

DYNAMIC EARTH

Topics: 1. Moving continents 2. Development of a theory 3. Shaping Earth's Surface 4. Changing Earth's Surface 5. The cycling of Earth's materials

1. The presence of the same ____ on several continents supports the hypothesis of continental drift.

- A. Fossils
- B. Rocks
- C. Neither A or B
- D. Both A and B

2. A lack of explanation for continental drift prevented many scientists from accepting that a single supercontinent called ____ once existed.

- A. Glomur
- B. Glossopteris
- C. Pangea
- D. Wegener

3. Matching ____ on different continents are evidence for continental drift.

- A. River systems
- B. Rock structures
- C. Weather patterns
- D. Wind systems

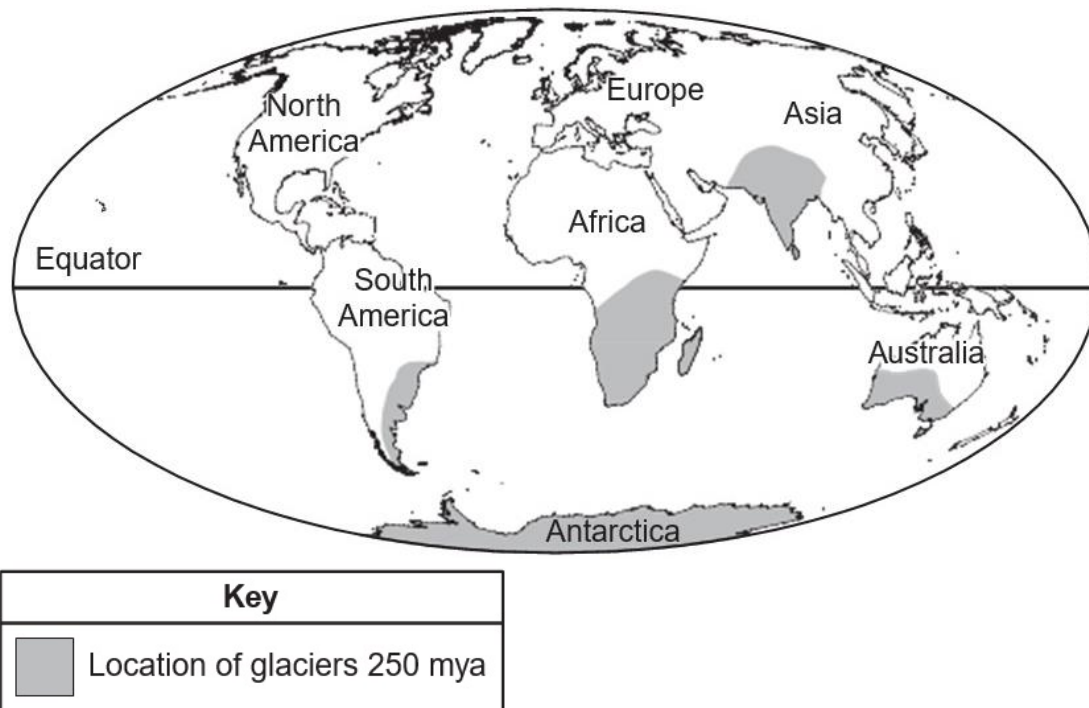
4. ____ is a fossil fern that helped support Wegener's hypothesis of continental drift.

