The AIAA Educator Academy is an outreach program designed to increase interaction among K-12 teachers, students, and AIAA professional members. Comprised of student Curriculum Modules, a Teacher Training workshop, and a culminating Capstone Event, students learn engineering related concepts in fields such as aeronautics, astronautics and robotics (STEM). By working in teams with an assigned mentor, student teams collaboratively solve real-world problems and build critical thinking skills.

### AIAA Curriculum Modules

**Electric Cargo Plane**

This Module is an engineering curriculum module that covers fundamental aspects of aerodynamics, energy, and flight. Students design and construct a model airplane that can transport a payload through the air. The curriculum module includes hands-on activities, lessons, and assessments to ensure students develop a deep understanding of the engineering design process.

**Mars Rover Celebration**

This Module is an engineering curriculum module that covers planetary science and space exploration. Students design and build a Mars rover model that can navigate a simulated Martian surface. The curriculum module includes hands-on activities, lessons, and assessments to ensure students develop a deep understanding of the engineering design process.

**Space Weather Balloon**

This Module is an engineering curriculum module that covers atmospheric science and space weather. Students design and launch a balloon that carries a payload of scientific instruments to study atmospheric conditions. The curriculum module includes hands-on activities, lessons, and assessments to ensure students develop a deep understanding of the engineering design process.

**AIAA Teacher Training**

AIAA Teacher Training is an online course that provides professional development opportunities for educators. The course includes interactive modules, videos, and discussion forums to help teachers improve their understanding of STEM concepts and how to integrate them into their classrooms.

### AIAA Educator Academy Benefits

- **Educator Community:**
  - Leverages the AIAA network locally, nationally, and internationally
  - Provides qualified, local volunteers who share a passion for STEM education
  - Allows interaction between AIAA professional members and teachers and students
  - Builds an annual event for students and community members
  - Offers mentor support from qualified STEM professionals to students and K-12 teachers
  - Provides resources for implementing Curriculum Modules in the classroom
  - Offers teacher training to teams and revise curriculum concepts before introducing them to students
  - Fosters inquiry and standards-based learning principles
  - Emphasizes mastery of specific skills and concepts
  - Inspires students to pursue STEM careers through high-quality mentoring

- **Flexible curriculum:**
  - Problem-based learning principles
  - Emphasizes mastery of specific skills and concepts
  - Emphasizes design and engineering principles (R & D) rather than production processes

- **Professional Development:**
  - Offers mentor support from qualified STEM professionals to students and K-12 teachers
  - Provides resources for implementing Curriculum Modules in the classroom
  - Offers teacher training to teams and revise curriculum concepts before introducing them to students
  - Fosters inquiry and standards-based learning principles
  - Emphasizes mastery of specific skills and concepts
  - Inspires students to pursue STEM careers through high-quality mentoring

- **For Students:**
  - Emphasizes innovation thinking rather than rote memorization
  - Helps students to follow through on a goal-oriented and meaningful project
  - Fosters leadership, teamwork, and communication as well as critical thinking and problem solving skills
  - Emphasizes design and engineering design principles (R & D) rather than production processes
  - Offers mentor support from qualified STEM professionals to students and K-12 teachers
  - Provides resources for implementing Curriculum Modules in the classroom
  - Offers teacher training to teams and revise curriculum concepts before introducing them to students

### For the Community

- Fosters inquiry and standards-based learning principles
- Emphasizes mastery of specific skills and concepts
- Inspires students to pursue STEM careers through high-quality mentoring
- Provides qualified, local volunteers who share a passion for STEM education
- Leverages the K-12 network locally, nationally, and internationally

### AIAA Capstone Events

Capstone events are a key for students to demonstrate what they have learned throughout the specific Curriculum Module and event with other students who have been inspired by the same high-quality event. They also encourage community involvement from AIAA professional members as well as other local organizations.

### For More Information Please Contact:

**Mars Rover Celebration Curriculum Module**

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**Electric Cargo Plane Curriculum Module**

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**Space Weather Balloon Curriculum Module**

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For Free Resources, Please Visit:

- [American Institute of Aeronautics and Astronautics](https://www.aiaa.org)
- [AIAA Educator Academy](https://www.aiaa.org)

**STEM Impact**

- Fosters STEM families
- Provides inquiry-based opportunities
- Focuses on critical thinking skills, collaboration and problem solving skills
- Targets students of all age groups
- Inspires students to pursue STEM careers through high-interest curriculum
- Connects students with potential mentors who can provide guidance and support
- Builds STEM awareness in classrooms, schools, and communities

**Institutional Methodology**

The AIAA Educator Academy is a K-12 STEM education program designed for use in both formal and/or informal education settings. Each Curriculum Module is designed around high impact topics that encourage the use of higher level thinking skills such as evaluation, synthesis, analysis, and critical thinking skills.

Each Curriculum Module is a flexible model that allows the teachers to choose lessons that are appropriate for specific subjects, age groups, or topics. All Curriculum Modules have been field tested by K-12 teachers.

Feedback from instruction is used to further refine lesson content, curriculum standards, and instructional methodology. Throughout the modules, student tasks evolve to design, develop, and test ideas that will be used to construct their final product. As a culminating event, student teams and their teachers are invited to present their end project.

Each Curriculum Module focuses on:

- Inquiry and standards based instruction
- Development of 21st century skills such as problem solving, critical thinking, collaboration, and communication
- Emphasizes mastery of specific skills and concepts
- Provides hands-on activities as student and teacher mentors
- Incorporates real-world scenarios in regional capstone events