

**Students will answer all vocabulary, study guide questions and additional study problems as outlined below.**

*Supplemental and Reading Material provide additional information to help master concepts.*

Essential Standards:	Students Will Be Able To:
<b>2.1.4</b> Explain precautions to protect life from sinkholes and groundwater pollution.	<ul style="list-style-type: none"> <li>• Draw and label the hydrologic cycle, including the interactions between ground and surface water.</li> <li>• Explain ways to protect life from sinkholes, groundwater pollution, and flooding.</li> </ul>
<b>2.3.2</b> Illustrate connections in the water cycle between ground and surface water.	<ul style="list-style-type: none"> <li>• Explain NC river systems, river basins, and watersheds.</li> <li>• Explain uses of fresh water by humans, as well as benefits and consequences of its use, including aquifer depletion, subsidence, and salt water intrusion.</li> </ul>
<b>2.4.1</b> Evaluate human influences on freshwater availability.	<ul style="list-style-type: none"> <li>• Analyze how drinking water and waste water treatment impact the quality and quantity of potable water.</li> </ul>
<b>2.4.2</b> Evaluate human influences on water quality in NC river basins, aquifers and watersheds.	<ul style="list-style-type: none"> <li>• Evaluate the quality of NC streams, including physical, chemical and biological parameters.</li> <li>• Evaluate how pollution moves through a watershed, including non-point.</li> <li>• Evaluate conservation measures to maximize quality and quantity of water resources.</li> </ul>

**Vocabulary—Define, know, and be able to apply the following terms:**

- |                       |                            |                            |
|-----------------------|----------------------------|----------------------------|
| 1. Infiltration *     | 9. River Basin (Watershed) | 17. Salt Water Intrusion * |
| 2. Transpiration *    | 10. Tributary              | 18. Point Source *         |
| 3. Evaporation        | 11. Stream Load *          | 19. Non-point Source *     |
| 4. Condensation *     | 12. Aquifer *              | 20. Potable Water *        |
| 5. Runoff *           | 13. Zone of Saturation *   | 21. Coliform Bacteria      |
| 6. Sinkhole (Karst) * | 14. Zone of Aeration       | 22. Coagulation            |
| 7. Oxbow Lake         | 15. Water Table *          |                            |
| 8. Groundwater *      | 16. Subsidence *           |                            |

**Academic students complete vocabulary with asterisks \*only. Honors students complete all 20 words.**

**Study Guide—Answer, know, and understand the following concepts:**

1. Explain how flood events may be connected to ground water levels.
2. Identify benefits and consequences of the following human uses of water: wells, dams, agriculture and recreation.
3. Explain how aquifer depletion causes subsidence and salt-water intrusion.
4. Identify effects of human population growth on water resources.
5. Explain various ways in which pollution can move through water systems.
6. Identify how drinking water and waste water treatment impact our water.
7. Explain how physical, chemical and biotic factors can be used to evaluate water quality in nature.
8. Identify the effect of sediment on water quality.
9. Identify environmental problems associated with storm water runoff.
10. Identify ways in which humans can protect and conserve water resources.