- A. Gondwana land
- B. Glossopteris
- C. Mesosaurus
- D. Kannemeyrid

5. Wegener believed that the continents were assembled as part of a supercontinent about ____ years ago.

- A. 250 million
- B. 350 million
- C. 450 million
- D. 550 million

6. The map shows where glaciers existed 250 million years ago.



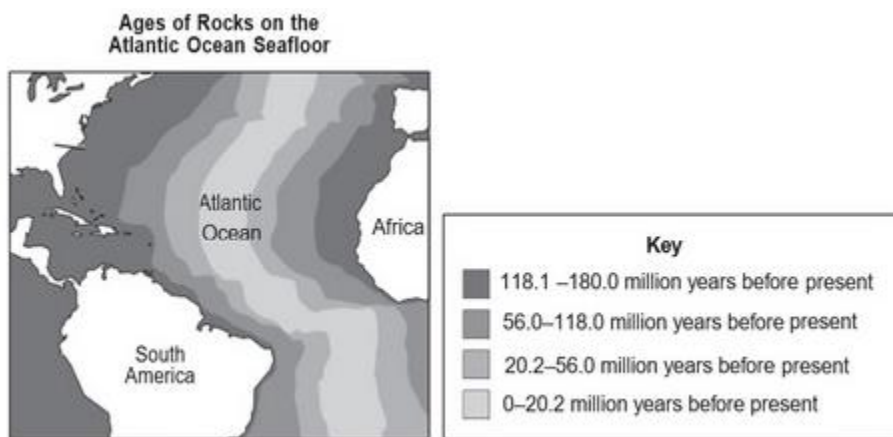
Which explanation is supported by the data in the map?

- A. Glaciers formed in the locations shown on the map because of a change in climate that caused the southern hemisphere to experience an ice age.
- B. Glaciers at one time covered most of the continents in the world, but the glaciers melted and the areas on the map are places where glaciers remain.
- C. There is evidence of glaciers in the areas identified on the map because the current climate in those areas still supports glacier formation.
- D. There is evidence of glaciers in the areas identified on the map because the continents were once located near a polar region, but then over time the continents moved apart.

7. Why did Alfred Wegener believe that all of the continents once had been joined?

8. The youngest rocks on the ocean floor are located ____.
- A. Near continents
 - B. Mid-Ocean ridge
 - C. Far from mid ocean ridges
 - D. Near Asia
9. Which of the following best explains the age of oceanic crust and ocean-floor features?
- A. Sea floor spreading
 - B. Continental drift
 - C. Subduction
 - D. Crystallization
10. New Ocean crust is continually formed at ____.
- A. Mid ocean ridges
 - B. Trenches
 - C. Subduction Zone
 - D. Ocean basins

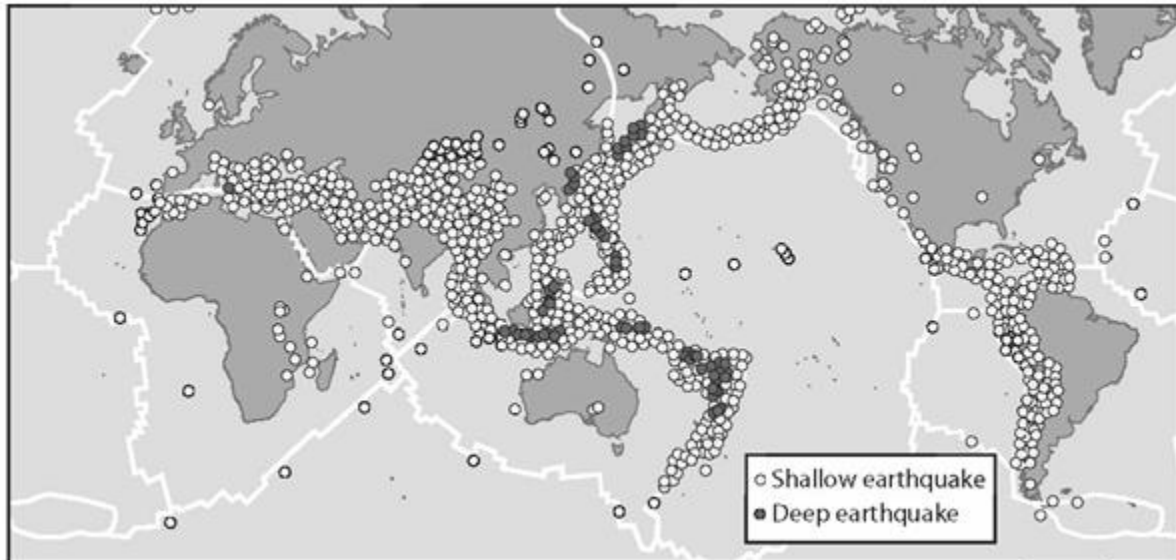
11. The map shows the ages of rocks found on the Atlantic Ocean seafloor.



