SAE INTERNATIONAL

A World In Motion

PRIMARY | ELEMENTARY | MIDDLE SCHOOL

Educating Students. Empowering Teachers. Engaging Volunteers.

Introduction

SAE International's **A World In Motion® (AWIM®)** program is an inquiry-based learning experience that brings STEM concepts to life, setting students on a path of lifelong discovery.

AWIM combines practical, hands-on learning with mentorship from volunteers to provide equitable access to STEM.

We invite you to explore our K-8 curriculum challenges!

AWIM Primary (K-3) Series

Engineering Inspired By Nature

- Students investigate seed dispersal and design & build flying toys
- Core concepts
    - Newton's Laws of Motion
    - Forces
    - Engineering
- Suggested 9 lessons over 11 days

Making Music

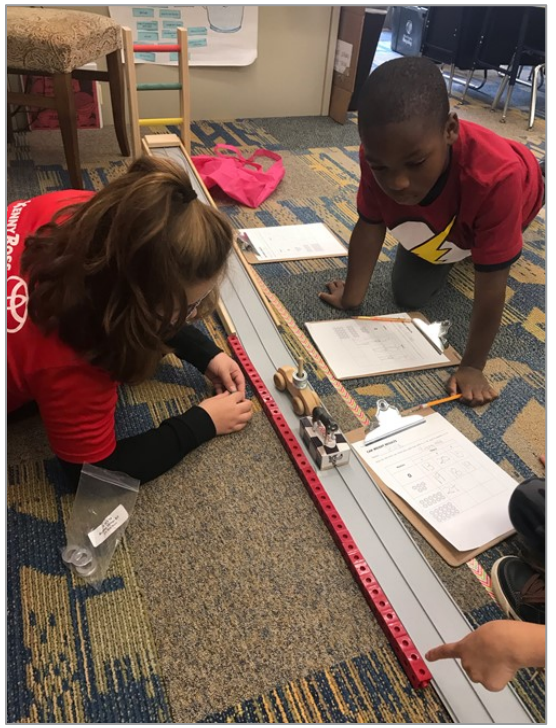
- Students investigate, design & build musical instruments
- Core concepts
  - Sound
  - Longitudinal and Transverse Waves
  - Pitch
  - Amplification
- Suggested 7 lessons over 10 days

Pinball Designers

- Students design & build non-electronic pinball games
- Core concepts
  - Gravity
  - Potential and Kinetic Energy
  - Inclined Planes
  - Probability
- Suggested 8 lessons over 9 days

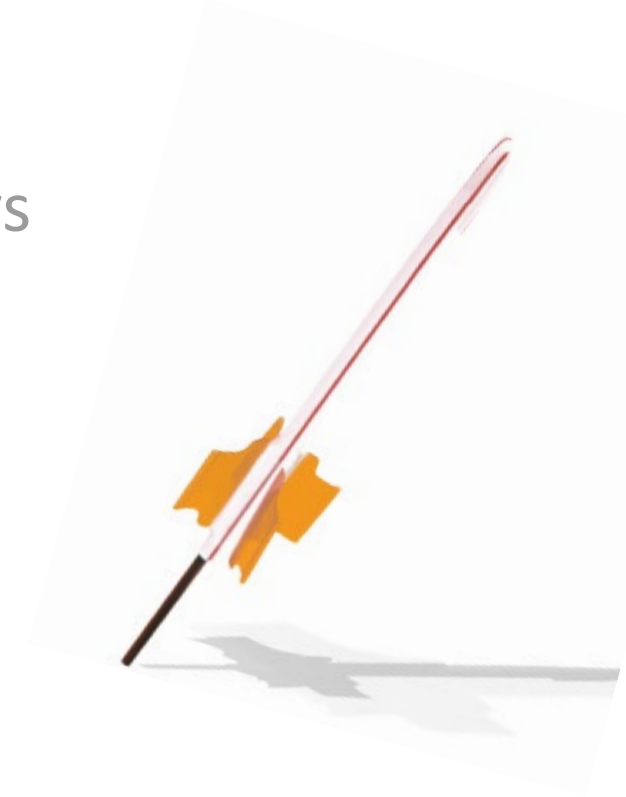
Rolling Things

- Students experiment with variable testing using cars and ramps
- Core concepts
    - Potential and Kinetic Energy
    - Mass
    - Gravity
    - Velocity
    - Momentum
- Suggested 7 lessons over 12 days