**Supplemental--Do practice the following activities as you work through the unit:**

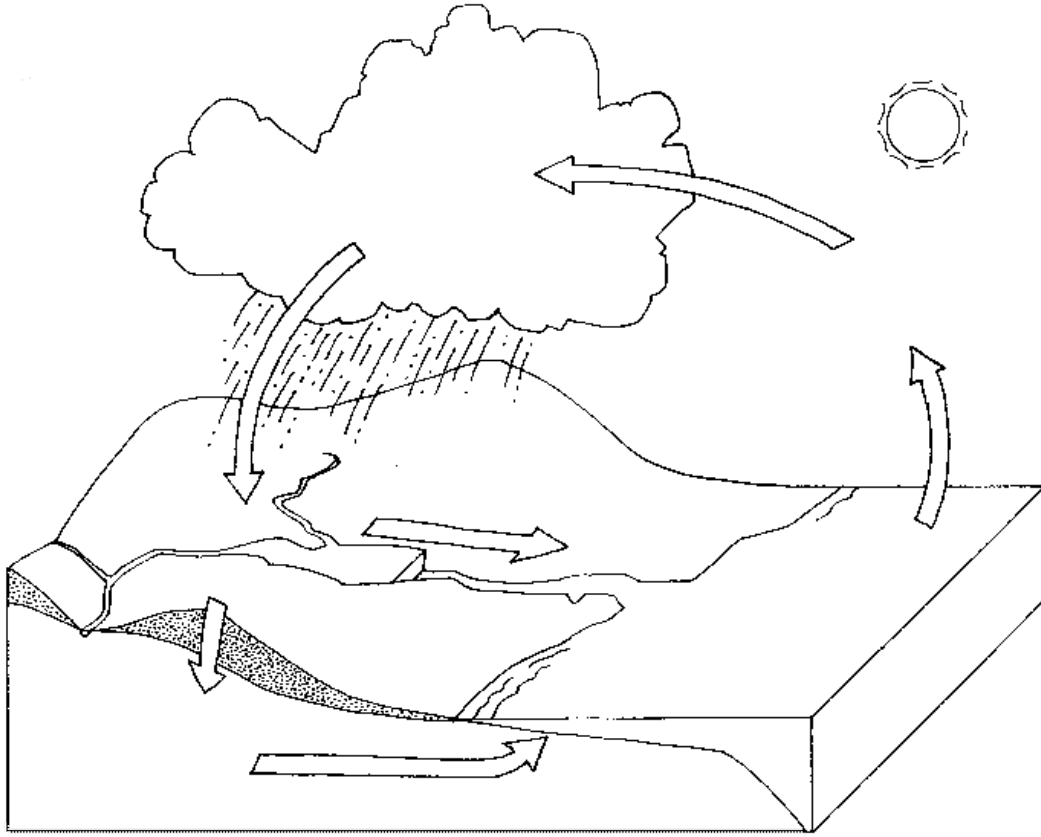
1. Create and label a water cycle diagram, including surface and ground water.
2. Explain how water moves through the water cycle.
3. Identify the watershed in which your home is located.

**Unit Reading Material:**

- Textbook: Chapter 6 & Chapter 11A
- Digital Textbook: Ch. 5.1-5.12
- Class Notes
- Handouts

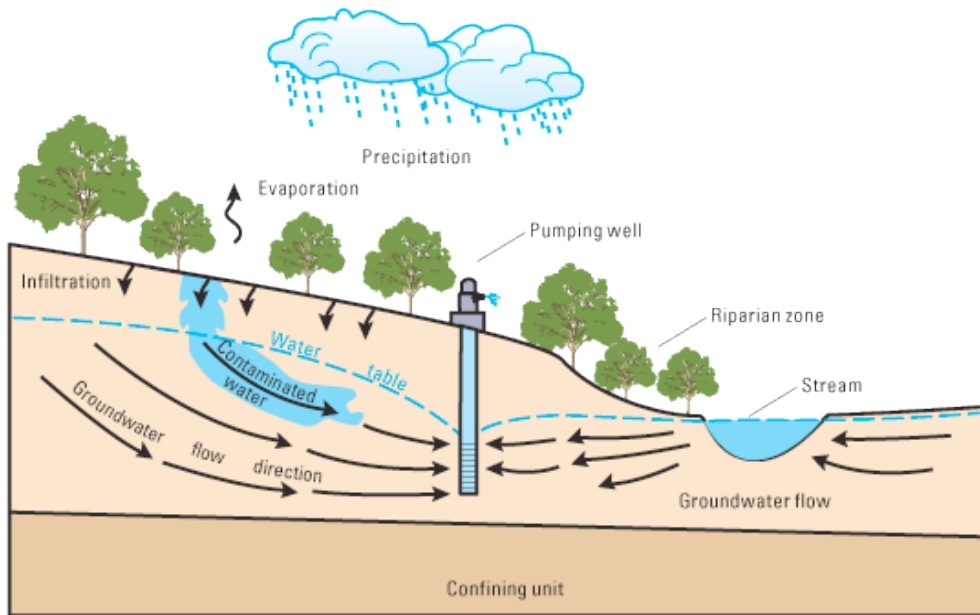
**Additional Study Problems:**

1. Label the water cycle. Identify what forces drive the water cycle: \_\_\_\_\_ & \_\_\_\_\_



2. In the space provided, draw a river system from headwaters to the mouth of the river. Draw and identify the following features: *headwaters, mouth, delta, meander, oxbow lake, tributary, floodplain, location(s) of erosion & location(s) of deposition.*

3. Using the image below,
  - a. identify the *zone of saturation*
  - b. identify the *zone of aeration*
  - c. What has to happen in order for the water table to rise?
  - d. What is the purpose of the riparian zone?
  - e. What would you expect of the stream quality if the riparian zone did not exist?
  - f. What will happen to the riparian zone if there is a large increase in precipitation?
  - g. Could the contaminated water be removed? Explain your answer.



4. Describe each step in the water treatment process below:

