

MCAS Questions: Rocks and Minerals**Reporting Category: Earth and Space Science**

Standard: 1 - Give a simple explanation of what a mineral is and some examples, e.g., quartz, mica.

Standard: 2 - Identify the physical properties of minerals (hardness, color, luster, cleavage, and streak), and explain how minerals can be tested for these different physical properties.

Standard: 3 - Identify the three categories of rocks (metamorphic, igneous, and sedimentary) based on how they are formed, and explain the natural and physical processes that create these rocks.

1. (2013) Which of the following best describes a mineral?
 - A. a solid natural material with a crystal structure
 - B. a material that was once living but has decayed
 - C. a liquid chemical used to make soil more fertile
 - D. a nutrient produced by plants that other organisms need

2. (2013) The Mohs scale for minerals is shown below.

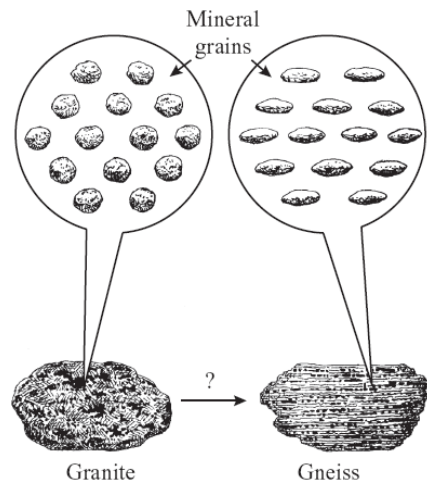
Mohs Scale		
softest	1	talc
	2	gypsum
	3	calcite
	4	fluorite
	5	apatite
	6	feldspar
	7	quartz
hardest	8	topaz
	9	corundum
	10	diamond

An unidentified mineral scratches fluorite but not quartz. According to the Mohs scale, what could be the unidentified mineral?

- A. apatite
- B. calcite

- C. diamond
 - D. topaz
3. (2012) A student observed a rock made up of many small particles of sand arranged in light-colored layers and dark-colored layers. Which of the following statements describes how this type of rock **most likely** formed?
- A. Clay was crushed and frozen under a glacier.
 - B. Lava from a volcano cooled quickly in water.
 - C. River sediments were slowly compacted and cemented together.
 - D. Mineral deposits hardened into solid rock in underground caves.
4. (2011) Which of the following best describes a mineral?
- A. the main nutrient in all foods
 - B. a type of grain found in cereals
 - C. a natural substance that makes up rocks
 - D. the decomposed plant matter found in soil
5. (2010) Owen tested a physical property of a mineral. He rubbed a mineral sample on a piece of white tile. The mineral left a red mark on the tile.
- Which of the following physical properties of the mineral was Owen **most likely** testing?
- A. cleavage
 - B. hardness
 - C. luster
 - D. streak
6. (2009) A student sorted mineral samples into two groups: dull and shiny. Which of the following properties did the student use to sort the mineral samples into groups?
- A. cleavage
 - B. color
 - C. luster
 - D. streak

7. (2009) Various processes are involved in the formation of different types of rocks. The diagram below illustrates changes in rock as granite forms gneiss.



In addition to heat, which of the following changes granite to gneiss?

- A. acid
 - B. erosion
 - C. pressure
 - D. water
8. (2008) Which type of rock is formed when hot lava cools?
- A. coal
 - B. igneous
 - C. limestone
 - D. metamorphic

9. (2007) The Mohs scale for minerals is shown below.

softest → hardest									
1	2	3	4	5	6	7	8	9	10
talc	gypsum	calcite	fluorite	apatite	feldspar	quartz	topaz	corundum	diamond

An unknown mineral can be scratched by topaz, but not by feldspar. According to the Mohs scale, which of the following **best** describes the hardness of the unknown mineral?

- A. less than 5
 - B. more than 8
 - C. less than 8, but more than 6
 - D. more than 4, but less than 6
10. (2007) Dora wrote down some observations of four rock samples she was studying. Based on her observations, which of the following rock samples is **most likely** a sedimentary rock?

A.

B.

C.

D.

Open Response Question

(2008) Elena found a piece of a mineral while on a hike. She wants to identify the mineral she found.

- a. Identify two physical properties of minerals.
- b. Describe how Elena can test the mineral she found for each of the physical properties that you identified in part (a).

MCAS Questions: Rocks and Minerals
Multiple Choice Answers

1. A
2. A
3. C
4. C
5. D
6. C
7. C
8. B
9. C
10. B

Open Response Answers

Score Point 4

a. Two physical properties of minerals are color and streak.

b. Elena can test the mineral she found for these properties. Color can be tested just by examining the mineral with the naked eye but a magnifying glass can help. To test streak you take a tile and your mineral and rub the mineral across the back of the tile until a streak is left. Most streaks are the same color as the mineral but there are some exceptions to that.

Score Point 4

a. Two physical properties of minerals are color and luster.
b. To test for color, she could look under a magnifying glass. To check for luster, she could look under a magnifying glass to see if the mineral she found is metallic, nonmetallic, shines like metal, or not.

Score Point 3

a. She can test a mineral's hardness and its luster.

b. To test its hardness she can use Moh's hardness scale to see how hard it is then look it up. To test its luster she can see if it's a dull color a brilliant color a metallic color etcetera.

Score Point 2

a. Two physical properties of minerals are how hard it is and how heavy it is.

b. She could test how hard it is by doing the scratch test. The scratch test is when you use two minerals and see if one scratches. She could test how heavy it is by putting it onto a scale.

Score Point 1

(a) hardness and Luster

(b) hardness - you take a file and flip it over and scratch it against the back of the file.

Luster-how Dark it is.

Score Point 0

A. A mineral has to be a type of rock, also it has to come from the earth.

B To test it she can see if the mineral was in the ground when she found it. Another way is she can just look it up on the internet