Straw Rockets

- Students design and build simple rockets
- Core concepts
  - Newton's Laws of Motion
  - Forces
  - Engineering Design
- Suggested 7 lessons over 8 days



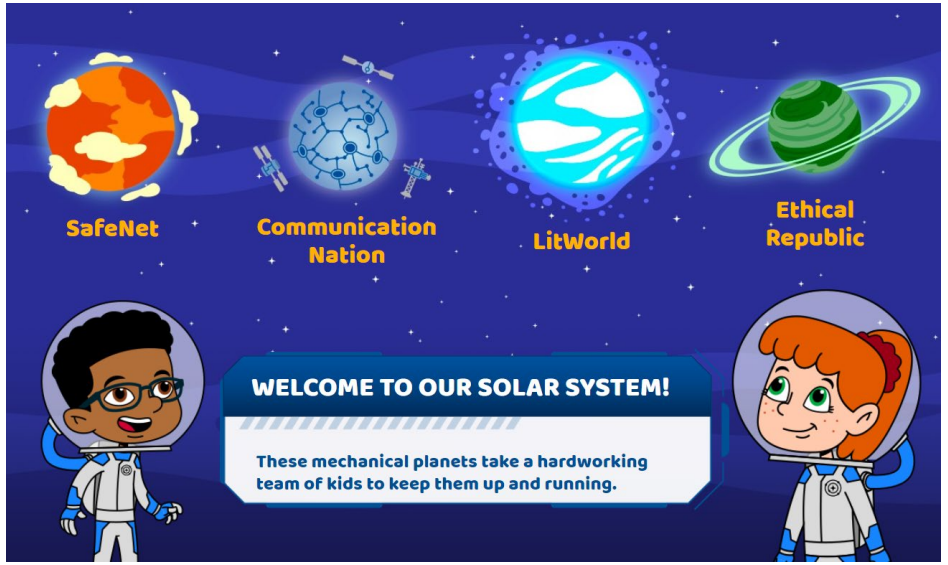
AWIM Elementary (4-6) Series

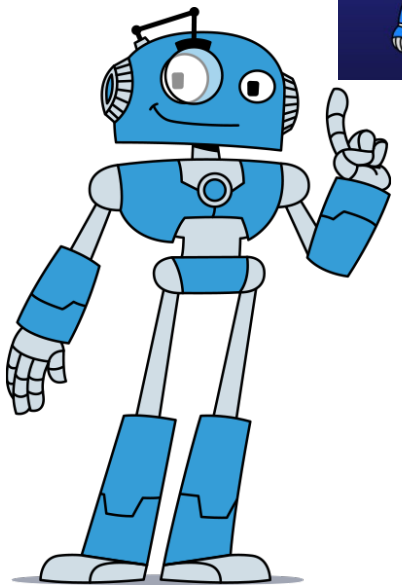
JetToy

- Students design balloon-powered cars
- Core concepts
  - Newton's Laws of Motion
  - Forces
  - Engineering
- Suggested 11 lessons over 15 days

Navigating the Digital Universe

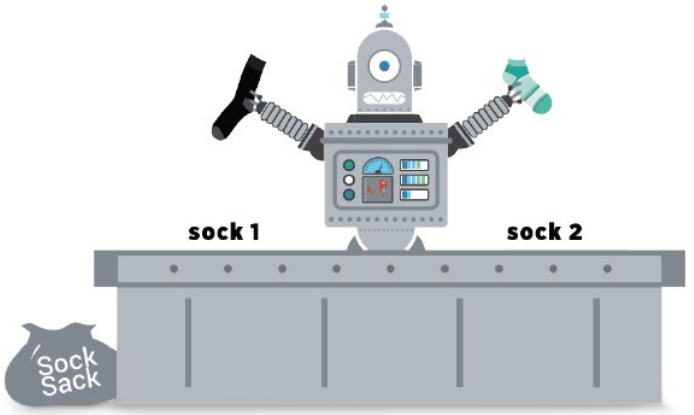
- Students learn about their rights and responsibilities as digital citizens through dynamic activities
- Core concepts
  - Digital safety
  - Communication
  - Media Literacy
  - Ethics
- Suggested 11 lessons over 15 days





Programming Each Other

- Students explore complex programming concepts by systematizing simple activities
- Core concepts
    - Computational thinking
    - Conditional statements
    - Looping
    - Error handling
    - Variables
- Suggested 11 lessons over 15 days



