Chapter 18 – 20 Review

1. Match the correct terms that reflect the same comparison of geologic time to daily time:

eons	minutes
periods	days
eras	hours

2. Your exact age is considered your (*relative, absolute*) age.

3. A half – life is the length of time it takes for _____ of a radioactive element to decay.

   a) one-fourth b) one-half c) the entire amount

4. What do tree rings tell you about the tree?

5. Geology is
   a. the study of living organisms
   b. the study of the solid matter that constitutes Earth
   c. the study of the composition, structure, and properties of matter

6. Put the following events in order to show how a fossil might be formed:

   a) Organism covered with sediment, soft body parts start to decay
   b) Sediment wears away, exposing hard parts of the organism
   c) Sediment is deposited and covers the organism
   d) The environment changes, sediment around the organism becomes hardened

7. _____ _____ is the process of putting events in the order in which they happened.

8. Describe a situation that resembles relative dating.

9. How would you know the *relative* age of a fossil?

10. A paleontologist is
    a. A scientist who studies cells.
    b. A scientist who studies minerals.
    c. A scientist who studies fossils.

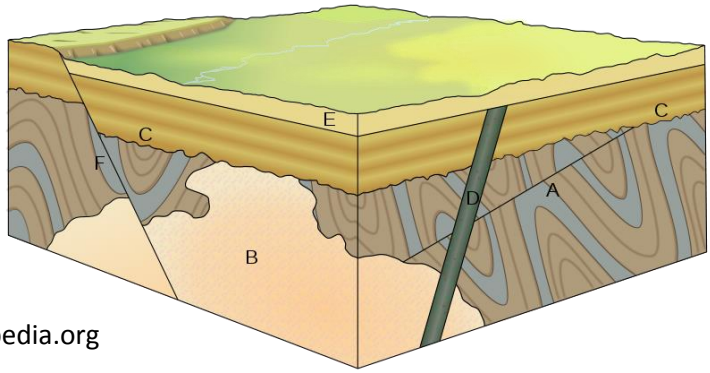
11. Scientist _____ _____stated that, “The present is the key to the past.” In other words, geologic processes we see happening today probably occurred throughout geologic time.

12. Scientist _____ _____ identified the “law of superposition,” which is the idea that the bottom layer of a rock formation is the oldest layer.

13. This law states that layers of sediment extend in all directions horizontally and might be eroded or split in some manner as time progresses.

    a. The law of lateral continuity
    b. The law of original horizontality
    c. The law of superposition

14. In the picture below, put these features in order: A, C, and D.



Wikipedia.org

15. What is the principle of fossil succession?

16. How did fossils help scientists understand how Earth’s surface changed over time?

17. What is the definition of “hardness?”

18. Match the following rock types:

Metamorphic	form from other pieces of rocks, once living things, or minerals
Sedimentary	form from molten material
Igneous	form from other rocks by great heat and pressure

19. How deep is it to the center of Earth?

    a) 1,000 kilometers
    b) 6,400 kilometers
    c) 10,000 kilometers

20. A scientist who studies earthquakes and analyzes seismic waves is called a

    a) Seismologist
    b) Volcanologist
    c) Geologist

21. Match each feature with the correct wave type.

P – wave	slower wave
S – wave	faster wave
P – wave	forward and backward motion
S – wave	side to side motion
P – wave	pass through solids only
S – wave	pass through solids and liquids

22. Complete the table.

Layer of Earth	**Feature 1**	**Feature 2**
Crust		
	Lies between crust and core	
asthenosphere		Separates the mantle into two pieces, one thin and one thick
lithosphere	Earth's moving outer shell that includes both the crust and the upper mantle	
	Outer and inner core are both made of iron	

23. Where does convection occur within Earth?

24. Alfred Wegner is credited with the hypothesis that continents have moved over time. This thought was called _____ _____.

25. Name three different pieces of evidence that Wegner used to defend his hypothesis.

26. _____ _____ was responsible for the hypothesis of sea-floor spreading.

