



# YALE NATIONAL INITIATIVE

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Curriculum Units by Fellows of the National Initiative  
2014 Volume VI: Microbes Rule!

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## **A Gardenful of Microbes**

Guide for Curriculum Unit 14.06.04, published September 2014  
by Valerie Schwarz

A Gardenful of Microbes is designed to teach students the benefits of microbes in the soil. Students will learn about the millions of invisible microorganisms that work together with plants. As these organisms do their work, the quality of the soil improves. Students will learn about ecosystems, food webs, biodiversity, natural resources, and how small changes have a great impact on the soil food web. The unit also teaches the positive and negative human impacts on the soil and living organisms. Students will learn ways to conserve the environment naturally, while planting and monitoring in their school gardens. Students will investigate the types of organisms living in the soil by conducting a census to determine the biodiversity. A Berlese funnel will be constructed to filter out smaller organisms for observation. The highlight will be exploring the symbiotic relationship that exists between termites and protozoa. Students will extract protozoa from the guts of termites and view them through a microscope. The activities could easily be altered to teach ecosystems, conservation, and natural resources anywhere in the world. The target audience is a fourth grade science class, but it could be adapted for use with middle school science students.

(Developed for Science, grade 4; recommended for Science, grades 5-8)

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