

Earth's Changing Surface
Test (Chapters 12-13, and 5-7)

Name _____

Suppose there is a garbage dump of clothing. This dump shows layers. At the top are items popular now, but the further down you dig, the clothes get older. At the right is an example of several dump layers.

Top	Modern clothes
1983	Neon, leg warmers
1953	Poodle skirts
1923	Fancy flapper dresses
1893	Mustache combs
1853	Pioneer stuff

1. Where would you expect to find Bieber and Gaga tee shirts? _____
2. Why do layers form in the dump? _____

3. In the layers of the earth's surface, fossils help show the ages of rock. Suppose there are rocks with saber-toothed cat bones from the Cenozoic, trilobite shells from the Paleozoic, and T-rex skeletons from the Mesozoic. What order would you expect to find these in from top to bottom? TOP _____

4. "Original horizontality" is the idea that layers of sedimentary rock were formed flat. What could mess this up?

5. Scientists use radioactive dating to tell the age of rocks. What makes this possible?
A. Radiation kills things
B. Radiation decays at steady rates
C. All things are radioactive
D. Radiation increases with time
6. Scientists found that the continents were once all together. This was called Pangaea (Pangea). This super-continent no longer exists. What can we infer from this information?
A. Dinosaurs existed
B. Streams carved the surface of the earth
C. Earth's surface has changed over time
D. Mammals came after the dinosaurs

Utah's and Arizona's national parks show layering of the earth where the rivers have cut through the canyon walls. What changes would you expect as you dug from the surface downward?

7. Age of layers _____
8. Fossils _____
9. Radioactive substances _____

10. If dinosaurs are at the surface, what must have happened to the layers that used to cover them?

11. Name one period of the earth (other than Jurassic) and one fossil from it. (2)

12. List three factors that can cause rocks to weather and erode quickly (sugar cube reminder) (3)

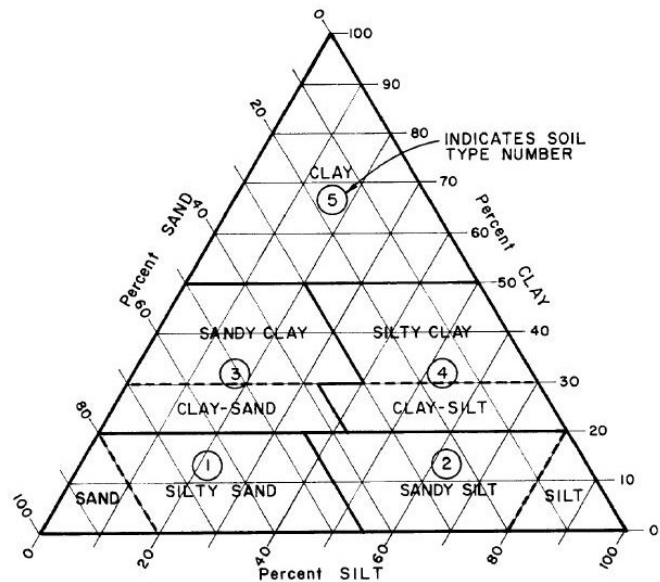
13. In which of the following environments would rocks weather and erode the fastest?

- A. Dry, hot desert that stays hot all year long
- B. Antarctica, where it's cold all year long
- C. Warm swamp that is wet, hot, and flat all year long
- D. Hillside with extreme temperatures, and a lot of water

14. How does slope contribute to erosion? _____

15. How do animals contribute to weathering? _____

Look at the chart to answer the following questions. Remember that the sand lines are diagonal down to the right, silt is diagonal up to the right, and the lines for clay are horizontal.



16. A soil contains 50% sand, 10% silt, and 40% clay. What type of soil is this?

- A. Silty sand
- B. Sandy silt
- C. Sandy clay
- D. Silty clay
- E. Clay

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18. Loam is soil with only about 20% clay, and about equal amount of sand and silt. What role do each of these materials play in growing plants? (3)

