

Does A Longer Paper Airplane Fly Farther than a Wide One?

Research Information

Paper airplanes have long been a classic toy for kids. But paper airplanes can have a serious purpose as well: illustrating basic principles of aerodynamics.

Materials

- Three sheets of paper of the exact same thickness and weight
- Scissors
- Ruler
- Measuring Tape
- Pen and paper for notes

Method

Making the Airplanes

- Take a sheet of letter-size printer paper and fold it in half vertically, lengthwise.
- Run your nail along the fold to create a well-defined, reinforced crease.
- Unfold the piece of paper and fold down the two top corners until it meets the center crease that you made in the previous steps.
- The top of the paper should now form a split triangle. Now fold the two outer edges of the triangle down towards the center line once more.
- Your paper should be shaped somewhat like a pyramid at this stage. Valley fold the paper in half so that the folds are inside the plane.
- Now turn the plane 90 degrees and create the wings by folding the sides down outwards starting from about 1.5 inches from the base of the plane.
- Okay, now you should have your first paper airplane.
- To make the second airplane, we are going to cut the piece of paper shorter so that you will now have a 8.5 x 8.5in square to fold with.
- Repeat steps 1-6 on this shorter piece of paper.
- To make the third airplane, we are going to narrow the piece of letter-size paper to the dimensions of 6 x 11in. Repeat steps 1-6 after you have cut the paper to the new dimensions.

Flying & Testing the Airplanes - Note: The airplanes should be flown indoors so that wind drag won't factor in and alter the data.

- Hold the base of the airplane in front of you and in a swift and quick motion, throw it forwards and observe where it lands. Measure the distance from where you are standing (it would be helpful to tape or mark this spot) to where the plane lands. Record the distance in your notebook.
- Repeat several trials with the different variables of width and length of the planes. The more trials, the better.
- Record your results. Do you notice any consistent trends?

