Airy Experiment

Collect

- 1 sheet of 8.5x11-sized paper
- Measuring tape
- Stopwatch
- Paper clips

Start folding

1. Fold the paper in half vertically ("hot dog" style) and then unfold it to create a crease.
2. Fold the left and right top corners so the edges line up with the crease in the center of the paper. Press down firmly to flatten the edges.
3. Fold the top diagonal edges down again so the edges meet in the center—again, it should line up with the center crease.
4. Fold the paper in half from right to left.
5. Fold the left edge to the right to form one wing. Flip the plane over and repeat on the other side to create a second wing.

Take a test flight

Test your plane and record the results. Use a stopwatch and measuring tape to record airtime (how long the plan stayed aloft), the total distance traveled, and whether or not the plane performed any interesting maneuvers like rolling, turning, or making a loop.

Take it further

There are several modifications you can make to your design to change how the plane flies. For each test flight, make sure to record your data and compare the results!

- Fold the wings in a slightly different way. How does folding the tip of just one wing affect flight?
- Add weight by attaching one or more paper clip to the plane. How does adding weight to the wings versus the body of the plane affect flight?

What other modifications can you think of to test?

What's happening?

The design of a paper plane can modify how high or fast it may fly. There are four forces of aerodynamics involved in paper airplane fight—thrust, drag, lift, and gravity. When you throw a plane forward, you are generating thrust. Drag is a force opposite thrust; it slows down the plane. Lift is the force of air that helps the plane rise, moving it upward. Gravity is the force that pulls planes down. A long flight occurs when these four forces are in balance.