Clay _____

Sand _____

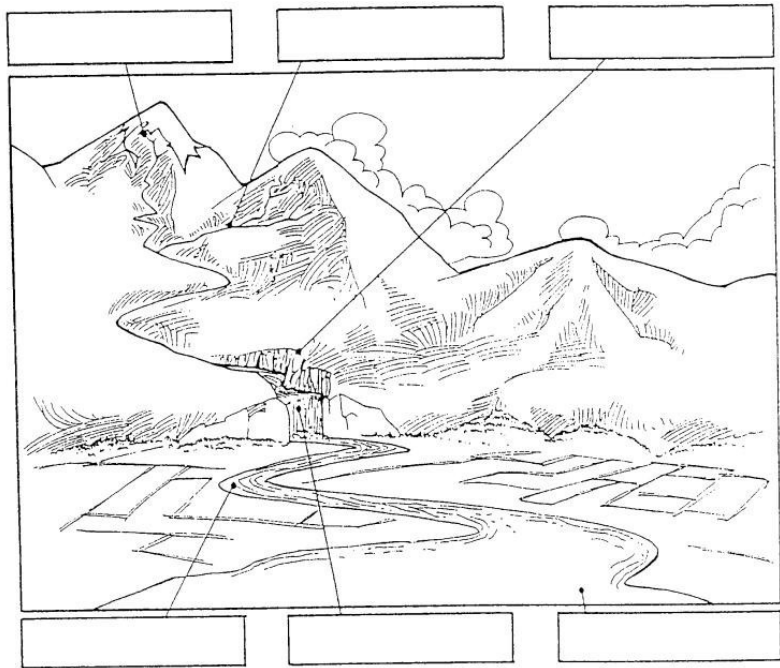
Silt _____

19. Explain how plants can both contribute to weathering, and prevent erosion. (2)

20. What energy powers the water cycle? _____

21. On the diagram, label the following features. Some boxes will contain more than one word. (10)

- delta
- estuary
- gorge
- meander
- mouth
- river
- source
- stream
- tributary
- waterfall



22. Circle the area where the erosion is most obvious / fastest.

23. Put a star where the stream volume is greatest.

24. Karst topography relates to sinkholes. How do sinkholes form? _____

25. Why does Florida have more sinkholes than Utah? _____

26. What contributes to stream flow volume (amount of water flowing)?

- A. Width of the stream
- B. Depth of the stream
- C. Speed of the stream (meters per second flow)
- D. All of these matter

27. What type of rock will most easily produce caves?

- A. Limestone
- B. Sandstone
- C. Granite
- D. Obsidian

Describe the following:

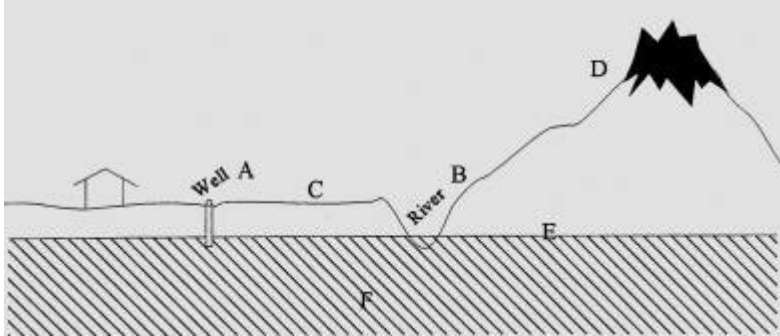
28. Stalactite _____

29. Stalagmite _____

30. Column _____

31. How does acid rain contribute to weathering? _____

Look at the following diagram and answer the questions below.



32. The line labeled “E” is called the:
- A. water table
 - B. watershed
 - C. recharge area
 - D. reclamation dam
33. The water table will remain in the same place if:
- A. Losses at B and C are greater than gains at D
 - B. Losses at B and C are less than gains at D
 - C. The well at A doesn't pump more than B
 - D. Snow and rain from D replace losses at A and B
34. What might happen to the river if more wells were built and a lot of water was used?
- A. Its flow would increase
 - B. Its flow would decrease
 - C. The wells would not affect the river
 - D. More snow would melt

Match the following features to their causes. Some will be used more than once:

- | | |
|------------------------------------|-------------------|
| _____ 35. U-shaped valleys | A. Wind |
| _____ 36. Sand dunes | B. Streams/Rivers |
| _____ 37. V-shaped valleys | C. Glaciers |
| _____ 38. Kettle lakes | |
| _____ 38. Oxbow lakes | |
| _____ 40. Drumlins, Till, Moraines | |
| _____ 41. “Sandblasted” rocks | |
| _____ 42. Rounded stones | |

43. How do glaciers grow? _____

44. Where is most of earth's freshwater found? (Rivers, streams, ground, ice) _____
45. Which of the following is NOT a source of water for the people in Utah?
- A. ground water
 - B. streams
 - C. glaciers
 - D. lakes
46. Which one of these will carry the greatest erosion load
- A. Small stream, moving fast
 - B. Large river, moving fast
 - C. Large river, moving slow
 - D. Small stream, moving slow

Read the following for questions 47-8. Answer the question with the number of the sentence.

- (1) The Grinnell Glacier in Glacier National Park, Montana has been retreating rapidly.
- (2) Photographs taken of the glacier document its reduced size in since 1850.
- (3) Mountain glaciers are excellent monitors of climate change.
- (4) The worldwide shrinkage of mountain glaciers is thought to be caused by a combination of climate cycles and increased greenhouse gases.

47. Which sentence has **data** to support the argument that the glacier is shrinking? _____
48. Which of these sentences is an **inference**? _____
49. What happens in the desert when it does rain? _____

Look at the following topographical map and answer the following questions.

50. Which spot on the map represents the highest point? _____
51. Is the stream flowing left or right? _____
52. Which dot is on a steep slope?

53. Which dot is an a wide, flat plain?

BONUS What is the altitude of point D?

