2023-2024 Gr7 Science Benchmark Unit 4

Question 1.

Figure 1 shows the rock layers and fossils found in a particular outcropping.

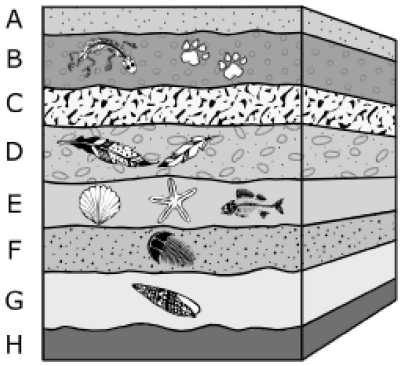


Figure 1. Outcropping 1

Figure 2 shows the rock layers and fossils in a second outcropping.

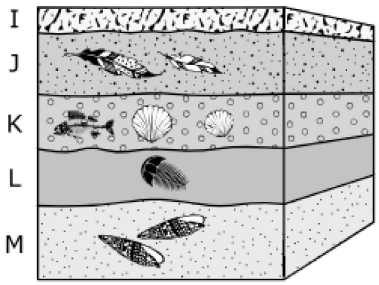


Figure 2. Outcropping 2

Complete the sentences to compare the two outcroppings.

Drag the correct answer to each box. Not all answers will be used.

B	D	J	L	fossils	rocks
differe	similar				

Layer *DEST_1* and layer *DEST_2* are the same age. Each layer contains the same type of *DEST_3* because they formed during *DEST_4* time periods.

Question 2.

Geologic time is divided into units based upon evidence from _____.

A. sedimentary rocks

B. climatic changes

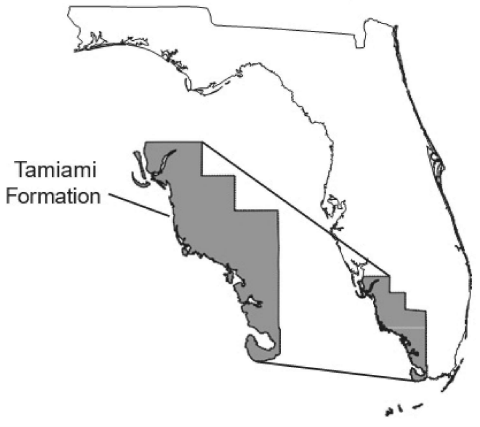
C. fossils

D. igneous rocks

Question 3.

The diagram shows where a rock layer called the Tamiami Formation exists in Florida. The table lists the types of fossils found in this formation.

Fossils Found in Tamiami Formation
Barnacles
Mollusks
Corals
Plankton



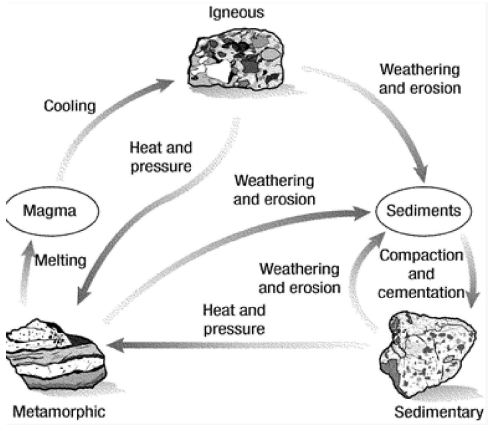
A. The Tamiami Formation is shrinking in size as new fossils are created.

B. The Tamiami Formation is currently growing in size as new sediments are deposited.

C. The part of Florida containing the Tamiami Formation was once underwater.

D. The part of Florida containing the Tamiami Formation is currently below sea level.

Question 4.



The rock cycle indicates that each type of rock can _____.

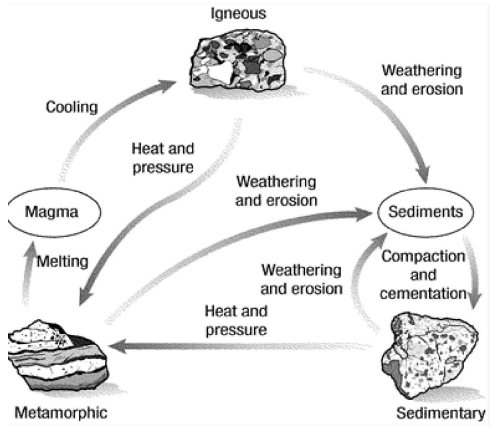
A. provide materials to make other rocks

B. form other rocks

C. be changes by forces at Earth's surface

D. all of the above

Question 5.



Sedimentary rocks are changed to sediments by _____.

A. compaction

B. weathering and erosion

C. cementation

D. heat and pressure

Question 6.

Rocks can change throughout many different processes through the rock cycle. All of the following change rocks on Earth's surface except _____.

A. melting

B. weathering

C. deposition

D. compaction

Question 7.

Which **BEST** explains how the Appalachian Mountains formed?

A. an ancient river flooded

B. an earthquake folded land

C. tectonic plates pulled apart

D. tectonic plates collided

Question 8.

Geologic processes change Earth's surface. Some geologic processes are fast and some are slow. Some are constructive and some are destructive. A river makes a valley in rock by erosion.

1) Is the river's erosion a fast or slow process? Explain your answer.

2) Is the river's erosion a constructive or destructive process? Explain your answer.

Question 9.

Which conclusion is **BEST** supported by the discovery of the same fossils on separate continents?

A. Ancient organisms were able to swim much farther than modern organisms.

B. The same organisms existed more than once in the history of Earth.

C. Modern land masses were once connected but moved apart.

D. The same environmental conditions once existed all over Earth.

Question 10.

