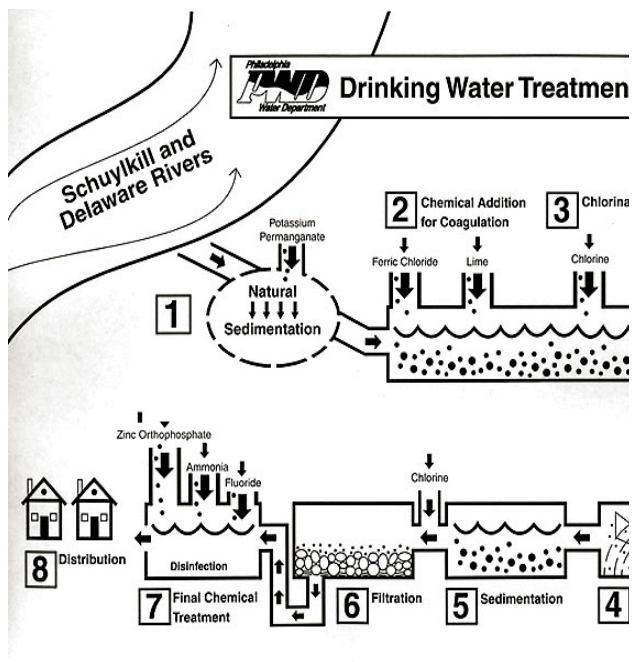


Unit 4 Formative Assessment – Freshwater (*Streams, Rivers, Groundwater*)

1. The picture below shows typical steps in water treatment. Match the treatment step with its description below.

1. _____ **Natural Sedimentation**
2. _____ **Chemical Addition for Coagulation**
3. _____ **Chlorination**
4. _____ **Flocculation**
5. _____ **Sedimentation**
6. _____ **Filtration**
7. _____ **Final Chemical Treatment**
8. _____ **Distribution**

- A. Chemicals are added and mixed into the water.
- B. The water is drawn through fine filters, made of sand, and crushed coal, to remove any remaining particles.
- C. Fluoride is added to prevent tooth decay, ammonia is added to counter chlorine taste, and zinc orthophosphate is added to reduce pipe corrosion.
- D. Chlorine is added to kill disease-causing organisms.
- E. The treated water is ready to be distributed to the community.
- F. The smaller particles joined together, settle.
- G. Water is pumped from the river and stored in reservoirs to allow the heaviest particles to settle and the lightest materials to float.
- H. The water and chemicals are mixed to help the small particles coagulate or bind together.



2. There are a number of chemical, biological and physical tests that can be done to determine water quality. List two of each type of test and indicate its purpose.

3. Potable water is

- a. Safe to drink
- b. Not safe to drink
- c. Needs to be purified before drinking

4. Flood events

- a. Occur more often when the water table is high.
- b. Occur more often when the water table is low.
- c. Are not affected by the water table.
- d. Only occur in wet climates.

5. Which of the following is NOT an effect of sediment in water?
 - a. Sediment can result in decreased resistance to disease.
 - b. Sediment prevents fish from seeing their food and habitat.
 - c. Sediment in water raises water temperatures.
 - d. Sediment helps to purify water.

6. Which factor is most important in determining the erosive power of a stream?
 - a. Stream discharge
 - b. Dissolved load
 - c. Stream velocity
 - d. Channel width

7. When a soil is impermeable, it
 - a. Has not water in it at all.
 - b. Has large pore spaces.
 - c. Allows water to flow freely through it.
 - d. Does not allow water to pass through it.

8. Which of these features is a landform associated with karst topography?
 - a. Sinkholes
 - b. Streams
 - c. natural levees
 - d. Deltas

9. What are the major environmental problems associated with the use of ground water?

10. What type of stream valley is formed primarily by a fast running mountain stream?
 - a. V shaped
 - b. U shaped
 - c. W shaped (multiple valleys)
 - d. S Shaped with lots of meanders

11. Why are leaking landfills and septic tanks of concern to people who use groundwater?

12. What type of rock is often associated with formation of caverns and karst topography?
 - a. Soapstone
 - b. Lemonstone
 - c. Pearstone
 - d. Limestone

13. All of the following elements or compounds in water are harmful except
 - a. Arsenic
 - b. Lead
 - c. Mercury
 - d. Calcium

