

A vacation on the moon?

Students use tools such as the engineering design process, an engineering notebook, and computer simulations to explore, invent, and innovate.

Learn how creative thinking and problem solving can change your world!

The exciting world of aerospace comes alive through the Flight and Space (FS) unit. Students explore the science behind aeronautics and use their knowledge to design, prototype, and test model rocket fuel and a glider. Custom-built simulation software allows students to experience space travel.

FS Lesson Summary

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| Lesson 1 | History of Flight and Space |
| Lesson 2 | Aeronautics |
| Lesson 3 | Traveling and Living in Space |

Lesson 1: History of Flight and Space

The study of aerospace engineering would not be complete without a basic understanding of the history of aerospace. Many students think that the space shuttle can go to the moon. Some even think people have been to Mars. These misconceptions are often the result of watching science fiction movies or television programs that look real to students. In this lesson students will be introduced to the history of flight through hands-on activities, research, and a presentation in the form of an infomercial.

Lesson 2: Aeronautics

Aeronautics is the science and art of flying through the air. It refers to all aspects of flight in the atmosphere, from design and manufacturing to operation and maintenance of aircraft and spacecraft. To design an aircraft or spacecraft, engineers must understand the elements of aerodynamics, propulsion, materials and structures, and stability and control. In this lesson students will be exposed to all of these elements as they discover the science of flying, design and test propulsion systems, use simulations to create airfoils to test in a wind tunnel, and then use their knowledge to design, build, and test an airfoil.

Lesson 3: Traveling and Living in Space

The layer of gases from surface up to about 100 miles above the Earth is known as the atmosphere. Space is the region above the Earth's atmosphere or beyond the solar system. Space travel and living in space is made possible by engineers, from mechanical engineers who design the components for spacecraft to biomedical engineers who design ways to care for astronauts' health while traveling in space. From designing the spacecraft, to getting us to the moon safely, to building tools to help humans someday live on the Moon, engineers play a vital role in space travel, space discovery, and living in space. In this unit students will experience space travel and spacecraft innovation through an interactive simulation.