Identify the process that causes the pattern of rock data shown in the map.

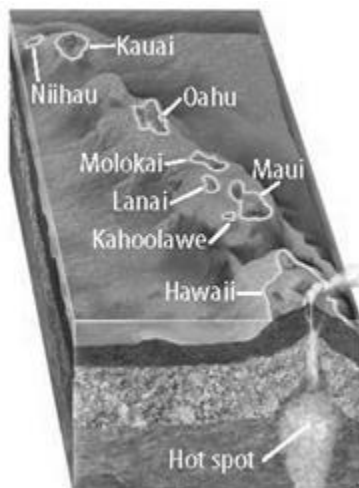
12. Which theory explains how new crust is created at mid ocean ridges?
13. The driving forces of tectonic plates are related to convection currents in Earth's ____.
- A. crust
 - B. mantle
 - C. inner core
 - D. Outer core
14. ____ are formed when two continental plates collide.
- A. Volcanoes
 - B. Mountain ranges
 - C. Rift valleys
 - D. Strike slip fault
15. At an oceanic-oceanic convergent plate boundary, ____.
- A. New crust is created
 - B. Old crust is recycled by subduction
 - C. Old crust is deformed or fractured
 - D. Plates slide past one another
16. What type of mountains are formed when molten rock erupts onto Earth's surface and hardens?
- A. Fold mountains
 - B. Uplifted Mountain
 - C. Volcanic mountains
 - D. Fault-block mountains

17. Looking at the figure that shows world-wide earthquake distribution, the white lines represent plate boundaries. Which statement is true?



- A. Earthquakes always occur along plate boundaries.
- B. Earthquakes most frequently occur along plate boundaries.
- C. Earthquakes rarely occur along plate boundaries.
- D. Earthquakes never occur along plate boundaries

18. Volcanoes can form over a plume or rising current of hot mantle. As a tectonic plate slowly moves over a plume, a volcano will form and then become extinct as it moves away from the hot spot. Then the next volcano will form. If the hot spot shown made all the islands in the figure, is the plate pictured below moving toward you or away from you?



- A. The plate is moving toward me.
- B. The plate is moving away from me
- C. There is no way to tell

D. It is stationary.

19. Fault-block mountains occur where _____.

- A. Compression squeezes the crust.
- B. Tension pulls the crust apart
- C. Tension squeezes the crust
- D. Compression pulls the crust apart.

