

Praxis “Making Science Fun”

Fly a Jumbo Jet – Well Maybe Just Pretend



When you throw a flimsy paper airplane across a room, you might not realize that it follows the same laws of flight as a Jumbo Jet! With just a few pieces of paper and a little patience, you can explore these laws and find out how a big piece of metal can stay in the air.

For this experiment, we are going to choose five different designs of paper airplane. An excellent place to look is <http://www.paperairplanes.co.uk/planes.php> for instructions on how to make these. You can use any design you like, as long as they are different and you don't use any scissors or tape to make them. In the paper airplane experiment, you are going to test which designs fly the furthest. Some of the designs have a sharp point so do not throw them at anybody's face!

And as always, please “be sure to have your parent's permission” and they have the time to watch and help as you do your experiment.

Materials (What you'll need):

- Lots of the same size and weight of paper to make your planes (the paper feels the same even though it may be a different colour).
- Loads of space – if your house has a large room or hall, then great (ask your parents first). You can fly them outside in a nearby school yard or park but it must be on a day with no wind. Don't fly them where they could go onto the street.
- A long tape measure – 50 or 100 metres long.
- A chart to record your results in.

Procedure (this is sometimes called the Method):

- Make a chart to record your results. Have a space in your chart for each of the 5 plane designs and 5 different “throws” for each plane.
- Next, make 2 or 3 paper airplanes of each type. Take your time to make sure that the planes are as similar as possible. You should practice throwing each type to make sure that you are throwing with the same amount of force and speed.
- When you are ready to do the experiment throw each type of plane five times and note the results on your chart.
- Try to use the same plane for all five throws, but if it gets damaged, use another that you already have prepared.

What's happening?

Which planes flew the furthest? Why do you think they were the best fliers?

There are many more experiments you can perform with paper airplanes. Maybe this is the first step on your journey to being an airplane engineer or designer!

For some tips, please see the NASA site at <http://www.grc.nasa.gov/WWW/K-12/airplane/bga.html> for a Beginner's Guide to Aerodynamics.

Project Extension:

You can work out an average distance flown for each type of plane in your paper airplane experiment. However, you should use something called an adjusted average. Do not use the lowest and highest figures to work out your average, just the three in the middle. This is because; in an experiment like this, a gust of wind or a bad throw can make one or more of your results inaccurate. This is called an outlier-data. After you have worked out the average (add the three results for one plane and divide by 3) for each airplane you can say with confidence which worked best!

Background:

Previously we looked to our learning kit on "Air and Aerodynamics" and we remained on this topic for today's experiment. The experiment source for today's experiment may be found at www.experiment-resources.com. This type of experiment and many more may be found in our kits. Each of our teaching kits is loaned out for FREE to help give classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways

Lorne Cooper, Regional Executive Director

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