













Aeronautics Activity Overview

	<p style="text-align: center;">Aeronautics Interactive</p>	<p>Students will learn about aeronautics careers and history. They will gather information about the significant aeronautics contributions of the four NASA Research Centers that will complement information collected over the World Wide Web.</p>
	<p style="text-align: center;">Aircraft Design</p>	<p>Students design a passenger aircraft for their cross-country flight to save flight time, reduce cost to the airline, and save money on their plane fare. They can control variables such as fuselage, wing, engine type, fuel load, and passenger seating. The program will analyze the design and tell students if their plane will fly and the cost per passenger mile.</p>
	<p style="text-align: center;">Air Traffic Control</p>	<p>Students learn about the magnitude of the air traffic control effort in the United States National Airspace (NAS). They then get a behind-the-scenes look at the people and tools that are instrumental in controlling aircraft during the seven phases of flight. They also learn about flight delays, weather, and aircraft safety issues.</p>
	<p style="text-align: center;">Flight Planning</p>	<p>Students learn how to use a standard general aviation flight planning tool. They use the planning tool to chart the route from Washington, D.C. to San Francisco, California. They also gather data relating to, calculate great circle distances, and estimate fuel requirements.</p>
	<p style="text-align: center;">Foil Design</p>	<p>Students will use a NASA-developed computer simulation (Foilsim) to learn about the different properties of wing (airfoil) shape and how these properties effect lift and drag.</p>
	<p style="text-align: center;">GPS/Amateur Radio</p>	<p>Students are exposed to radio jargon by listening to airport control tower (ATIS) broadcasts. They also read and interpret the sectional charts that pilots use to determine latitude and longitude of selected airports along their cross-country route.</p>
	<p style="text-align: center;">Remote Sensing</p>	<p>Students will use photographs taken by aircraft and satellites to measure distances, calculate actual sizes based upon scales, and describe changes in land regions or cultural features over time.</p>
	<p style="text-align: center;">Resource Center</p>	<p>Students are exposed to basic principles of flight and aeronautics terminology. They then experiment with different aircraft shapes using "The World's Greatest Paper Airplanes" program. This powerful lesson in origami assists students with pre-printed paper containing fold lines and detailed instructions. Teachers and other visitors view selected videos or access visuals of aircraft information to augment the workstation experience.</p>
	<p style="text-align: center;">Virtual Reality Lab</p>	<p>Students, acting as pilot and copilot, will identify cultural and terrain features, and navigate a charted route on a flight simulator. They will also learn about aircraft cockpit instrumentation.</p>
	<p style="text-align: center;">Weather</p>	<p>Students will collect information on weather conditions for NASA sites along their flight path during the cross-country flight, predicting where dangerous weather conditions may occur along the route.</p>
	<p style="text-align: center;">Wind Tunnel</p>	<p>Using an actual wind tunnel and a standard airfoil, students will determine and graph the relationships between Angle-of-Attack, airspeed, and lift. In the AEL they will also use standard laboratory-grade software to gather and interpret data.</p>
	<p style="text-align: center;">World Wide Web</p>	<p>Using information from the World Wide Web, students visit the four NASA Research Centers, and then plan a vacation in San Francisco, California at the end of their cross-country flight. Vacation planning includes finding transportation, selecting a hotel, and planning dinner.</p>