20. Point out two changes that occur between the 65 million years ago time period and the present.



21. What happens when sediment eroded by water, ice, and wind slows down or stops moving?

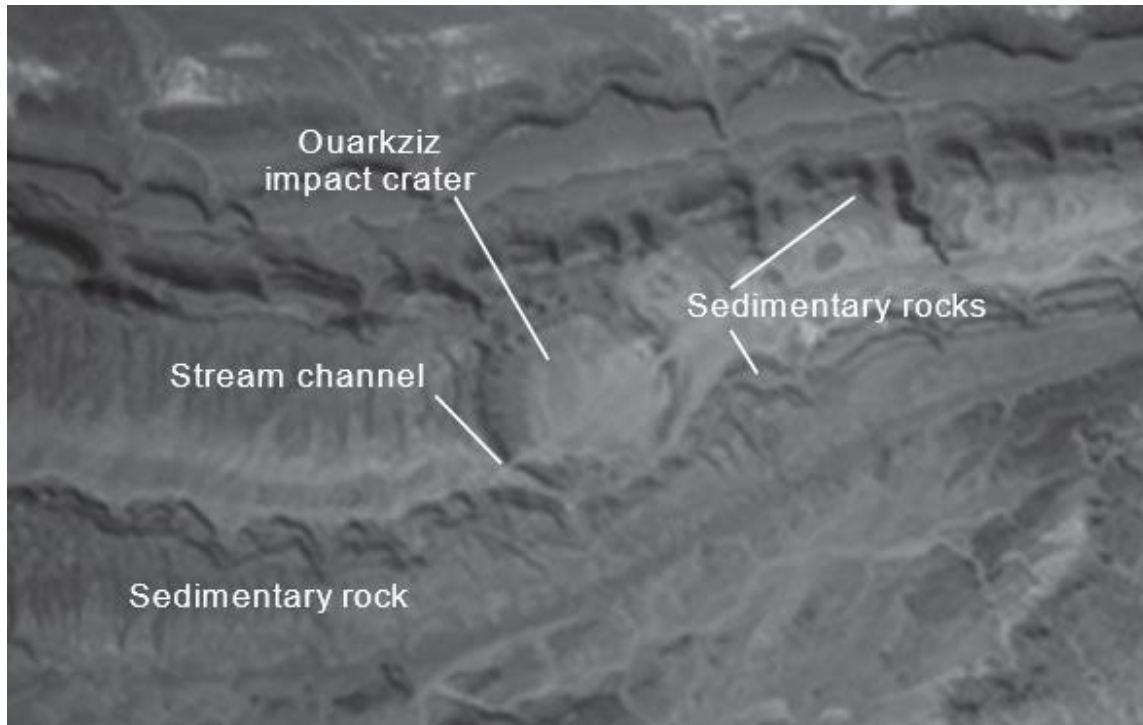
- A. The sediment is deposited in new location.
- B. The sediment continues to erode
- C. The sediment instantly turns into soil
- D. The sediment mixes with other sediments to become rock

22. Where do erosion and deposition occur in a river?

- A. Erosion occurs where fast-moving river water picks up soil and moves it downstream.
Deposition occurs where a river current slows as it enters a larger body of water and drops the soil.
- B. Deposition occurs where fast-moving river water picks up soil and moves it downstream.
Erosion occurs where a river current slows as it enters a larger body of water and drops the soil.
- C. A river erodes land. There is no deposition.
- D. A delta forms at the mouth of a river from deposition. There is no erosion.

23. Chemical weathering happens fastest under which conditions?
- A. Abundant water
 - B. Low temperature
 - C. Glaciation
 - D. Sparse plant growth
24. How is water a weathering agent?
- A. It dissolves minerals in rocks.
 - B. It grinds and polishes rock by moving particles against it.
 - C. It grows on rocks to break the rock apart.
 - D. It is not a weathering agent.
25. ____ determines the amount of runoff.
- A. The amount of vegetation
 - B. The amount of rain
 - C. The slope of the land
 - D. all the above
26. Mechanical weathering ____.
- A. breaks apart rocks by physical processes
 - B. occurs when chemical reactions dissolve or change the minerals in rocks
 - C. occurs when iron is exposed to oxygen and water
 - D. none of the above
27. Chemical weathering ____.
- A. is caused by freezing and thawing
 - B. breaks apart rocks by physical processes
 - C. occurs when chemical reactions dissolve or change the minerals in rocks
 - D. none of above

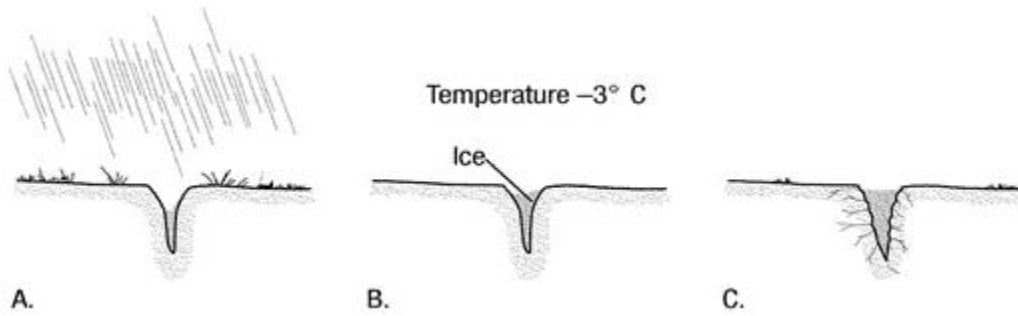
28. A satellite camera in space took this picture of northwestern Algeria, showing an impact crater, sedimentary rock layers, and a stream channel flowing out of the crater. Algeria is at the northern end of the African continent. The Algerian landscape includes a large portion of the Sahara Desert and two mountain ranges.



