



Yale-New Haven  
Teachers Institute®

Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
2017 Volume II: Watershed Science

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## **Cheers to Your Health: The Connection between Water Sources and Disease**

Guide for Curriculum Unit 17.02.10

by Andrea Zullo

The health of the watershed has a direct impact on the health of those that use it. This unit introduces students to the concept that imbalances and contaminants in the watershed can cause disease and infection in humans. The first part of this unit begins with an introduction to the major concept of a watershed and how humans can have a direct impact on the chemicals and organic matter that are carried within. Students study how chemical contaminants including mercury, nitrogen, arsenic, and lead are introduced into the watershed and the clinical presentation of these contaminants in humans. Each contaminant includes real-world case studies—including the arsenic ground-water contamination in Bangladesh and the lead pipe incident in Washington DC.

Students will also learn about microbial pathogens including coliform bacterial species, *Naegleria fowleri*, and *Cryptosporidium*. All pathogens include examples of how they are introduced into the watershed, how they infect humans, and how to remediate these pathogens. Sample case study formats for the presentation of this material are included in the activities section, along with labs that students can perform.

(Developed for B.I., grade 12; recommended for Anatomy and Physiology, and Medical Science, grades 10-12)

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