

Land Beneath Our Feet Study Guide

Name: KEY! ☺

Vocabulary: Match the word to the definition

Density	Epicenter	Contour Plowing	Surface Wave	Humus	Tectonic Plates	Focus	S Wave
Erosion	Fault	Crop Rotation	Weathering	Magma	Aftershock	P Wave	Hot Spot

1. Tectonic Plates The process in which the motion of a hot material under the crust changes the crust of the Earth. These are made of huge slabs of the lithosphere.
2. Epicenter The point on the Earth's surface directly above the focus of an earthquake.
3. Focus The point underground where an earthquake begins.
4. Aftershock A smaller earthquake that occurs after an original earthquake.
5. Hot Spot An area where hot material rises from the mantle and heats the lithosphere, often causing volcanic activity at the surface.
6. Density How many particles are packed into a specific space or area
(=Mass/Volume)
7. S Wave The second seismic wave to arrive at any particular location after an earthquake.
8. P Wave The fastest seismic waves that arrive first at the epicenter during an earthquake.
9. Surface Wave Seismic waves that move along Earth's surface, not through its interior.
10. Magma Molten rock beneath the Earth's surface.
11. Fault A break or fracture in the ground that occurs when the Earth's tectonic plates move or shift.
12. Humus The decayed organic matter in soil; it makes the soil dark in color.
13. Weathering The breakdown of rock or soil into smaller pieces.
14. Erosion The process in which sediment is picked up and moved to another place.
15. Crop Rotation A soil conservation method where a farmer grows different crops each season on the same plot of land.
16. Contour Plowing A soil conservation method where a farmer plows along the contours of the land in order to reduce soil erosion.

Concepts: Fill in the blank

Objective 1: Layers of the Earth

17. The crust is the outermost layer of the Earth. There are two different types of crust. Continental crust is made mostly of granite and oceanic crust is made mostly of basalt.
18. The Crust is the least dense layer of the Earth.
19. The mantle is made of superheated, semi-liquid rock. It has convection currents that are responsible for the movement of the tectonic plates.
20. The only difference between the inner core and outer core is that the inner core is solid while the outer core is a liquid. Both are made of iron and nickel.
21. Each layer of the earth has a different composition and density: this is why we have different layers!

Objective 2: Plate Tectonics, Earthquakes and Volcanoes

22. The three different types of plate boundaries are: convergent, divergent, and transform.
23. When two pieces of continental crust **come together** (collide) in a convergent boundary, mountains are formed. However, if continental crust comes together with

oceanic crust, the oceanic crust sinks, or subducts, under the other causing volcanic mountains.

24. Oceanic crust will always sink, or subduct, under continental crust because it is more dense than continental crust.

25. Divergent boundaries form rift valleys and mid-ocean ridges. Crust is created at this boundary.

26. At transform boundaries, plates move alongside one another in opposite directions. Only earthquakes occur along these faults; they do not create or destroy crust.

27. Crust is destroyed at a convergent boundary.

27. Earthquakes start seismic waves. There are three types of seismic waves:

S waves, P waves, and surface waves

28. Surface waves are the most destructive type of seismic wave.

29. Primary waves can travel through liquids or gases, but secondary waves can only travel through solids.

30. Alfred Wegener developed the theory of continental drift stating that the continents were all once connected, but were then pushed and pulled apart by convection currents beneath the surface of the Earth. He called the supercontinent that existed millions of years ago before the continents moved apart Pangaea.

31. Moving tectonic plates create earthquakes. We measure an earthquake's strength using the Richter scale. An earthquake's strength will increase as stress/tension builds up and causes the rock to move greater distances.

Objective 3: Rock Cycle

32. There are three different types of rocks: igneous, metamorphic, and sedimentary.

33. Igneous rocks are formed after a rock has been melted into magma and is cooled again.

34. Rocks are broken down into sediment by the process of weathering. This sediment is then carried by wind or water in a process called erosion.

35. Once sediment has been deposited, or set down by the wind/water, it begins to settle into layers. Over time those layers start to get packed together in the process of compaction and then the salt on the rocks acts as glue to hold the new rock together in the final step,

cementation. This forms a sedimentary rock.

36. When a rock is subjected to heat and pressure, a metamorphic rock is formed.

37. Rocks will ALWAYS continue to go through the rock cycle; it never stops. As long as rocks are exposed to weathering, erosion, heat and pressure, rocks will go through a cycle.

Objective 4: Soil & Taking Care of the Lithosphere

38. There are multiple layers of soil in the soil profile, referred to as soil horizons.

39. The A horizon is the darkest in color because it contains the most humus, or organic material. This organic material (nutrients, minerals) help support life on Earth. It is good for plants!

40. Humus is created when organisms called decomposers break down litter (leaves, plants, animals, etc.) on the surface of the Earth.

41. A warm, wet climate-- where rocks are exposed to weathering more frequently-- will form soil the fastest.

42. There are three main types of soil: sand, silt, and clay.

43. Sand soil has the largest particle size, clay has the smallest.

44. Silt soil holds water best. Sandy soil does not hold water well.

45. Farmers use conservation methods, like crop rotation and contour plowing to help prevent soil erosion on their land.