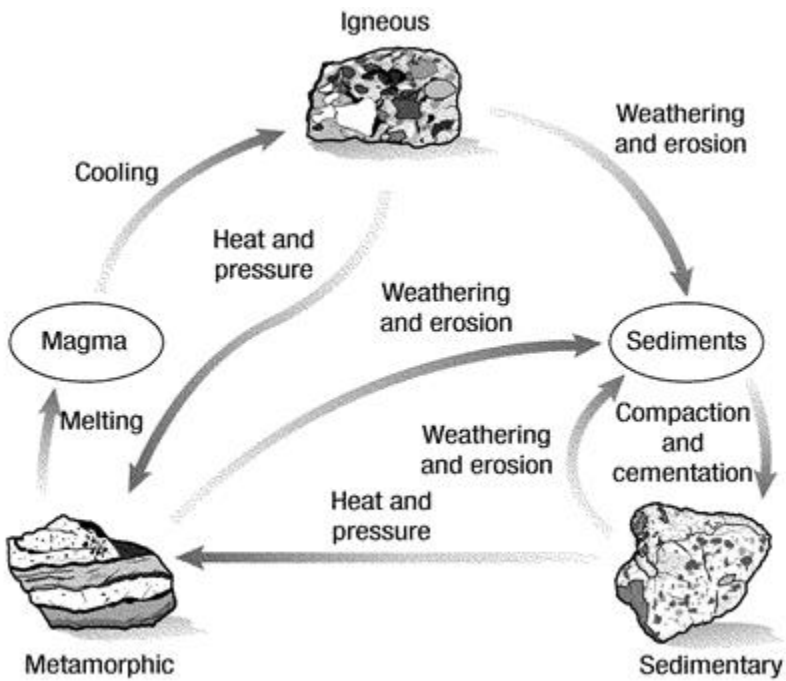
Based on evidence in the picture, how has this area been affected by geologic processes?

- A. An ancient stream channel left deposits that built up over time to form the sedimentary rocks surrounding the stream. A meteorite's impact changed the direction that the stream flowed, which led to mountain ranges forming downstream from the crater.
- B. Lava flows from volcanic eruptions created sedimentary rock layers; heavy rains formed a stream channel; and a meteorite's impact evaporated the stream water, leaving the area without a water source and creating a desert.
- C. A meteorite impacted Earth, creating a low-lying area where water filled in to create a stream channel. The stream channel carried sediment with it, eventually forming the surrounding layers of sedimentary rock.
- D. Layers of sediments were compacted to form sedimentary rock; a meteorite impacted Earth after the sedimentary layers were formed; and water erosion formed a stream channel from the meteorite's impact zone.

29. Explain how weathering is occurring in A, B, and C.



30. Sedimentary rocks are changed to sediments by ____.



- A. Compaction
- B. Weathering and erosion
- C. Cementation
- D. Heat and pressure

31. Igneous rocks form from ____ when it cools.
- A. Magma
 - B. Lava
 - C. Neither A or B
 - D. Both A and B
32. Foliated rocks are distinguished by ____.
- A. Layers
 - B. Lack of layers
 - C. Large mineral grains
 - D. Air holes
33. The crystals that form in slowly cooled magma produce ____ mineral grains.
- A. Tiny
 - B. Invisible
 - C. Fine grained
 - D. large
34. Which statement is correct regarding metamorphic rock formation?
- A. The temperature inside Earth is cooler which allows metamorphic rocks to form more quickly.
 - B. Small pieces of rocks are buried, squeezed, and cemented together.
 - C. Weathering and erosion cause rocks to break down to form metamorphic rocks.
 - D. The deeper into Earth's crust, the higher the pressure that forms metamorphic rocks.
35. The rock cycle can change the sedimentary rock limestone into ____ through metamorphosis.
- A. Conglomerate
 - B. Gneiss
 - C. Granite
 - D. marble
36. Rocks can change throughout many different processes through the rock cycle. All the following change rocks on Earth's surface except ____.
- a. Melting
 - B. Weathering
 - C. Deposition
 - D. compaction

