



YALE NATIONAL INITIATIVE

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Curriculum Units by Fellows of the National Initiative
2020 Volume IV: Solving Environmental Problems through Engineering

Introduction

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The 21st century poses new, complex environmental problems and truly global challenges. These include adapting to and mitigating the effects of climate change, providing water and sanitation for the developing world, and the proliferation of synthetic chemicals in our air, water, and food.

The individual units contained in this volume address these contemporary environmental problems. They include units on the design of better storm water management infrastructure in cities where increases in extreme precipitation events have occurred, understanding and quantifying the complex environmental impact of the products (from electronics to plastics) we use, how heat islands in warming cities can be reduced through better urban design and social justice, and ways to reduce indoor air pollution in light of the growing incidence of asthma and allergies.

The units' topics are diverse, but all follow an environmental theme and contain the engineering principles of design and problem solving. By learning from this perspective, the utilization of these units can more deeply engage students in science and math, teach students how to interpret and solve complex problems, and provide new skills that will empower students to make changes.

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