



*This module meets the following National Standards of Learning*

## National Science Education Standards: Physical Science

*Grades 6–12*

### 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.

### Abilities of Technological Design

- Identify appropriate problems for technological design.
- Design a product.
- Implement a proposed design.
- Evaluate completed technological designs or products.

## PAC 2

This module contains four activities to provide a comprehensive overview of the planning and design of roads for traffic considerations.

### Activities

#### **Activity 1: Quick Fixes for High-Crash Highways**

Activity 1 provides students with an introduction to traffic management and road improvement planning.

#### **Activity 2: Quick Curves**

Activity 2 is a hands-on project showing the importance of curve design.

#### **Activity 3: Sharp Curve Ahead!**

Activity 3 takes a mathematical approach to explaining curve design. Students will learn equations that are used by engineers to design curves and will explore the concepts that are used to formulate those equations.

#### **Activity 4: Create a Plan!**

Activity 4 provides students with a plan of obstacles that they must navigate by creating roads with known speed limits. These roads must pass through the given intersection points and must be designed properly through the application of engineering equations.

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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.



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