



## Helping Today's Students Become Tomorrow's Engineers and Scientists

SAE International's A World In Motion® (AWIM) is a teacher-administered, industry volunteer-assisted program that brings science, technology, engineering and math (STEM) education to life in the classroom for students in Kindergarten through Grade 12. Benchmarked to the national standards, AWIM incorporates the laws of physics, motion, flight and electronics into age-appropriate hands on activities that reinforce classroom STEM curriculum.

Through the support of corporations, foundations, volunteers, SAE members and the SAE Foundation, A World In Motion opens a window of possibilities for students as they discover the exciting application of science principles and learn about rewarding engineering, science and technical careers. The students learn to work as a team with their classmates and apply creative problem solving during the activities.

The A World In Motion program builds bridges between corporations and classrooms by giving teachers, volunteers, and students the opportunity to work together and learn from each other.

Industry support is essential to this program. Corporations and their employees can influence the ways in which youth are prepared to meet the future by sponsoring schools in their communities. By doing so, schools can qualify to receive free or low cost AWIM Challenge kits. Volunteering for AWIM is a great way to serve as a steward for your chosen profession.

### Since 1990:

- Over 4 million students have participated in the AWIM program in all 50 U.S. states and 10 of 13 Canadian provinces and territories
- More than 65,000 activity kits have been provided to teachers and volunteers
- Over 20,000 engineers, scientists and technology professionals have volunteered in partnership with the A World In Motion program

### A World In Motion Challenges

#### Primary (Grades K-3) *Coming Soon!*

#### Elementary (Grades 4-6)

- **Skimmer**

Students construct paper sailboats and test the effect of different sail shapes, sizes, and construction methods to meet specific performance criteria. Students learn about friction, forces, the effect of surface area and design in this challenge.

- **Jet Toy**

Students make balloon-powered toy cars that meet specific performance criteria like; travels far, carries weight, or goes fast. Jet propulsion, friction, air resistance and design are the core scientific concepts students explore in this challenge.

- **Electricity & Electronics**

This challenge provides teachers with activities that focus on principles of electronics by providing teachers with hands-on experiments involving static electricity, batteries and capacitors. (Under Revision)

**NEW!**

- **Gravity Car**

Students design and construct a vehicle powered by gravity using a lever and fulcrum. As the challenge progresses, they explore the relationships between the sweep of the lever arm, the number of winds the string makes about the axle, the distance the vehicle travels, and how weight, wheel and axle diameter affect speed and distance.

## Middle School (Grades 7-8)

- **Motorized Toy Car**

Students develop new designs for electric gear driven toys. The students are involved in writing proposals, drawing sketches, and working with models to develop a plan to meet a specific set of design requirements. Force and friction, simple machines, levers and gears, torque and design are the core scientific concepts covered in this challenge.

- **Glider**

Students explore the relationship between force and motion and the effects of weight and lift on a glider. Students learn the relationships between data analysis and variable manipulations, and the importance of understanding consumer demands. The glider activity culminates in a book-signing event where each design team presents its prototype and the class presents its manuscripts to Mobility Press “representatives” and members of the local community.

- **Electricity & Electronics**

This challenge provides teachers with activities that focus on principles of electronics by providing teachers with hands-on experiments involving circuits, magnetism and electronics. (Under Revision)

NEW!

- **Fuel Cell**

This design presents students with the opportunity to investigate a new and developing technology; the fuel cell. Over the course of the curriculum, a variety of activities introduce students to the development and use of fuel cells, types of fuel cells, and hands-on experiments with a PEM (proton exchange membrane) fuel cell to produce electricity to power an electric motor.

NEW!

- **Gravity Car**

Students design and construct a vehicle powered by gravity using a lever and fulcrum. As the challenge progresses, they explore the relationships between the sweep of the lever arm, the number of winds the string makes about the axle, the distance the vehicle travels, and how weight, wheel and axle diameter affect speed and distance.

## High School

- **Electricity & Electronics**

The Electricity & Electronics kit provides teachers with activities that guide student teams through experiments involving transistors and semiconductors and analog and digital integrated circuits. (Under Revision)

**To learn more about this award-winning program, or for assistance in your search for an industry volunteer, contact:**

### SAE International

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