

The perfect paper plane

What makes a perfect long distance paper plane?

Method

1

A traditional paper plane is made up of the fuselage (Main body of the plane), wings and rudder.

2

We made a series of paper planes changing the dimensions of each part.

3

We tested each paper plane 10 times recording the distances and then found the average.

4

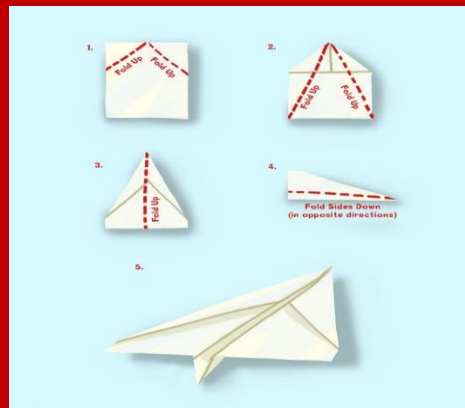
The best dimensions for the fuselage, wings and rudder were chosen.

5

A snub nose and a pointed nose plane was constructed and flight tested 20 times.

Aim

To find the dimensions that makes a perfect paper plane to fly the longest distance.



How to make the traditional plane

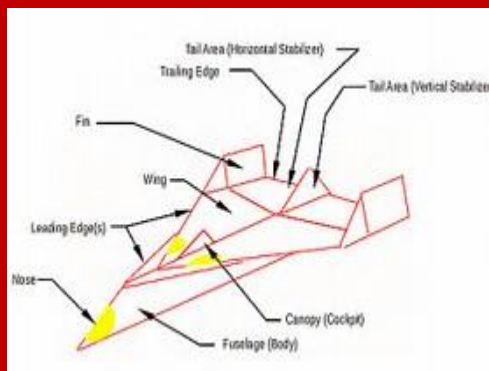
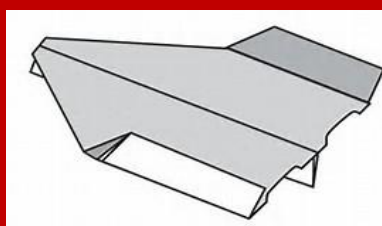
Hypothesis

The best paper plane would have large wings so it glides further, long body to help support the large wings and a small rudder to provide lift but does not take much of the wing span.

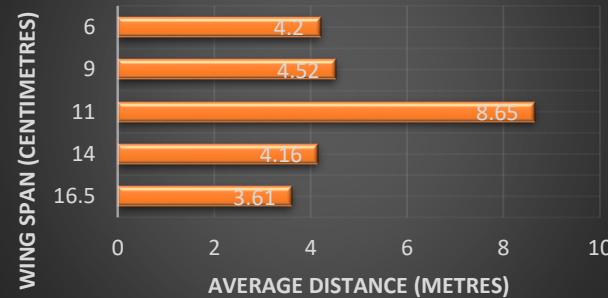
Traditional nose plane



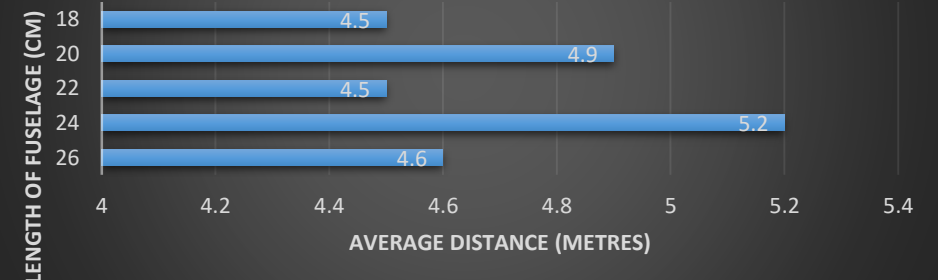
Snub nose plane



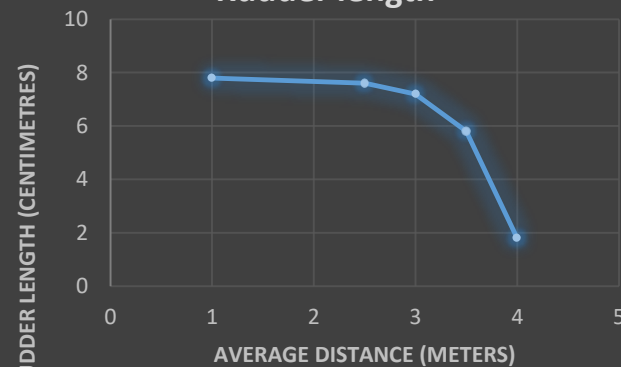
Distance travelled according to Wing Span



Average distance(m) according to Fuselage Length



Distance travelled according to Rudder length



Analysis

1. Wing span: The best wing span was 11cm as it averaged a distance of 8.65m. The wing span of 16.5cm (control wing span) had the lowest average distance of 3.61m. From 16.5cm to 11cm the flight distance increased but after 11cm the flight distance decreased.

2. Fuselage: The best fuselage length was 24cm that averaged a distance of 5.2 m. The other lengths (26cm, 22cm, 20cm, 18cm) averaged a distance of around 4.5m to 4.9 m.

3. Rudder: The smallest but the best, 1cm rudder averaged at 7.8m in distance. As the rudder length was increased the plane distance fell to 4 m. The dimensions of the plane for the final flight tests were 11cm for the wing, a 24 cm fuselage and 1cm rudder.

From our results the snub nose had the higher average of 7.16m compared to the traditional nose plane at 6.78m. The stem and leaf graph show us that the traditional nose plane had slightly more consistent results than the snub nose plane as the data is bunched together.

Flight results for the Optimal dimensions of a Paper Plane

Pointed nose		Snub nose	
		Metres	
9	6	2	3
7	4	3	0
9	8	3	0
8	6	4	7
9	1	0	8
1	0	9	6
0	10	0	0

Conclusion

Using the traditional paper plane there is not much difference between having a pointed nose plane or a snub nose plane. The best dimensions we found were, 11cm for the wing, a 24 cm fuselage and 1cm rudder