

Super Paper Planes

#F9

Purpose & Hypothesis

Purpose/Question: Which Paper Airplane flies the farthest?

Hypothesis: I really didn't know which paper airplane would fly the farthest. I thought maybe it was going to be the Nakamura lock because it has a good shape and wingspread.

Note: It was windy the day we flew our planes, so the wind might have messed up our planes.

Research

I chose this project because I like folding paper planes. It's really fun because you get to use the muscles in your hands and it feels good. Its really cool that you can transform a blank, simple piece of paper into a cool plane like an F-15.

To find different airplanes, I looked on google, and I already knew some by heart. I already knew how to make the Nakamura lock, and my mom helped me with that one. I found the F-15 on a youtube video from Foldable Flight, designed by Project Paper. The Classic I just knew by heart. Fastest was kind of like the classic, and I saw it on a youtube video by RJ Creations, and Flippy was from a youtube video by TriKdanG.

Materials

For this experiment we used:

5 sheets of paper

Scissors

Orange Cones

Measuring Tape

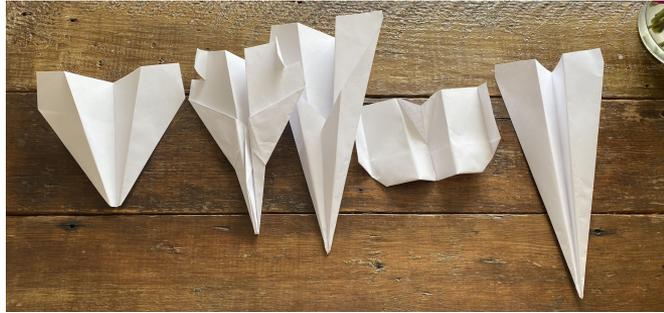
Paperclip

Graph paper & pen

Experiment

1. First, we folded 5 different paper airplanes. We used the same kind of paper for each airplane: 8.5 x 11 printer paper.
2. Next, we set up the back yard with orange cones. We marked cones at the starting line, then at 5 feet, 10 feet, 15 feet, 20 feet, then each foot until 37 feet.
 3. Then, we wrote out a grid on graph paper to record and show our results.
4. After that, we went outside and tested the paper airplanes. We threw each one ten times.
5. We looked to see which plane went the farthest, and then we decided five things to do to change it up, and then we tested those things 5 times each.
 6. Last, we came inside and wrote down our observations.

Photos



All 5 paper planes: (left to right) Nakamura lock, F-15, Classic, Flippy, Fastest



The Cone Setup



Me throwing F-15, my mom is recording the distances that the planes fly.



Round 1 Winner and Loser

	1	2	3	4	5	6	7	8	9	10
nakamura link	5	15	10	20	17	7	7	23	13	21
F-15	11	12	20	18	25	22	17	17	25	33
classic	12	8	6	12	20 ¹⁹	17	13	19	17	13
fastest	22	22	19	11	17	18	8	18	14	9
flippy	7	1	6	7	7	5	8	6	9	2



Wings up



Wings down



Flaps up



Flaps down



Paperclip

	1	2	3	4	5
wings up	12	19	10	10	10
wings down * Spinny *	11	19	17	13	16
flaps up wings neutral	23	18	14	21	26
flaps down	8	18	15	14	11
paperclip	21	22	22	25	27

Analysis

The result was that F-15 had the farthest flight. By the way, it was 33 feet! I decided to compare the longest flight of each airplane (instead of using the average) because I wanted to know which airplane was the best working airplane.

We decided to fly each plane 10 times because if we only tested it one time, it might be different the next time. So we wanted to be sure that was really how much it could do, because something else could have affected it.

When we tested the changed to F-15, we did those only 5 times because my arm was getting sore.

Flippy was always turning back to us like a boomerang! Isn't that crazy? And I didn't even design it to be a boomerang plane. It was surprising that the most Flippy did was 9 feet. It was also surprising the fastest did so well.

When we tested different changes to the F-15, the paperclip made it easy to go far, and easy to fly. Flaps up, wings neutral was the winner but with the paperclip it was easier to fly, and it made it fly straight. When the wings were down it was super twisty and did lots of barrel rolls.

Conclusion

In conclusion, F-15 flew the farthest. It flew equally as far with the wings neutral, and flaps up, and with the paperclip.

Real World Connection

I think that F-15 did so well, and flippy did so bad because of their shape. F-15 has an aerodynamic shape with one little part sticking up in the front, that made it go straight. The thing with flippy is that is curved back and did not go straight.

This experiment can help an airplane engineer to not make a bad design so that the airplane wouldn't go so far.

Works Cited

<https://www.amazon.com/Cassidy-Labs-Airplane-Planet-Standard/dp/098955791X>

<https://www.youtube.com/watch?v=0LJXM3rsbco>

<https://www.youtube.com/watch?v=G48VGImadc8&t=4s>

<https://www.youtube.com/watch?v=RrkwgpUUXe8>

