Water and Erosion Study Guide

1. Earth processes that are observed today are \_\_\_\_\_\_\_\_\_ to those that have occurred in the past.
2. Students will understand the effects of physical processes on geological features, including oceans (composition, currents, and tides).
   1. Plate tectonics
   2. Erosion
   3. Deposition
   4. Volcanic eruption
   5. Gravity
3. Soil is composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_rocks and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organic material.
4. Students will explain the effects of human activity on the erosion of the earth’s surface:
   1. Farming
   2. Construction
5. Students will describe methods for conserving natural resources such as:
   1. Water
   2. Soil
   3. Air
6. Earth is \_\_\_\_\_\_\_\_\_\_\_\_\_ water, consisting of \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and underground \_\_\_\_\_\_\_\_\_\_ and ice.
7. Students will explain the causes of:
   1. Waves
   2. Currents
   3. Tides
8. Unequal \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of land and water surfaces help to form large wind systems and weather events such
   1. tornadoes
   2. thunderstorms.
9. Moisture evaporating from the oceans affect the weather patterns and weather events such as hurricanes by
10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the process that breaks down rock and other substances at Earth’s surface.
11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the movement of rock particles by WATER and WIND.
12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs where the agents (forces) of erosion lay down sediment
13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wear down and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ f ills in the Earth’s surface.
14. Although weathered rock is the basic component of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the composition and texture of soil and its fertility and resistance to erosion are greatly influenced by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. Human activities, such as reducing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and intensive \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have changed the Earth’s surface.
16. \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_ are agents of erosion.
17. Soil is comprised of a mixture of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, decomposed organic materials, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and water.
18. Weathering is the breaking down of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
19. Erosion \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ weathered rock material
20. Physical (or mechanical) weathering includes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, exfoliation, and thermal expansion.
21. Chemical weathering includes dissolution (soluble rocks and minerals dissolve in acidic waters), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (feldspar alter to clay), and oxidation (rusting of iron).
22. Biological weathering – organisms can assist in breaking rocks down - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, lichens and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ animals.
23. Humans can increase erosion through poor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ practices, or disturbing the land through development
24. There are practices which can be implemente3d to control erosion, such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, terracing, planting ground \_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
25. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_erode the shoreline.
26. Manmade structures are sometimes built to help control \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
27. Unfortunately, man-made structures along the coastline have the unwanted side effect of enhancing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ erosion.
28. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on steep slopes can lead to mass wasting or erosion by gravity, including slumps and landslides.
29. Ocean currents are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and are influenced by weather, Earth’s rotation and the continents.
30. Surface currents are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and are influenced by winds, the Coriolus effect and continental deflection.
31. Deflect means to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction
32. Different winds cause currents to flow in different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
33. Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_ causes winds and certain currents to flow in CURVED paths
34. Where might you find a gyre? Moving in a circle in the South Atlantic Ocean, between South America and Africa
35. Surface currents are mainly caused by prevailing winds. A synonym for “prevailing” is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
36. What effect does earth’s rotation have on surface currents? It causes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ motion in the Northern Hemisphere and \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ motion in the Southern Hemisphere.
37. What can you infer about the water at the surface of the ocean, compared to water hundreds of meters below? Water at the surface of the ocean is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
38. Which word describes the speed at which the Global Conveyor Belt moves? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
39. If you are in a raft in the ocean, your raft is probably being moved by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
40. How does warm water at the surface of the ocean become cooler? It \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ heat into the atmosphere.
41. What is the relationship between the Gulf Stream current and the Global Conveyor Belt? The Gulf Stream is \_\_\_\_\_\_\_\_\_\_\_\_\_ segment of the Global Conveyor Belt.
42. What is weathering? The process that rocks are \_\_\_\_\_\_\_\_\_\_\_ down into smaller pieces.
43. How might a weathered mountain appear different than a non-weathered mountain? The weathered mountain would appear \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in shape.
44. What can you infer about ice from the BrainPop video we watched? It \_\_\_\_\_\_\_\_\_\_\_\_\_\_ as it freezes.
45. How is mechanical weathering different from chemical weathering? Chemical weathering changes the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ composition of materials, mechanical weathering does not.
46. What might cause mechanical weathering? growing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and expanding \_\_\_\_\_\_\_\_\_\_\_\_\_.
47. What impact does weathering have on soil formation? Rocks are broken \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into smaller pieces and finally into \_\_\_\_\_\_\_\_\_\_\_\_.
48. What types of rocks are formed by weathering? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
49. How long does the weathering process take? \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_
50. Carbonic acid is a mixture of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_
51. What process hollows out limestone in caves? \_\_\_\_\_\_\_\_\_\_\_\_ weathering.
52. What type of change does erosion cause? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change.
53. Erosion occurs when natural forces “alter the landscape.” What does “alter the landscape” mean? To \_\_\_\_\_\_\_\_\_\_\_\_ what the land looks like
54. What term describes the rate at which glacial erosion takes place? \_\_\_\_\_\_
55. What is the usual result when ocean pebbles break into smaller and smaller pieces? A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ beach
56. Why is it hard to see glacial erosion in action? Glaciers move very, very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
57. What do floodplains, river deltas, and sandbars all have in common? They were formed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_ erosion.
58. What is a simple way to prevent erosion? Plant \_\_\_\_\_\_\_\_\_\_\_\_\_\_
59. What can you infer about the type of erosion that formed the Grand Canyon? \_\_\_\_\_\_\_\_\_\_\_\_ erosion
60. What type of erosion moves sand dunes? \_\_\_\_\_\_\_\_\_\_\_\_\_ erosion
61. What element is humus especially rich in? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
62. What do weathering and erosion have in common? They both break down \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
63. What is a primary ingredient of humus? Dead \_\_\_\_\_\_\_\_\_\_ material
64. What effect do plant roots have on rocks? They \_\_\_\_\_\_\_\_ it apart.
65. What term best describes the rate of weathering and erosion? \_\_\_\_\_\_\_\_\_
66. Which plants are usually the first to live in soil? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_plants
67. How would you compare young soil to soil that has been around a long time? The young soil has LESS \_\_\_\_\_\_\_\_\_\_\_\_\_\_ matter than the old soil.
68. Why is topsoil darker than the other layers of soil? It has MORE \_\_\_\_\_\_\_\_\_\_\_\_\_ matter. It is also more fertile.
69. What would happen if leaching did NOT occur? There would be almost NO organic matter in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ levels of soil.
70. What exactly is bedrock? Rock that has NOT been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.