

Name _____

Date _____

Homerroom _____

MCAS ASSESSMENT FOR ROCKS, MINERALS, AND SOILS

These questions are all from previous years of the Grade 5 Science and Technology/Engineering MCAS. For multiple choice questions, circle the correct answer. For Open Response items, use a separate piece of paper and staple it to your assessment.

*2002, Science and Technology/Engineering - Grade 5
Question 7: Multiple Choice
Physical Sciences*

A student picked up a small rock using a magnet. The rock probably contained

- A. quartz.
- B. diamond.
- C. aluminum.
- D. iron.

*2005, Science and Technology/Engineering - Grade 5
Question 15: Multiple Choice
Earth and Space Science*

When a volcano erupts, lava flows out from the top. What type of rock is formed as the lava cools?

- A. magma
- B. igneous
- C. sedimentary
- D. metamorphic

2005, Science and Technology/Engineering - Grade 5
 Question 20: Multiple Choice
 Earth and Space Science

Kendra has a mineral that she wants to identify. It is white in color, has a glassy luster, and has a hardness of 5. The table below shows some properties of selected minerals.

Mineral	Color(s)	Luster	Hardness
Calcite	White	Dull or Pearly	3
Fluorite	White, Blue, Green, Violet	Glassy	4
Apatite	White, Green, Brown, Violet	Glassy or Greasy	5
Topaz	Yellow, Red, White, Blue	Glassy	8

Based on the information in the table, Kendra's mineral is most similar to

- A. calcite.
- B. fluorite.
- C. apatite.
- D. topaz.

2004, Science and Technology/Engineering - Grade 5
 Question 24: Multiple Choice
 Earth and Space Science

Which of the following is one reason that quartz is classified as a mineral?

- A. It can be manufactured.
- B. It comes in different colors.
- C. It has a specific crystal structure.
- D. It can be melted at high temperatures.

2003, Science and Technology/Engineering - Grade 5
 Question 6: Multiple Choice
 Earth and Space Science

Gavin has two rocks. Both rocks are made up entirely of the same mineral. What other property of his two rocks is **most likely** to be the same?

- A. size
- B. shape
- C. color
- D. weight

2002, Science and Technology/Engineering - Grade 5
 Question 11: Multiple Choice
 Earth and Space Science

Rocks can be classified by their physical characteristics. The table below indicates the colors and textures of some rocks.

Rock Characteristics		
Type of Rock	Texture	Color
Pumice	grainy	white, tan, gray
Sandstone	fine to grainy	white, tan, brown, gray
Shale	fine	gray, black
Granite	coarse	gray, white

Conglomerate	coarse	white, tan, gray, brown, black
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Based on the table, a black rock with a fine texture is **most likely** what kind of rock?

- A. pumice
- B. sandstone
- C. shale
- D. granite

*2001, Science and Technology/Engineering - Grade 5
Question 3: Multiple Choice
Earth and Space Science*

Which of the following is **LEAST** responsible for the weathering of rocks?

- A. freezing
- B. plant growth
- C. rain
- D. lightning

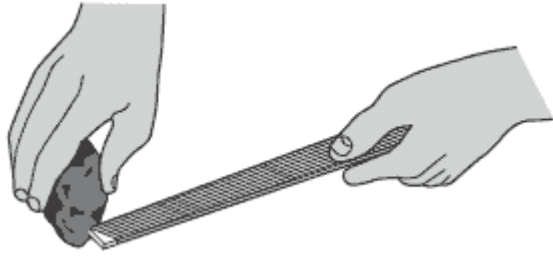
*2001, Science and Technology/Engineering - Grade 5
Question 4: Multiple Choice
Earth and Space Science*

To compare the hardness of different minerals, it would be **BEST** to find

- A. the color of the minerals.
- B. which minerals scratch other minerals.
- C. which minerals reflect light most strongly.
- D. the samples that feel smoothest to the touch.

*2006, Science and Technology/Engineering - Grade 5
Question 17: Multiple-Choice
Reporting Category: Earth and Space Science
Objective(s): Rocks and Their Properties - 2*

The picture below shows a mineral sample being tested with a metal file.



Which property of a mineral is **most likely** tested in this way?

- A. color
- B. hardness
- C. luster
- D. streak

*2005, Science and Technology/Engineering - Grade 5
Question 37: Open Response
Earth and Space Science*

How is soil formed? In your answer, include two of the major components of soil.

