

Central Florida Aerospace Academy Curriculum Project

NASA awarded the Polk County Schools a \$1.4 million grant to enhance their Central Florida Aerospace Academy (CFAA), an aviation-oriented high school/career academy. CSL, in partnership with Polk County teachers and university faculty, developed learning modules to embed mathematics and science standards and concepts into workforce education courses leading to specific certifications. These science and technology modules were embedded in middle and high school technology, science, and engineering classes. The modules use a variety of sources and provide a deeper understanding of science and the underlying relevant technology, correlate with the Next Generation of the Sunshine State Standards, and take advantage of relevant NASA-developed materials and resources, as well as other educational resources. The modules were created to inspire and engage students in STEM education and to prepare them for further study in STEM fields. The lessons model inquiry practices that provide opportunities for discovery, creativity, and peer interaction and discussion. They also provide one-day to six-week lesson plans. USF Polytechnic (now Florida Polytechnic University) provided professional development for Polk County teachers in the use of these modules.

Twenty modules were created, 11 for middle school (MS) and 9 for high school (HS):

- MS Foundational Module – Graphing, measurement, data collection practice
- MS Aeronautics Module – Beginning exploration of Bernoulli’s principle & flight
- MS Lunar Module – Investigating the lunar surface
- MS Robotics Module – Using robots to discuss force and motion
- MS Earth’s Interior – How earthquakes help us understand the Earth’s structure
- MS Earth is Moving – Plate tectonics
- MS GalactiveWave – Electromagnetic Spectrum
- MS Geotime – Measures of time
- MS Mooning Around – Moon orbits and the Moon’s impact on Earth
- MS Carbon – Investigating the Carbon Cycle
- MS PVT – Exploring the relationships between pressure, volume, & temperature
- 9th Grade Aeronautics Module – More in-depth flight exploration
- 9th Grade Lunar Module – Multiple tasks to explore engineering & science behind devices
- 9th Grade Robotics Module – Examine the parts and function of robots
- 10th Grade Aeronautics Module – Investigating and building rockets
- 10th Grade Lunar Module – Using CAD to replicate and redesign rockets
- 10th Grade Robotics Module – Investigating, projectile motion & robot components i.e. gears
- 11th Grade Materials – Exploring the properties of materials used in manufacturing
- 11th Grade Composites – Exploring the properties of composites
- 12th Grade BioMed – Exploring biomedical devices to modify or enhance physical movement

For more information, see <http://www.polkacademies.com/cfaa/>