

# Project – Airplanes

March 11, 2011

The goal of this project is to design an airplane that can lift weight inside a wind tunnel. Your plane can be made from any materials you find and/or the materials provided in class. You will have the week following spring break to build and test your aircraft.

Your work (and grade) will be composed of three parts:

1. Your group participation.

Your group will have the entire class period on Monday March 21st to construct a number of test models. In addition to working on ideas for and construction of your test plane each member of your group will have a particular job: communicator, data collector, and task master. At the beginning of class on Wednesday you will give a 2 minute presentation on two of the models you have made explaining why you made them the way you did. While the other groups are presenting their information you will need to identify 1 strength of each plane and 1 weakness. This list will be collected and be shared.

2. The design and construction of your airplane.

After you have a created a number of test models in class and gotten feedback, your group will spend the rest of Wednesday and all of lab on Thursday constructing and testing a final model. On Friday March 25 there will be time for final tweaks and then the fly off. The team with the best performing plane (as measured by how much weight it can lift in the wind tunnel) will win a bonus 10% on their score for the project.

3. Your explanation of why you built your plane the way you did making use of ideas discussed in class.

You will turn in a project paper that contains: a picture of your final model, a description of your final model, an explanation of why you made your model the way you did identifying at least one way in which you changed it based on observations by your group and at least one based on feedback from the class. Your explanation should make use of ideas discussed in class such as lift center of pressure, Bernouli's equation, stabilization, etc. It should also include data taken including: The mass of your plane, the mass of the weight it lifted, and some other measure of your own as to how well it flies. This written part of the project is due on Friday April 1.