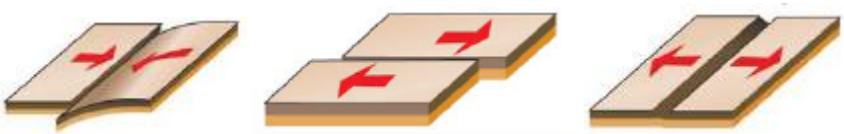
27. The speed of a lithospheric plate is approximately

    a) 5 – 15 cm per year.
    b) 1 – 20 cm per year.
    c) 1-10 cm per year.

28. Convection cells in the _____move the _____ plates.

    a) mantle, lithospheric
    b) core, mantle
    c) lithosphere, core

29. What is one way scientists know that plates are moving? Explain. Draw a line to match the following pictures with the correct label.



divergent boundary convergent boundary transform fault boundary

30. Divergent boundaries are found on

    a) ocean crust
    b) continental crust
    c) ocean and continental crust

31. What land features are present at divergent boundaries?

32. Denser plates will _____ under a less dense plate.

33. Name some land features present along convergent boundaries.

34. An example of a mountain range created by a convergent plate boundary is the _____ _____.

35. What type of plate boundary and what type of plates formed the Himalaya Mountain range?

36. Transform fault boundaries occur when two plates _____ _____each other.

37. T/F One way to determine if a transform fault is present is a shift in land features, fence lines, or tree lines.

38. Where do earthquakes commonly occur?

39. An earthquake is the sudden movement of Earth's crust due to the release of built-up _____ energy along a fault.

40. T/F Lithospheric plates slide past each other and stick due to frictional force.

41. When energy builds up in rocks, _____ energy converts to _____ energy and a motion called stick-slip motion occurs.

    a) potential, chemical
    b) potential, nuclear
    c) potential, kinetic

42. List the three conditions necessary for stick-slip motion to occur.

    a)

    b)

    c)

43. An instrument used to record the travel times and strength of seismic waves is called a

    a) universal testing machine
    b) transponder
    c) seismograph

44. Use "P" or "S" to represent the characteristics of each wave.

    First wave to arrive at a seismic station _____
    A wave that moves side to side _____
    A wave that moves through solids only _____
    A wave that has a "push-pull" motion _____
    A wave that is longitudinal _____
    A wave that moves through any medium _____

45. How many stations are necessary to locate the epicenter of an earthquake?

    a) 2
    b) 5
    c) 3

46. What is the difference between the Richter scale and the Modified Mercalli scale

47. Complete the statements below using the Richter Scale.

    A _____ magnitude earthquake has serious damage over a 100-km area or less

    A 2.0 – 2.9 magnitude earthquake is _____.

    A _____ magnitude is considered “light,” where no serious damage occurs, but objects shake.

48. Subducting plates occur at plate boundaries called _____ boundaries.

49. Mount Fuji and Mount Saint Helens are volcanoes that occur along the _____ ___ _____.

50. What is a volcano?

51. When magma leaves the magma chamber it is called _____.

52. What are the three phases of the life cycle of a volcano? Describe them.

53. The shapes of volcanoes are formed by the _____of the magma that formed them.

54. _____ content is responsible for how viscous the magma is.

55. Magma with _____ silica content, dark in color, and thin is called basalt. Magma with _____ silica content, light in color, and thick.

    a) low, high
    b) medium, high
    c) high, low

56. Complete the table.

		Low Gas	**High Gas**
	Low silica	• Runny magma •	• Fire fountain, lava flows easily •
Composite Volcanoes		• Quiet eruption •	• Thick, sticky magma •

57. Magma at mid-oceanic ridges is dark colored, _____ poor, and forms basalt.

a) Oxygen
b) Silica
c) Magnesium

58. Volcanic Island chains are produced from _____ magma.

a) andesitic
b) granitic
c) basaltic

59. A mantle plume is called a “hot-spot” that passes through the whole _____creating volcanic island, geysers, and hot springs.

a) core
b) mantle
c) lithosphere

60. T/F A composite volcano is formed when layers of ash and lava build up over a long period of time.

61. Composite volcanoes form in _____ _____.

62. The longer path that magma must take to get to the surface creates a more _____ rich product from crystallization of minerals as well as mixing with melted ocean crust and sediments.

63. What creates the rock known as *pumice*?

64. What is a cinder cone?