



*This module meets the following National Standards of Learning*

## National Science Education Standards: Physical Science

*Grades 5–8*

### Science as Inquiry

- Identify questions that can be answered through scientific investigations.
- Use appropriate tools and techniques to gather, analyze, and interpret data.
- Use technology and mathematics to improve investigations and communications.
- Think critically and logically to make the relationships between evidence and explanations.
- Formulate and revise scientific explanations and models using logic and evidence.

*Grades 9–12*

### Science as Inquiry

- Design and conduct scientific investigations.
- Use technology and mathematics to improve investigations and communications.

- Formulate and revise scientific explanations and models using logic and evidence.
- Recognize and analyze alternative explanations and models.

## National Educational Technology Standards for All Students

### *Technology Foundation Standards for Students*

#### Basic Operations and Concepts

Students are proficient in the use of technology.

#### Technology Productivity Tools

Students use technology tools to enhance learning, increase productivity, and promote creativity.

Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

#### Technology communications tools

Students use a variety of media and formats to communicate information and ideas to multiple audiences.

---

The AASHTO STEM Outreach Solutions Program is a hands-on education outreach program designed for use in science, math, technology, and social science classes. By engaging students in solving real-world problems, sending volunteer mentors in the classroom, and supplying teachers with the needed materials. It connects K–12 students to the working world of transportation professionals and civil engineers, and inspires them to consider careers in these fields. The modules are designed for students in middle school and high school. The Roadways Into Developing Elementary Students module is designed for Pre K–8<sup>th</sup> grade and introduces elementary school students to basic transportation concepts.

Visit [TRANSPORTATION.ORG/STEM-OUTREACH-SOLUTIONS](http://TRANSPORTATION.ORG/STEM-OUTREACH-SOLUTIONS) to learn about the program.

## Technology Research Tools

Students use technology to locate, evaluate, and collect information from a variety of sources.

## PAC 2

This module contains three activities to provide a comprehensive overview of environmental considerations in highway design.

## Activities

### *Activity 1: Settling Out*

Activity 1 addresses particle size in relation to settling rate in still water.

### *Activity 2: Filtering the Silt*

In Activity 2, students implement a filtering efficiency test model used by engineers to determine what filter fabric is most effective in catching suspended particles in runoff.

### *Activity 3: The Connector Highway Project*

Activity 3 considers four major issues (air pollution, noise pollution, water quality, and habitat loss) often included in the judgment of environmental quality of a populated area.

---

**AASHTO**

**AASHTO STEM Outreach Solutions Program Headquarters**

555 12<sup>th</sup> Street, N.W., Suite 1000, Washington, DC 20004 • Telephone (202) 624-5800