



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
2018 Volume II: Engineering Solutions to 21st Century Environmental Problems

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## Is This Water Safe to Drink?

Guide for Curriculum Unit 18.02.05  
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Clean and purified drinking water is a basic human need and over  $\frac{3}{4}$  of the Earth's human population has the luxury of having it piped directly into their homes. Unfortunately, that leaves almost 2 billion people worldwide where access to clean water is questionable. This unit will help students understand the risks involved with drinking untreated water and engage them in an engineering project to produce a means of filtering water to make it less risky. The beginning of this unit is designed to first help students understand the risks of drinking dirty water by introducing them to the world of microbial pathogens. Students will learn about some of the most common bacteria, viruses, and protozoa that can be lurking in a potential drinking water source. Then students will learn the basics of water treatment and how water treatment has evolved over the past thousand years. Students will use this knowledge to finally construct and test a water filter of their own design.

The unit was written in partnership with Dr. Jordan Peccia, a professor of Environmental Engineering at Yale University. It is designed for elementary students as young as third grade, but the concept and strategies involved can easily be adapted to learners of any age.

(Developed for STEM Lab, grade 3; recommended for Environmental Engineering, Water Treatment, and Pathogens, grades 3-12)

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