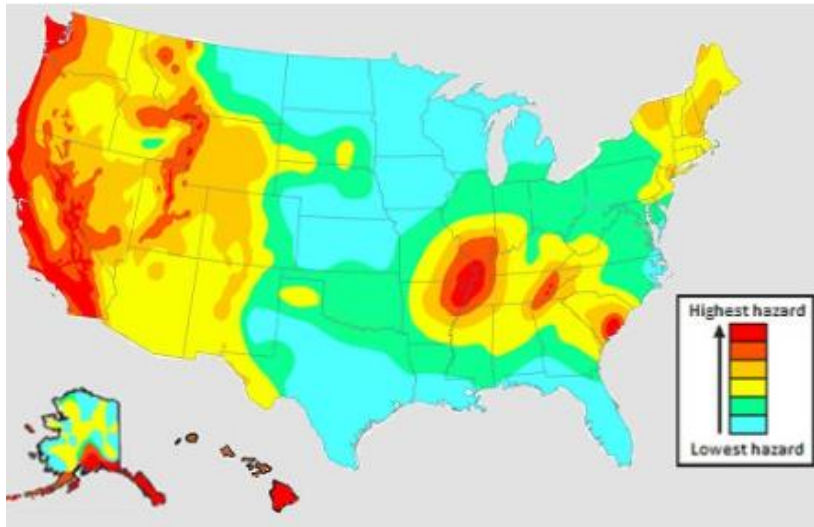
37. A student uses a candle to model the process of an existing rock becoming an igneous rock. Which procedure best demonstrates the formation of an igneous rock?

- A. Melt the candle in a dish on a hotplate and keep it in liquid form.
- B. Break the candle into small pieces and crush the small pieces until they stick together.
- C. Place books on top of the candle to apply pressure, and then heat it so its composition changes.
- D. Hold the lit candle over a small dish, and then let the melted candle wax that drops into the dish cool and harden.

38. What causes the difference in grain size between intrusive igneous rocks and extrusive igneous rocks?

39. Why are fossils more commonly found in sedimentary rocks and not igneous rocks?

40. If you wanted to avoid earthquakes, which would be the best choice of location?



- A. West coast
- B. The largest island of Hawaii
- C. Southern Alaska
- D. The great lakes region

41. Where can volcanoes form?

- A. Convergent plate boundaries
- B. Divergent plate boundaries
- C. Over hotspots in the middle of plates
- D. All of the above

42. A vast, underwater mountain chain is called a(n) _____.

- A. Deep sea trench
- B. Oceanic crust
- C. Oceanic ridge
- D. Ocean floor sediment

43. In areas where freezing and thawing occur frequently, rocks weather rapidly because of the ---- of freezing water.

- A. Evaporation
- B. Expansion
- C. Leaching
- D. oxidation

44. How are ice and plant roots weathering agents?

- A. They melt minerals in rocks.
- B. They grind and polish rock by moving particles against it.
- C. They expand within cracks in rock to break the rock apart.
- D. They are not weathering agents.

45. A classification of metamorphic rocks would include whether they are ____.

- A. chemical or organic
- B. intrusive or extrusive
- C. foliated or non-foliated
- D. basaltic or granite

46. Sedimentary rocks are ____.

- A. formed from magma
- B. a type of foliated igneous rock
- C. formed because of changes in temperature and pressure, or the presence of hot watery fluids
- D. formed when loose materials become pressed or cemented together or when minerals form from solutions

47. The Himalayan Mountain range of India was formed at a ____.

- A. Convergent boundary
- B. Divergent boundary
- C. Hot spot
- D. Transform boundary

48. Active volcanoes are most likely to form at ____.

- A. transform boundary
- B. Divergent boundary
- C. The center of continents
- D. Convergent oceanic- continental boundaries