2006, Science and Technology/Engineering - Grade 5
Question 1: Multiple-Choice
Reporting Category: Earth and Space Science
Objective(s): The Water Cycle - 10

In the water cycle, rain, snow, or sleet falling to the ground is a form of

- A.** precipitation.
- B.** condensation.
- C.** evaporation.
- D.** transpiration.

2006, Science and Technology/Engineering - Grade 5
Question 13: Multiple-Choice
Reporting Category: Earth and Space Science
Objective(s): Soil - 4

A glacier moving down a mountain valley is pictured below.



Glaciers are frozen, slow-moving rivers of ice that can move about three feet per day down mountain valleys. How does a glacier help create new soil?

- A.** by carrying living plant material to the ocean
- B.** by scraping small particles off large rocks
- C.** by melting rocks along its path down the valley
- D.** by freezing small particles of soil to form large rocks

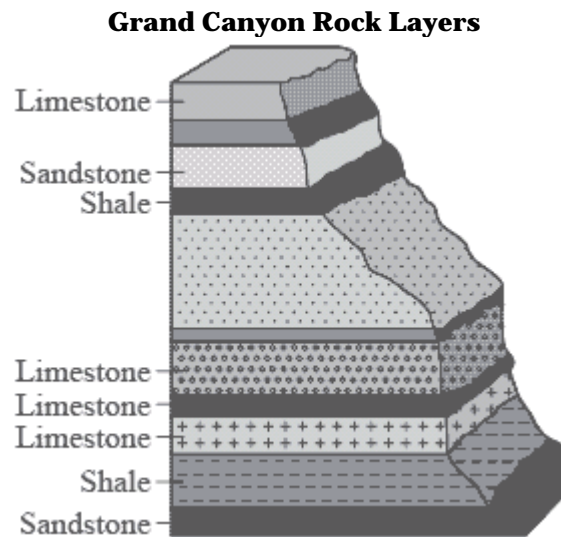
2006, Science and Technology/Engineering - Grade 5
Question 8: Multiple-Choice
Reporting Category: Earth and Space Science
Objective(s): Earth's History - 12

All of the processes listed below cause changes in Earth's surface. Which of the following is the slowest to change Earth's surface?

- A. earthquake activity
- B. landslide
- C. volcanic eruption
- D. weathering

2006, Science and Technology/Engineering - Grade 5
Question 14: Multiple-Choice
Reporting Category: Earth and Space Science
Objective(s): Rocks and Their Properties - 3

The diagram below shows some of the layers of rocks found in the Grand Canyon. Scientists find these layers of rock useful for studying fossils.



What type of rock is shown labeled in these layers?

- A. extrusive
- B. igneous
- C. metamorphic
- D. sedimentary

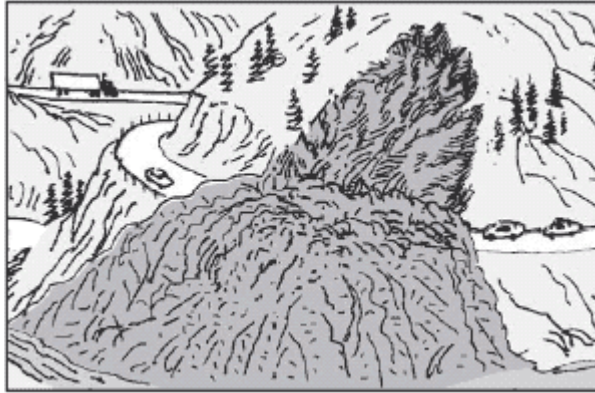
2006, Science and Technology/Engineering - Grade 5

Question 30: Multiple-Choice

Reporting Category: Earth and Space Science

Objective(s): Earth's History - 12

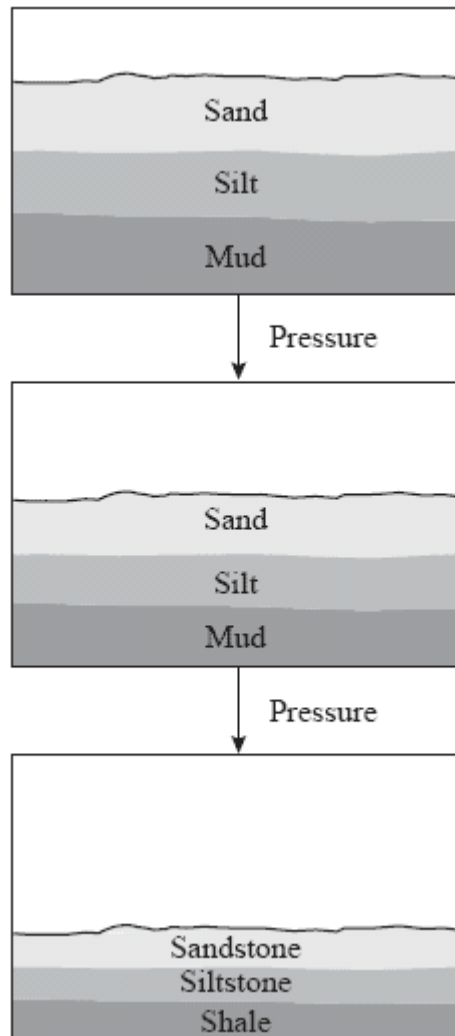
The picture below shows the result of a geological event that changed a mountain rapidly.



