

(30 pts) Approx. 2 days

The first part of this unit is about simple gliders. Here we'll need to learn a little vocabulary and a dew of the basic concepts surrounding gliders. Then we'll build a simple one from a kit and adjust control surfaces until it flies well. We'll also use those gliders to collect some data on glider flights and compute some basic statistics. As the unit progresses, you'll need to accomplish the following tasks:

1. Start by following the directions printed on the glider kit to build your first basic glider.
2. Then, get your glider trimmed out and flying well. Consider making these modifications to improve its flight:
 - a. Move the position of the main wing forward/backward along the fuselage
 - b. Sand the leading edges of the wing and stabilizers to make it more like an air foil
 - c. Add control surfaces like elevators or rudder to adjust the flight path
 - d. Add weight (play-dough) to the nose to balance it out
 - e. Add small amounts of weight (play-dough) to the ends of the wings to balance it out
3. When you're happy with your glider's flying ability fly it 10 times in a row and record the length of each flight.
4. Add your data points to the class spreadsheet. Also, use the built in =AVERAGE() and =STDEV() functions to calculate the average and standard deviation of your flight distances.
5. Now take some time to watch the presentations on *Glider Data*, *Glider Types*, and *Glider Principles*. Take a full page of notes on those three presentations combined. Most of the notes will probably come from the *Glider principles* presentation.
6. Finally, get the *Glider Assignment* from the website or the paper copy from Mr. Benshoof. Complete this short assignment before moving on to Part 2!

Part 1: Tasks	5-4 points	3-2 points	1-0 points
 Build Basic Glider	+You built your glider following the kit instructions + You used weight, shaping of wings, and/or control surfaces to get it flying well	- Your glider flew very inconsistently	- You did not build your glider
 Glider Data Collection	+ You collected 10 data points on flight distances with your glider + You shared your data on the class spreadsheet + You calculated the average/std dev of your flights	- You did not collect/share all 10 data points - You did not compute the average/std. dev	- You did not collect or share any data
 Notes on Glider Topics	+ You took a full page of notes on the part 1 presentations that include: <i>Glider Data</i> <i>Glider Types</i> <i>Glider Principles</i>	- You took less than a full page of notes on the presentations for this part of the unit	- You took no notes on this part of the unit.
 Complete Glider Assignment	+ You completed the entire Structures Assignment + You checked your work with the answer key	- You did less than the entire assignment - You did not check your work with the key	- You did less than half of the assignment