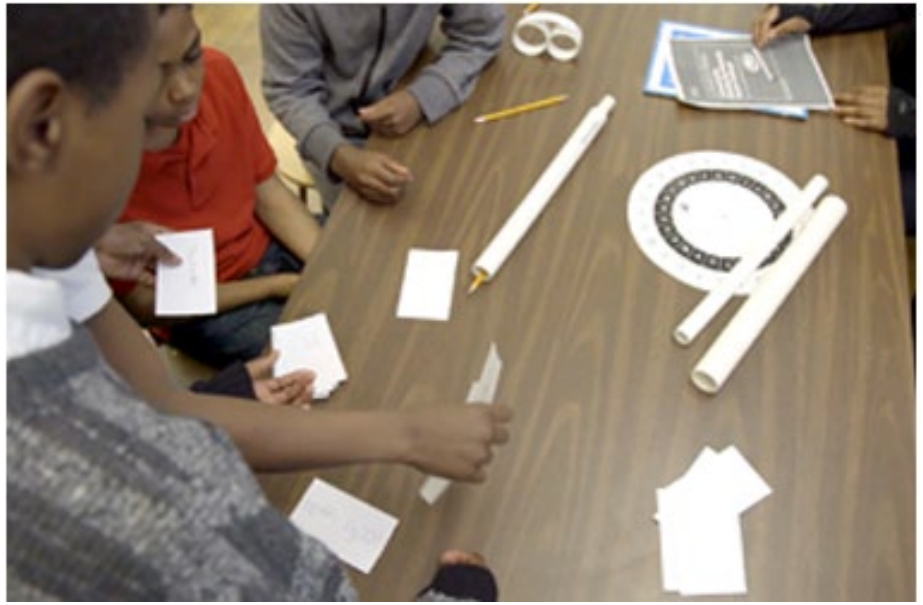
Skimmer

- Students design & build fan-propelled sailboats
- Core concepts
    - Air resistance
    - Balance & stability
    - Friction
    - Propulsion
    - Surface area
- Suggested 10 lessons over 15 days

AWIM Middle School (6-8) Series

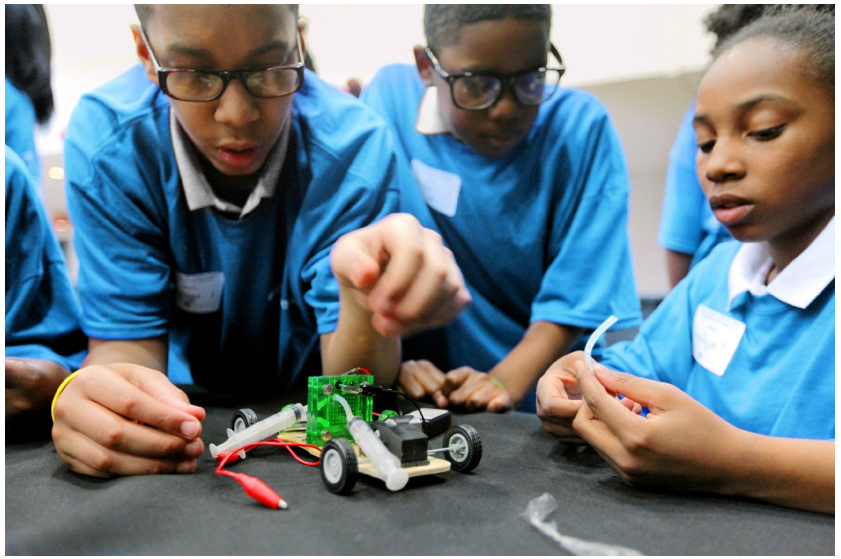
Cybersecurity: Keeping Our Networks Secure

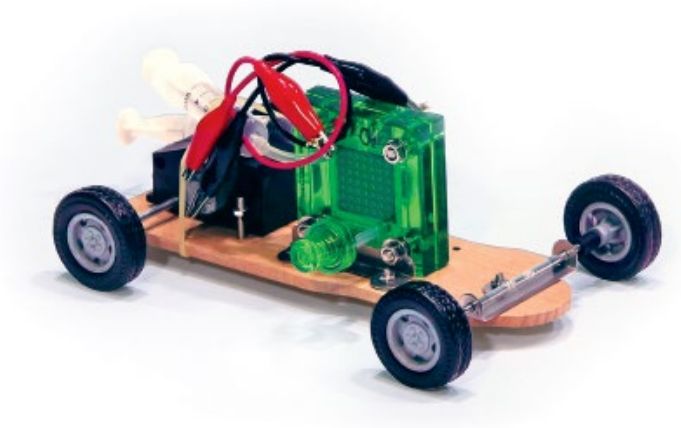
- Students explore the structure of the internet and data protection
- Core concepts
  - Internet structure and protocols
  - Encryption and decryption methods
- Suggested 10 lessons over 12 days



