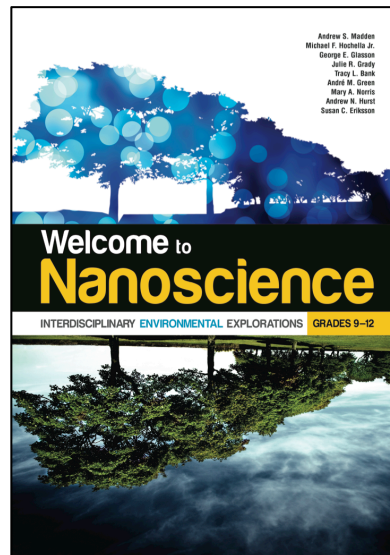


Welcome to Nanoscience: Interdisciplinary Environmental Explorations, Grades 9–12

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Summary

In a society where technology plays an ever-increasing role, students' ability to understand the underlying science and make smart social and environmental decisions based on that knowledge is crucial. *Welcome to Nanoscience* helps biology, chemistry and Earth science teachers introduce the revolutionary fields of nanoscience and nanotechnology to secondary school students through the unique framework of the environment, specifically groundwater pollution.

This volume comprises two parts. The first provides background material for the teacher – answering questions such as what is nanoscience and technology? What are the important historical and societal aspects of nanotechnology? How is nanoscience related to environmental science? – and describes how education in nanoscience and nanotechnology addresses science standards, and outlines the curriculum.

Part II contains the five lessons:

- Introduction to Technology
- Introduction to Water Pollution
- Microbe-Mineral Interactions: Using the Winogradsky Column to Demonstrate Bacterial Reduction of Iron(III)
- Investigation of Bacterial Transport in Groundwater

Each classroom-tested, inquiry-based investigation follows the BSCS 5E Instructional Model and includes step-by-step procedures, materials lists and data charts. Teachers may use the entire curriculum or pick and choose among its several parts, depending on their preferred emphasis, the course level and available time. The flexible curriculum offers numerous entry and exit points.

Supporting Resources

- *The Big Ideas of Nanoscale Science & Engineering, Grades 7–12: A Guidebook for Secondary Teachers* (NST0973)