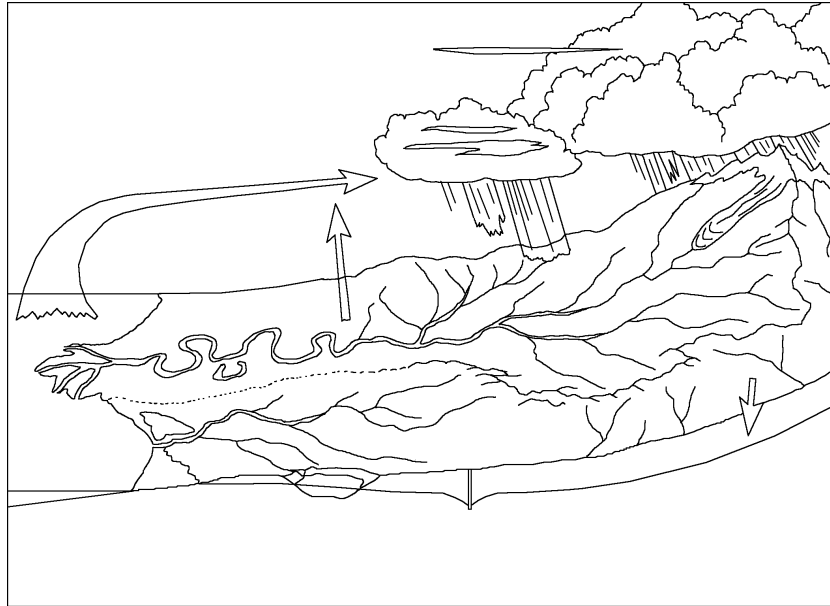
14. A successful well should be located
 - a. Below the water table in an aquifer
 - b. Near a hot springs
 - c. In impermeable material like clay
 - d. In a karst dry cave

15. Define transpiration. How is it a part of the water cycle?

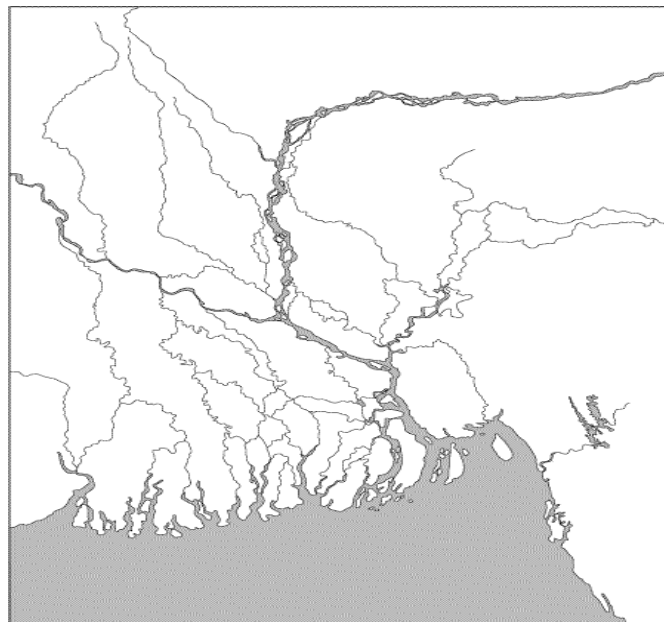
16. What causes sinkholes or subsistence? How can they be prevented?

17. Where do we find most of the water on Earth? The most freshwater on Earth?

18. **On the water cycle diagram, label the following:** evaporation, condensation, precipitation, ground water, run off, stream, water vapor, ocean, aquifer, water table, cloud and infiltration.



19. **Label the river system below.** Include the terms headlands, tributary, river, delta, mouth, ocean, flood plain, lake, and meander. Part of the terms can be labeled on the picture below.



20. Which is the longest river in North Carolina?

- a. Neuse
- b. Savannah
- c. Tar
- d. Cape Fear

21. What river had the widest mouth in America?
22. For infiltration to occur, the ground must be (choose two):
 a. Permeable c. impermeable
 b. saturated d. unsaturated
23. What type of soil would allow the most infiltration of water?
 a. clay b. silt c. sand d. gravel
24. The most freshwater is used for:
 a. agriculture b. drinking c. landscaping d. industry
25. Define river basin and watershed.
26. Saltwater intrusion most impacts:
 a. Lakes and ponds b. reservoirs c. groundwater d. cropland
27. Which of the following are point sources of pollution?
 a. Fertilizer runoff c. paint poured down a factory drain
 b. agriculture waste d. salt and gasoline from rural roads
28. Which of the following is NOT a non-point source of pollution?
 a. Road run off of gasoline and oil
 b. salt from icy roads
 c. Partially treated wastewater from a water treatment plant
29. How can we protect ground water?
30. Define stream load. How do most streams carry the majority of their load?
31. What factors impact a stream's ability to erode and transport material downstream?
32. What kind of topography is represented in the picture below?