Fuel Cell

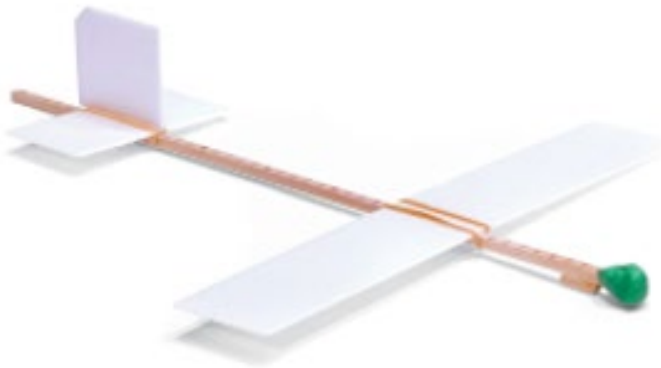
- Students explore alternative power sources to design & build toy cars
- Core concepts
    - Forces
    - Newton's Laws of Motion
    - Green design
    - Energy transformations
- Suggest 12 lessons over 15 days





Glider

- Students build, test, & modify gliding toys
- Core concepts
    - Forces
    - Motion
    - Gravity
    - Engineering Design
- Suggested 18 lessons over 23 days

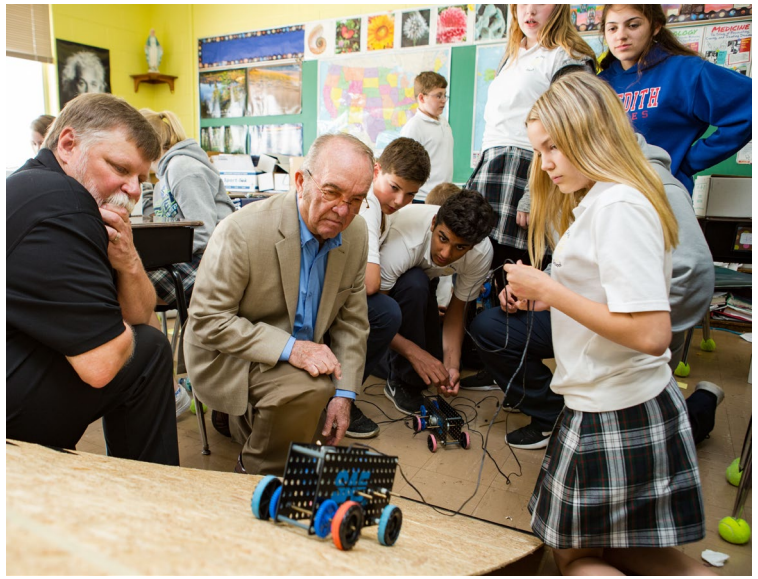


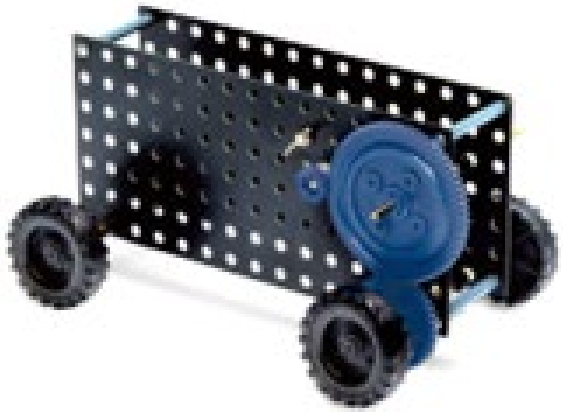
Gravity Cruiser

- Students build, test, & modify vehicles powered by gravity
- Core concepts
    - Forces
    - Motion
    - Gravity
    - Engineering Design
- Suggested 10 lessons over 15 days

Motorized Toy Car

- Students design & build gear-driven toys
- Core concepts
  - Force
  - Speed
  - Torque
  - Simple machines
  - Gear ratios
- Suggested 17 lessons over 23 days





For more information,
visit sae.org/awim or contact awim@sae.org.