

ALC

Full Aviation Experience



Program: Full Aviation Learning Center
Level 1: grds 5/6, **Level 2:** grds 7/8, **Level 3:** grds 9-12
Group Size: Max. 36
Length: 2 hours
Location: Lone Star Flight Museum

Thank you for choosing to bring your students to the Lone Star Flight Museum Aviation Learning Center. This packet contains basic instructions to prepare your students for the activity. Please refer to the ALC Pre/Post Activity Packets available online at lonestarflight.org under the Education/Teacher Resources tab for extension lessons on vocabulary and knowledge presentations.

The LSFM Education Department staff is here to help you. If you would like to walk through the center, staff is available on the second Saturday of every month for tours and to help prepare. Questions can also be emailed to education@lonestarflight.org.

OVERVIEW

Students will learn about the science of flight and experience what it takes to be a pilot. They will perform a pre-flight safety inspection on a real airplane, create a flight plan, and fly the route in flight simulators.

BIG IDEAS

- Forces of Flight
- Navigation and Map Reading
- Parts of a Plane
- Flight Controls

OUTCOMES - What will students know or be able to do by the end of the lesson?

- Identify the preparations a pilot must undertake before flying.
- Appreciate the value of math and science skills in the real world.

VOCABULARY

- Force
- Aileron
- Elevator
- Rudder
- Nautical Mile
- Knots
- Latitude & Longitude
- Simulator



For Teachers

PRIOR TO ARRIVING AT LONE STAR FLIGHT MUSEUM

- Use the Aviation Learning Center Roster to divide your class evenly into two groups, Alpha Flight and Bravo Flight.
- Assign partner teams within the groups; students will work in these pairs throughout the entire program.
- If your class has an odd number of students, a student may work alone or in a group of three.

Alpha and Bravo Flights will rotate through three different areas of the ALC: the Learning Laboratory, the Mooney Hangar, and the Flight Simulator Bay.

In the Learning Lab, student pairs will work with one of six topics. Each team will become topic specialists and report back to the entire group at the end of their time in the lab.



What to do before coming to the Aviation Learning Center:

- Familiarize yourself with the different stations using the Aviation Learning Center Learning Laboratory Workstations description.
- Assign teams to a workstation using the Aviation Learning Center Roster.
- Bring two copies of the roster to The Lone Stone Flight Museum.
- Give a copy to the Educator at the beginning of the program.
- Review the Pre/Post Activities Packet for lessons to enhance the experience.

Assigning Teams

Use the following descriptions to assist as you assign students to Learning Lab Stations.

FLIGHT DYNAMICS

Through hands-on experiments, students explore the basic physics of flight and the four forces of flight and learn how these physical principles make flight possible.

INSTRUMENT FLIGHT

Students learn how flight instruments— the compass, altimeter, and attitude indicator—work, and how pilots utilize them to draw conclusions about an airplane’s position and motion.

NAVIGATION

Students explore the fundamental concepts of navigation- latitude, longitude, and compass directions, while they practice using a pilot’s chart and other navigation tools to plot a local flight.

WEATHER

Analyze the current weather conditions at Ellington Field to understand how weather affects flight and determine if it is safe to fly.

WEIGHT AND BALANCE

Working with a variety of model airplanes, students explore the concepts of load weight and center of gravity, and how they affect the flight of a Mooney Ovation.

WIND TUNNEL

Using a wind tunnel and wind tunnel app, students focus on basic aerodynamic theory and the mechanics of lift.



ALPHA FLIGHT Begins in Learning Lab

Flight Dynamics

- 1. _____
- 2. _____

Instrument Flight

- 1. _____
- 2. _____

Navigation

- 1. _____
- 2. _____

Weather

- 1. _____
- 2. _____

Weight & Balance

- 1. _____
- 2. _____

Wind Tunnel

- 1. _____
- 2. _____

Flight Dynamics (team 2)

- 1. _____
- 2. _____

Instrument Flight (team 2)

- 1. _____
- 2. _____

Navigation (team 2)

- 1. _____
- 2. _____

BRAVO FLIGHT Begins in Cirrus Hangar

Flight Dynamics

- 1. _____
- 2. _____

Instrument Flight

- 1. _____
- 2. _____

Navigation

- 1. _____
- 2. _____

Weather

- 1. _____
- 2. _____

Weight & Balance

- 1. _____
- 2. _____

Wind Tunnel

- 1. _____
- 2. _____

Flight Dynamics (team 2)

- 1. _____
- 2. _____

Instrument Flight (team 2)

- 1. _____
- 2. _____

Navigation (team 2)

- 1. _____
- 2. _____

