Weight
8. What does Mohs scale help us in identifying a mineral?
- (A) Cleavage
 - (B) Colour
 - (C) Hardness
 - (D) Luster
9. According to Mohs Scale, What is the hardest mineral?
- (A) Diamond
 - (B) Feldspar
 - (C) Talc
 - (D) Quartz
10. Minerals form a definite shape and their surfaces have faces, What can we say the mineral has formed?
- (A) Compounds
 - (B) Crystal
 - (C) Elements
 - (D) Minerals

11. What is it called when a mineral easily splits along a flat surface?

- (A) Cleavage
- (B) Fossil
- (C) Luster
- (D) Streak

12. What can be used to identify a mineral?

- (A) Size, color, streak
- (B) Size, luster, streak
- (C) Streak, temperature, luster
- (D) Streak, cleavage, color

PART B : MATCHING

[5]

Match each thermometer on the left with the best Descriptor on the right. Each Descriptor may be used only once. Place your answer on the scantron

<u>Term</u>	<u>Descriptor</u>
13. _____ Rock	A. Measure of how much a mineral can resist being scratched
14. _____ Mineral	B. A measure of how much light is reflected from the surface of a mineral; how shiny the mineral is.
15. _____ Lustre	C. A naturally occurring inorganic solid substance
16. _____ Streak	D. The colour of the powdered form of a mineral
17. _____ Hardness	E. A natural material composed of one or more minerals

PART C: WRITTEN RESPONSE

1. What is the name of the scale used for measuring the hardness of a mineral?

2. What is the property of a mineral that splits along smooth, flat surfaces?

3. What is the property of a mineral that breaks along jagged edges?

4. What is a mineral?

5. Why is streak a useful way to identify a mineral?

6. (a) What is the softest mineral on the Mohs Hardness Scale?

(b) What is the hardest mineral on the Mohs Hardness Scale?

7. How would you use the Mohs Hardness Scale to help identify a mineral?

8. What is the difference between cleavage and fracture?

9. Why is colour alone not a reliable clue for identifying minerals?

10. Suppose you were given several minerals that look similar. Write a note to another student describing several tests that may help to tell them apart.
