Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading

Section: Stream Erosion

1. When does a river system begin to form?

2. What happens when the soil in an area soaks up as much water as it can hold?

3. What is the name of the narrow ditch that is formed when runoff erodes rock and soil?

4. What landscape feature can develop from a gully?

5. What processes are responsible for the formation of a valley?

PARTS OF A RIVER SYSTEM

6. What are the two parts of a river system?

7. What happens to a stream channel over time?

In the space provided, write the letter of the description that best matches the term or phrase.

_____ 8. tributary

_____ 9. watershed

_____ 10. divide

_____ 11. channel

_____ 12. bank

_____ 13. bed

a. ridge or elevated area that separates watersheds

b. part of a stream channel that is below the water level

c. the narrow depression that a stream follows as it flows downhill

d. a stream that flows into a lake or larger stream

e. edge of a stream channel above water level

f. the area of land that is drained by a river system

CHANNEL EROSION

_____ 14. What causes river systems to change continuously?
a. precipitation
b. evapotranspiration
c. condensation
d. erosion

_____ 15. What is the process by which channels lengthen and branch out at their upper ends, where runoff enters the streams?
a. forward erosion
b. runoff erosion
c. headward erosion
d. branch erosion

_____ 16. What effect can erosion of the slopes in a watershed have on the river system?
a. It can make it narrower and faster.
b. It can extend a river system and add to the area of the watershed.
c. It can shrink a river system and remove area from the watershed.
d. It can make the river system wider and deeper.

_____ 17. When a stream from one watershed is "captured" by a stream from another watershed, the process is known as
a. stream theft.
b. stream growth.
c. stream expansion.
d. stream piracy.

_____ 18. What characteristic of a stream makes it able to "capture" another stream?
a. The "capturing" stream is older.
b. The "capturing" stream is longer.
c. The "capturing" stream has a higher rate of erosion.
d. The "capturing" stream begins at a higher elevation.

_____ 19. What does a stream do once it has been "captured"?
a. It develops a lower rate of erosion.
b. It soon escapes from the "capturing" river system.
c. It adds its silt to the "capturing" stream's bed.
d. It drains into the "capturing" river system.

_____ 20. What does a stream transport as it flows downhill?
a. boulders, trees, and coal
b. soil, sand, and vegetation
c. soil, rock fragments, and minerals
d. mostly large pieces of rock

_____ 21. The materials carried by a stream are called the
a. stream baggage.
b. stream load.
c. stream channel.
d. stream bank.

_____ 22. The three forms of stream load are
a. stream load, stream bed, and stream channel.
b. suspended load, sustained load, and retained load.
c. sustained load, bed load, and dissolved load.
d. suspended load, bed load, and dissolved load.

_____ 23. Which stream load consists of particles of fine sand and silt?
a. suspended load
b. sustained load
c. bed load
d. dissolved load

_____ 24. What is meant by a stream's rate of downstream travel?
a. load of the water
b. flow rate of the water
c. speed of the water
d. outflow of the water

_____ 25. How does a stream's speed create its suspended load?
a. It prevents the particles from sinking to the stream bed.
b. It raises the temperature and makes the particles rise.
c. It pushes rocks to the side.
d. It changes the water's chemistry so that it suspends some particles.

_____ 26. The bed load is made up of
a. dissolved materials such as salt.
b. larger, coarser materials such as coarse sand, gravel, and pebbles.
c. plant materials such as leaves.
d. fine materials such as sand and silt.

_____ 27. How does a stream's bed load move?
a. It is carried in suspension in the water.
b. It slides and jumps along the bed of the stream.
c. It is dissolved in the stream's water.
d. It is pushed along the tops of the banks.

_____ 28. Mineral matter that is transported in liquid solution is the stream's
a. suspended load.
b. bed load.
c. dissolved load.
d. mineral load.

_____ 29. A stream's discharge is the
a. total volume of water moved by a stream over a given time period.
b. total volume of water moved by a stream in its lifetime.
c. total volume of a stream's load.
d. direction in which a stream flows.

30. What is the relationship between a stream's speed, the stream's discharge, and the load the stream can carry?

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31. How does the load of a swift stream compare with the load of a slow stream?

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32. How does a stream's speed affect its channel?

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33. What factor plays the biggest role in a stream's speed?

