

Earth Systems II - Unit 10 Study Guide

es2u10sg

Web Resources:

- **Water Footprint:** <http://www.waterfootprint.org>

Learning Objectives:

1. Explain the importance of water and the hydrologic cycle to ecosystems, human health, and economic pursuits.
 - a. Ecosystems
 - b. Human health
 - c. Economic pursuits

Concepts: hydrologic cycle watershed groundwater aquifer marshes swamps bogs water table

2. Describe how we use water and alter freshwater systems.

- a. Water Use
- b. Dams
- c. Draining and filling wetlands
- d. Irrigation

Concepts: irrigation consumptive use recharge sinkholes water diversions reservoirs dikes levees

3. Assess problems of water supply and propose solutions to address freshwater depletion.

- a. Water supply problems
- b. Solutions

Concepts: desalination conservation reverse osmosis

4. Assess problems of water quality and propose solutions to address water pollution.

- a. Water pollution problems
- b. Solutions

Concepts: point-source pollution non-point-source pollution pathogens

5. Explain how wastewater is treated.

- a. Municipal wastewater treatment
- b. Wetland wastewater treatment

Concepts: wastewater septic systems primary treatment secondary treatment sludge blue water green water grey water

Assignments:

- Read Chapter 15 (pages 433-464); "Troubled Water" (article)
- Notebook: **10pts**
 - ✓ _____ 2-column notes on Learning Objectives
 - ✓ _____ Activity: "A Grave Mistake"
 - ✓ _____ Activity: "Poison Pump – Cholera Outbreak in London"
 - ✓ _____ Case Study: "Bottled Water"
 - ✓ _____ Extended Water Footprint (complete and print at waterfootprint.org)
- Knowledge **Quizzes** (cumulative): **15pts**
- **Investigation:** "Water Filtration Challenge" **10pts**
- Freshwater Resources **Test 20pts**

Extra Credit: up to 3pts for reflection on one of the following articles

- "No Longer Cool" (article)
- "Rural Communities Exploited by Nestle" (article)
- "Too Much Drainage" (article)
- "Wetlands and Flooding" (article)