



Paper Airplane Experiment

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The paper airplane experiment, as well as being great fun, is a chance for us to study something called 'The Laws of Aerodynamics'.

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When you throw a flimsy paper dart 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 manages to stay in the air.

For this experiment, we are going to chose five different designs of plane. One place to look is www.paperairplanes.co.uk, 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, we 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!

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Quiz:
Psychology 101 Part 2



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Equipment

- Lots of copy paper to make your planes.
- Loads of space - if your school has a large gym or hall, then great. You can fly them outside but it must be on a day with no wind.
- A long tape measure - 50 or 100 meters long
- A chart to record your results in

Methods

1. Make a chart to record your results, like in Figure 1.
2. Next, make a lot of 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.
3. Do this five times for each type of plane and note the results on your chart.
4. Try to use the same plane for all five throws, but if it gets damaged, use another.

Results

You should work out an average distance flown for each type of plane in your paper airplane experiment.

However, we are going to 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 wrong. This is called an outlier-data [1].

After you have worked out the average for each, you can plot a bar chart and discuss the results with your class. Which planes flew the furthest? Why do you think they were the best fliers?

For some tips, please see the NASA site for some advice on the Laws of Aerodynamics.

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

Throw	PAPER AIRPLANE DISTANCE (meters)				
	Design 1	Design 2	Design 3	Design 4	Design 5
Throw 1					
Throw 2					
Throw 3					
Throw 4					
Throw 5					
Adjusted Average					

Figure 1 - The distance flown by paper airplanes.

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Links

[1] <https://explorable.com/statistical-outliers>