34. Describe the gradient of a stream.

35. At what point is a stream's gradient generally steep?

36. How does the gradient at a stream's headwaters affect its speed and channel?

37. What is the mouth of a stream?

38. At a stream's mouth, how does its gradient often change?

39. Why do a stream's speed and erosive power often decrease at the stream's mouth?

40. In what way does a stream's channel change by the time it reaches the sea?

DEVELOPMENT OF RIVER CHANNELS

_____ 41. The erosive power of a stream decreases as the stream's
a. load, discharge, and gradient increase.
b. load, channel, and speed increase.
c. load, discharge, and gradient stay the same.
d. load, discharge, and gradient decrease.

_____ 42. What happens to a stream's channel over time?
a. It becomes deeper and rockier.
b. It becomes wider and deeper.
c. It becomes narrower and deeper.
d. It becomes wider and shallower.

_____ 43. A stream is called a river when the stream
a. becomes longer and wider.
b. is added to a map.
c. becomes faster and deeper.
d. joins another body of water.

_____ 44. What may develop as a river evolves?
a. a deeper and faster flow
b. a straighter channel
c. sharp turns
d. curves and bends

_____ 45. A river with many bends probably has a
a. steeper gradient than a river with fewer bends.
b. heavier discharge than a river with more bends.
c. lower gradient than a river with fewer bends.
d. lower discharge than a river with fewer bends.

_____ 46. What are meanders?
a. a winding pattern of wide curves in a river
b. a series of waterfalls in a river
c. single curves in a river
d. deep cuts in a river channel

_____ 47. Meanders develop when
a. a river's channel gets deeper and its speed decreases.
b. the gradient of a river decreases and the speed of water decreases.
c. the gradient of a river increases and the speed of water increases.
d. a river ages and slows down.

_____ 48. When the speed of water decreases, a river
a. cuts a deeper channel.
b. is more likely to erode down to its bed.
c. is less able to erode down to its bed.
d. is less able to erode its banks.

_____ 49. As a river's water speed slows and it flows through its channel, what happens?
a. More energy is directed against the river's banks, causing greater erosion of the banks.
b. More energy is directed against the river's banks, causing less erosion of the banks.
c. Less energy is directed against the river's banks, causing greater erosion of the banks.
d. Less energy is directed against the river's banks, causing less erosion of the banks.

_____ 50. What happens on the outside of a curve as a river rounds a bend?
a. The speed of water decreases, and the outside of the curve erodes less.
b. The speed of water increases, and the outside of the curve erodes more.
c. The speed of water decreases, and the outside of the curve erodes more.
d. The speed of water decreases, and the outside of the curve erodes more.

_____ 51. What happens to the speed of water on the inside of a curve as a river rounds a bend?
a. It increases.
b. It stays the same as on the outside of the curve.
c. It decreases.
d. It is unchanged.

_____ 52. What effect does the change in water speed on the inside of a river's bend have?
a. The channel erodes more rapidly.
b. A bar of deposited sediment forms.
c. The inside bank becomes wider and lower.
d. The bend begins to straighten out.

_____ 53. Why does sediment build up where it does in the bend of a river?

a. Water is moving more slowly inside the bend, so more sediment settles out of the stream.
b. Water is blocked by the inside of the bend, so sediment cannot continue to flow downstream.
c. Water is moving more slowly outside the bend, so sediment is deposited on the inside of the curve.
d. The inside of the bend erodes more rapidly, making room for more sediment.

_____ 54. In what way does a curve in a stream become larger?

a. Erosion shrinks the inside of a curve while further sediment is deposited on the opposite bank, where the water is moving more slowly.
b. Erosion enlarges the outside of the curve, and further sediment is deposited where the curve has become wider.
c. Erosion shrinks the outside of the curve where water is moving more quickly, while further sediment is washed away.
d. Erosion enlarges the outside of the curve while further sediment is deposited on the opposite bank, where the water is moving more slowly.

55. How does an oxbow lake form?

56. How many channels do most rivers have?

57. How do some rivers end up with multiple channels?

58. What is a braided stream?

59. What is it about a stream's sediment load that causes it to be a braided stream?

60. Compare a braided stream with a meandering stream in terms of erosion.

61. How does the channel of a braided stream change?

62. What could cause a single river to change from a braided stream to a meandering stream?