

WinnAero Aerospace STEM Professional Development for 2022

Descriptions and Registration Information

WinnAero is offering Aviation and Space professional development for New Hampshire STEM teachers. WinnAero is the Aviation and Aerospace Education Center at Winnepesaukee and is headquartered at Laconia Airport in Gilford, NH.

Six different sessions are planned that will cover aerospace related activities from the Civil Air Patrol's Aerospace Education Modules; Introduction to Aviation, Aircraft Systems and Airports, The Air Environment, Rockets, The Space Environment, and Spacecraft. Teachers attending these sessions will receive a one-year CAP Aerospace Education Member (AEM) membership and an opportunity to apply for CAP grants, STEM Kits and other CAP Curriculum materials. Home school teachers and NH CAP Aerospace Education Officers are invited to participate as well. For information about AEM membership, visit <https://www.gocivilairpatrol.com/programs/aerospace-education/join-as-an-aem>

In every workshop, teachers will "do" the activities just like their students will do. They will also discover granting organizations to help them plan and implement the activities with their students. These include: CAP AEX, STEM Kits, and classroom grants from CAP, Air Force Association, American Institute of Aeronautics and Astronautics and the National Association of Rocketry.

All sessions are "stand-alone," and teachers can decide how many of the sessions they wish to attend. Check-In starts at 8:30 AM, adjournment at 3:30 PM.

All Aviation sessions will meet at the Sky Riders Hangar, 60 Airport Rd., Laconia Airport, Gilford NH.

- A1 - March 15, 2022 - Introduction to Aviation
- A2 - March 30, 2022 - Aircraft Systems and Airports
- A3 - April 14, 2022 - Air Environment

All Space sessions will meet at Rogue Space Systems, 84 Union Ave., Laconia NH.

- S1 - March 19 - 2022, Rockets
- S2 - April 2, 2022 - Space Environment
- S3 - April 16, 2022 - Spacecraft

Registration forms and additional information are available on-line at www.winnaero.org Questions? Contact Dan Caron at dan.caron@winnaero.org

Workshop development funded in part by a generous grant from the
Wolf Aviation Fund and the Air Force Association



Aerospace Dimensions Workshop Description

The Aerospace Dimensions modules from Civil Air Patrol are written for middle school students but can easily be adapted for elementary or high school classes. Some of these inquiry-based activities were designed as group activities while others are meant to be completed by individual students. The activity plans include: Purpose, Materials, Procedure and a Summary. All materials are aligned with standards from Science, Mathematics, English Language Arts, Social Studies and Technology. A short description of each module follows.

A1 - Introduction to Aviation

The first module is divided into three chapters: Flight; To Fly By the Lifting Power of Rising Air; Balloons – They Create Their Own Thermals. The module begins with the scientific principles and laws that explain lift and the forces of flight. The module continues with a discussion of gliders and balloons, and how they use air currents, thermals, and buoyancy to achieve flight.

A2 - Aircraft Systems and Airports

The second module is divided into three chapters: Airplane Systems; Airports; Airport to Airport – Aeronautical Charts. The module begins with aircraft power plants, controls and instrumentation. The module continues with airport layout, runway/taxiway markings and signage and ends with aeronautical charts and navigation.

A3 - Air Environment

The third module is divided into five chapters: The Atmosphere; Air Circulation; Weather Elements; Moisture and Clouds; Weather Systems and Severe Weather. The module begins with the layers of the atmosphere and air circulation around the globe. It continues with a discussion of wind, temperature, pressure and moisture. The module ends with weather systems and how they affect aviation.

S1 - Rockets

The fourth module is divided into three chapters: History of Rockets; Rocket Principles, Systems and Engines; Rocket and Private Space Travel. The module begins with the Hero engine (400 BC) and continues into modern rocketry with Dr. Robert Goddard, Wernher von Braun, and the space race. The module continues into the scientific principles that govern space flight and ends with a discussion of commercial space flight efforts.

S2 - Space Environment

The fifth module is divided into four chapters: Space; Stars; Our Solar System: Sun, Moon and More; Our Solar System: Planets. The module begins with the characteristics of space, the birth, life and death of stars, and continues with a discussion of the sun and other bodies within the solar system.

S3 - Spacecraft

The sixth module is divided into three chapters: Unmanned Spacecraft; Manned Spacecraft; Living and Working in Space. The module begins with an explanation of orbits and the various robotic satellite missions throughout the solar system. The module continues with human tended missions by the Soviets, Americans and others. The module ends with a description of life in space aboard space stations.

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WinnAero Workshop Registration Form

Use this form to register for all workshops.

Name: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email Address: _____
School: _____

There is a \$75 registration fee for non Civil Air Patrol members for the first session and \$40 registration fee for the remaining sessions. For CAP Aerospace Education Members, there is a \$40 registration fee for each workshop session. Registration includes all workshop materials, lunch, snacks, & CAP AEM membership. Registration information is on our web site, www.winnaero.org/ under the "Professional Development" tab or contact WinnAero Education Director, Dan Caron at dan.caron@winnaero.org

Please check the session(s) you wish to attend:

All Aviation sessions will meet at the Sky Riders Hangar, 60 Airport Rd., Laconia Airport, Gilford NH.

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- _____ S1 - March 19, 2022, Rockets
- _____ S2 - April 2, 2022, Space Environment
- _____ S3 - April 16, 2022, Spacecraft

Make checks payable to WinnAero. Return this form and registration fee to:

WinnAero
C/O Laconia Airport
65 Aviation Way
Gilford, NH 03249

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