




(30 pts) Approx. 3 days

The first part of our unit is about vocabulary and the big ideas behind flight. As you get started, you'll be asked to watch a few videos and presentations that share the basic ideas that we need to understand. Be sure to take good notes on these topics because they will provide the foundation for our work all year long. As the unit progresses, you'll need to accomplish the following tasks:

1. Start by watching the presentations on *Forces & Surfaces*, as well as *Forces of Flight*; take a full page of notes on these topics. Be sure to include a labeled picture of an airfoil to show how things work.
2. Next, watch the presentation *Control Surfaces*, and again take a full page of notes on the topic. Make sure that your notes include a picture of a plane with the control surfaces labeled. Also note what motion each control surface can create.
3. Finally, complete the **4-Part Paper Airplane Design Challenge** (Start by watching the video)
 - a. Find a type of paper airplane design online and fold it carefully. (I highly recommend "The Moth")
 - b. Trim your paper airplane's flight so that you can make it go STRAIGHT 30 feet and hit the wall/door above the labelled line.
 - c. Adjust your paper airplane so it can fly 6ft, turn right 90 degrees, and then fly 6 more feet.
 - d. Adjust your paper airplane again so it can fly under then over the provided boards
 - e. Finally, adjust your paper airplane one more time so it can repeat the original task of flying STRAIGHT 30 feet and hitting the wall/door above the labelled line.

** Mr. Benshoof wants to be able to confirm that your plane successfully completed each challenge. Help him out by letting him see your successful flights, taking video with your phone, or having a fellow Aerospace student attest to your success.

Part 1: Tasks	10 points	9-5 point	4-0 points
 Aerodynamics Notes	+ Watch the Aerodynamic Forces presentation carefully + Take 1 page of good notes in your engineering notebook, focusing on the vocabulary! + Notes include pictures	- Less than a full page of Aerodynamics notes - Notes do not include pictures	- Very brief or no notes in your engineering notebook
 Control Surface Notes	+ Watch the Control Surfaces presentation carefully + Take 1 page of detailed notes on the vocabulary for control surfaces + Notes include pictures	- Less than a full page of Control Surface notes - Notes do not include pictures	- Very brief or no notes in your engineering notebook
 4-Part Paper Airplane Challenge	+ Paper Airplane flies straight and far + Paper Airplane flies 12 ft around corner + Paper Airplane flies under/over + Paper Airplane flies straight and far	- Only 2 or 3 of the Paper Airplane challenge tasks completed - Tasks must be completed in order with the same plane	- Less than 2 paper airplane tasks completed

