

NAME: _____ DATE: _____

CLASS: _____ TEACHER: _____

**Youthful Rivers
Earth Science Assignment**

This worksheet was designed to accompany the following Geoteach.com lesson: **Young Rivers**. You may find it helpful in answering these questions.

Directions: Answer all questions, placing the correct letter choice on the *Answer Blank* provided for each question. Be sure to read the information for all illustrations.

1. Which of the following statements is true concerning a Youthful River:

- a. Area erosion is primarily caused by lateral, side-to-side, water movement.
- b. Area erosion is primarily caused by the river downcutting into the bedrock below.
- c. Erosional forces cause meander curves to develop in surrounding bedrock.
- d. Deposition is greater than erosion in Young Rivers.

Answer: _____

2. Youthful Rivers carry their sediment load in the following manner:

- a. In solution only.
- b. As a suspended load.
- c. By rolling, bouncing, and saltation.
- d. All of the above.

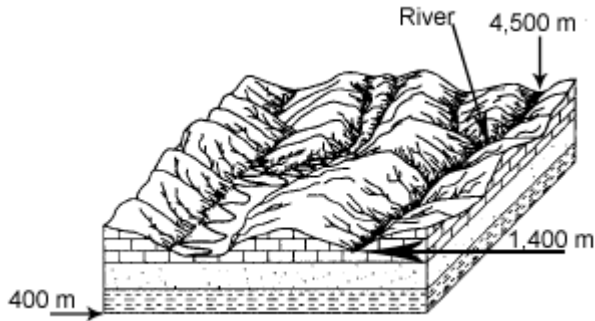
Answer: _____

The diagram at the top of page 2 pertains to Questions 3 and 4. It shows a cross section of a portion of Earth's crust. Elevations are shown in meters. Arrows are pointing to 2 elevations of a river flowing through this region. If the distance the river flows from the higher to the lower elevations is 1,200 km, what is the gradient of the river?

Use the equation at the right to compute your answer:

$$\text{Gradient} = \frac{\text{Change in Field Value}}{\text{Distance}}$$

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3. The approximate gradient of the river is:

- a. 3.42 m/km
- b. 3.75 m/km
- c. 2.58 m/km
- d. 3,100 m/km

Answer: _____

4. Over time, as the river continues to erode the landscape, how will the general appearance of the area change?

- a. Mountains will continue to rise and the river valley will become more elevated.
- b. The valley will continue to deepen then river will begin to erode laterally and widen the river valley.
- c. The ocean will move further back towards the mountains, eventually joining the river.
- d. No changes to the landscape will occur.

Answer: _____

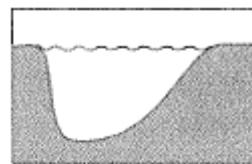
5. Youthful Rivers are generally found:

- a. Where the river empties into a lake or ocean.
- b. On flat peneplains, with hilly landscapes located at great distances from the actual river.
- c. At higher elevations, often in mountainous areas, where slopes are steeper.
- d. Within broad, flat floodplains that are saturated with swamps and oxbow lakes.

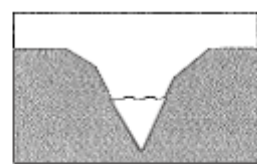
Answer: _____

6. The following illustration shows 4 different river profiles.

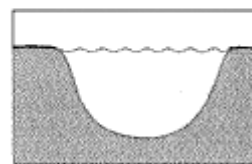
Which river profile best represents the cross-section of a Youthful River?



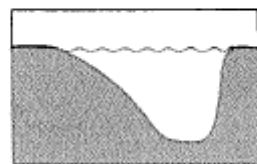
(1)



(3)



(2)

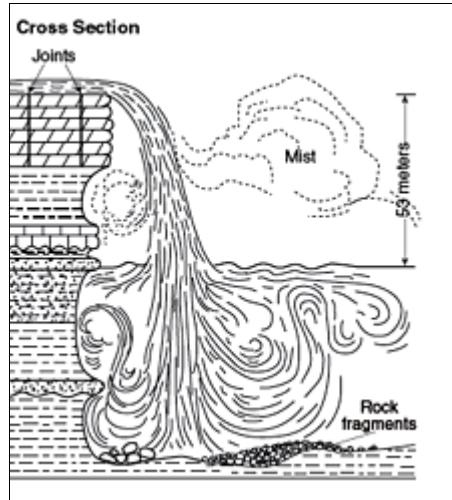


(4)

Answer: _____

Youthful Rivers Assignment

The following illustration pertains to questions 7 and 8. It shows a river flowing over a steep escarpment (cliff).



7. The best indication that the river in the illustration above is a Young River is:

- a. The rock fragments that are visible to the right in the illustration.
- b. The bedrock is composed of several horizontal sedimentary rock layers.
- c. The river is depositing its sediments in the ocean.
- d. A waterfall is visible in the diagram.

Answer: _____

8. The steep escarpment shown in the illustration above may have been formed by:

- a. River erosion, only.
- b. A fault in the rock layers, only.
- c. A fault in rock layers and many years of erosion due to downcutting by the river.
- d. An igneous intrusion with associated volcanic eruptions.

Answer: _____

9. Which of the following would increase the discharge of a Youthful River?

- a. Precipitation and the evaporation of seawater in large quantities.
- b. Precipitation and spring snowmelt at high elevations.
- c. The capillary action of groundwater in loose unconsolidated sediments below the river's floodplain.
- d. The sublimation of snow on high mountain peaks.

Answer: _____

10. Which of the following would explain why, in many instances, people cannot sit down next to the bank of a young river, remove their shoes and soak their feet in the river water?

- a. Young rivers are often situated in steep-sided canyons with no floodplain.
- b. A young river's floodplain is too swampy to allow people to sit and relax next to the river.
- c. The extensive lateral erosion in the area makes it too dangerous to visit young rivers.
- d. There is too much silt in the slow-moving river water, with a resulting muddy appearance, and so the water is not suitable for bathing.

Answer: _____

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