Which of the following **most likely** caused the rapid change of the mountain?

- A. landslide
- B. snowfall
- C. wind erosion
- D. volcanic eruption

The diagram below shows how a type of rock is formed over time.



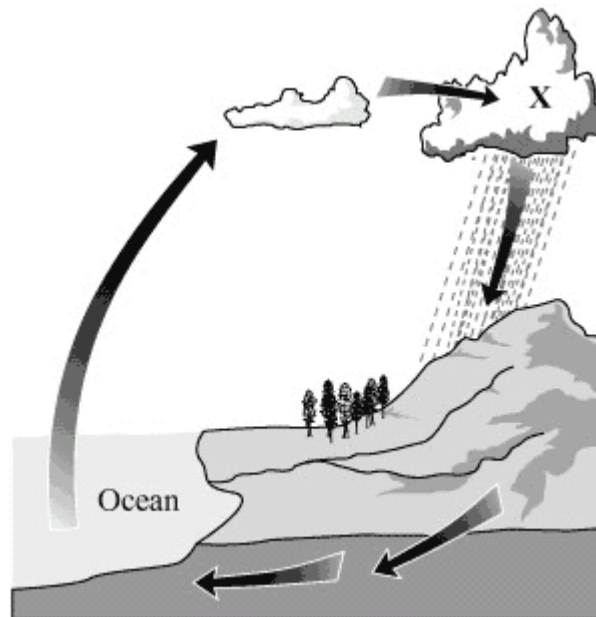
This diagram represents the formation of which of the following types of rock?

- A.** igneous
- B.** metamorphic
- C.** sedimentary
- D.** volcanic

Why are some rocks smoother and rounder than others?

- A. They have the shapes of the minerals from which they are made.
- B. They were smoothed by the action of wind and water.
- C. They were squeezed up through the soil.
- D. They hardened in rounded pockets of soil.

The picture below shows the water cycle.



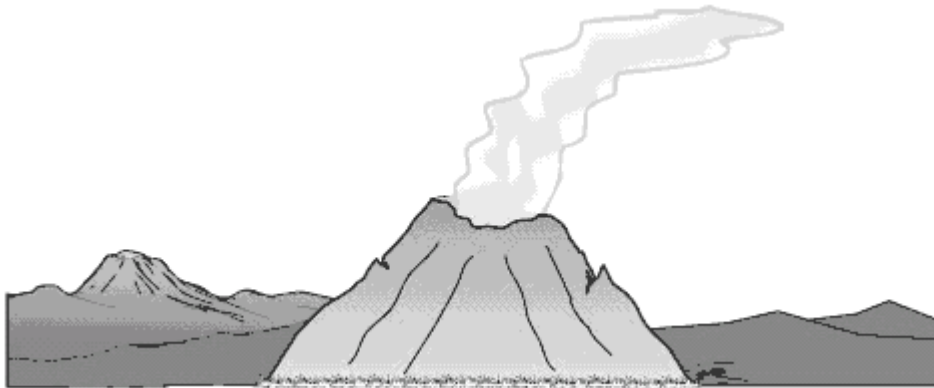
Water on Earth cycles in different forms and in different locations. Which process occurs at the location labeled X on this diagram of the water cycle?

- A. condensation

- B. evaporation**
- C. runoff**
- D. transpiration**

2006, Science and Technology/Engineering - Grade 5
Question 19: Open-Response
Reporting Category: Earth and Space Science
Objective(s): Earth's History - 12

The picture below shows an erupting volcano.



Volcanoes sometimes erupt violently for days or weeks. At other times, volcanoes can be quiet, with only a small amount of activity coming from their cores.

- a. Describe how volcanoes can change the landscape rapidly. In your description, be sure to include which parts of the landscape change and what materials are involved.

- a. Describe how the landscape around the volcano can change over many years. In your description, be sure to include what parts of the landscape are changed and what materials are involved.