A scientist proposed the theory of continental drift, which claims that Earth's continents were once joined together as one large continent and drifted apart, creating the separate continents we know today. Examine the map.

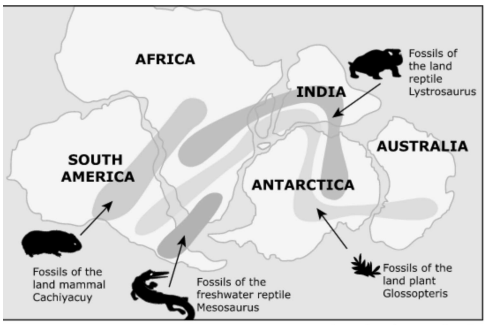


Figure 1. Index Fossils of the Southern Hemisphere

Select from each box to complete the sentence to identify whether the map does or does not support the scientist's claim, and provide evidence to support that arguement.

The evidence in the map [Box X] the theory of continental drift because it shows that the [Box Y] and that the [Box Z].

Box X

A. supports

B. does not support

Box Y

A. same plant fossils were found on all the continents

B. shapes of Australia and South American indicate they were once joined together

Box Z

A. same land reptile fossils were found on all the continents

B. shapes of South America and Africa indicate they were once joined together

Question 11.
Which of the following is NOT true?

A. Renewable resources are consistently available and may be replaced in a short time.

B. Renewable resources include solar energy, wind, plants, and animals.

C. Because they are renewable, we will never run out of renewable resources.

D. It would take millions of year for the Earth to form non-renewable resources again.

Question 12.
Which of the following is NOT a reason that natural resources are distributed unevenly over Earth?

A. Natural resources used to be distributed evenly over Earth long ago but humans moved them.

B. Earth's history has affected the distribution of resources. For example, coal reserves are found where ancient swamps were located long ago.

C. Some natural resources are made only at tectonic plate boundaries.

D. Weather, latitude, ocean currents, and other factors determine the temperature and precipitation of a region.

Question 13.
What happens to the availability of natural resources as the population increases?

A. Population increases lead to a bigger demand for natural resources, so there is less availability.

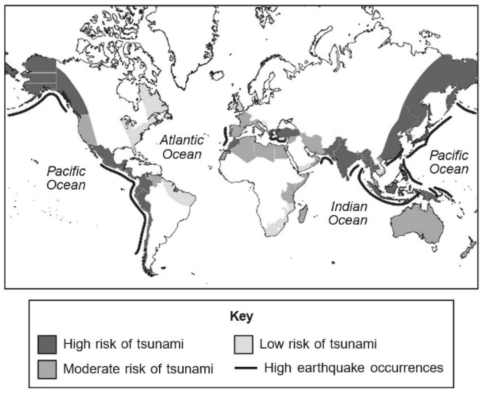
B. Population increases also increase the availability of natural resources.

C. Population increases do not affect the availability of natural resources.

D. None of the above.

Question 14.

Tsunamis are huge waves generated by sudden movement of the ocean floor as the result of an earthquake. To help predict tsunamis, scientists monitor earthquakes along the ocean floor. The map shows the risk level of tsunamis around the world.



Based on the map, which solution would be the most effective use of technology for monitoring tsunami threats?

A. lookout towers located along the coastlines, with cameras that search for waves moving toward the beaches

B. sets of buoys located at various distances and depths from the shoreline that measure changes in water level after an earthquake

C. satellites in space that monitor changes in ocean-water temperature

D. computer-generated maps that show earthquake strength and location, and the speed and wave height of past tsunamis

Question 15.

A village in a valley has become prone to flooding and landslides since deforestation, road building, and mining occurred on the hills above the village. Which of the following actions would be effective for villagers to take to reduce the hazards of flooding and landslides? Select all that apply.

A. Reduce the amount of trees on the slopes above the village.

B. Cover the slopes in a layer of fine sand at least 1 m thick.

C. Plant more trees on the slopes above the village.

D. Cover the slopes with a layer of fist-sized gravel at least 1 m thick.

E. Place netting to hold the soil and grow grass through it on the slopes above the village.

F. Create terraces with boulders at least 1 m in size.

Question 16.

Mount St. Helens is a volcano in the state of Washington. One way scientists monitor volcanoes is by using a tool, called a seismometer, on the volcano that measures the strength of earthquakes. In addition, visual observations are frequently made of Mount St. Helens. The table lists data about Mount St. Helens recorded over several months in 1980.

Date	Earthquake Event	Other Observations
March 20	Magnitude 4.2 earthquake	
March 23	Magnitude 4.0 earthquake	Average of 15 earthquakes per hour
March 25	Average of three magnitude 4.0 earthquakes per hour	Landslides and avalanches
March 27		Loud explosion and ash cloud
April-early May	Average of over 30 earthquakes per day above 3.0 magnitude	Small steam eruptions
May 18	Magnitude 5.0 earthquake	Volcanic eruption and landslide

Events at Mount St. Helens in 1980

Explain why this type of data can be used by scientists to predict volcanic eruptions.

Question 17.

The motion of atoms is affected by temperature. The pictures show water at three different temperatures.

Which order of the pictures indicates decreasing motion of atoms?

A. 1, 2, 3

B. 2, 3, 1

C. 3, 2, 1

D. 1, 3, 2

Question 18.

A student observes zinc turning from a solid to a liquid in a laboratory investigation. Which statement describes the change in zinc atoms while melting?

A. The size of the zinc atoms decreased.

B. The mass of the zinc atoms decreased.

C. The zinc atoms lost their relative fixed positions.

D. The zinc atoms were changed into atoms of another element.