

Paper Planes

On SCOPE's Planes episode, Julia experimented with the humble paper plane.
Here's how you can do it at home:



What you need:

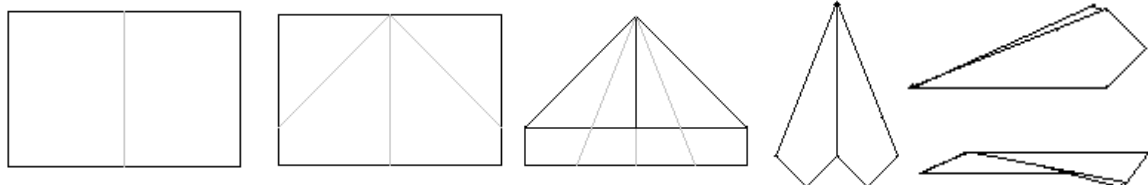
Paper (A4, A3)
Measuring tape

What to do:

1. Make 10 copies of each paper plane design.
2. Lay out about 20 metres of measuring tape.
3. Launch each paper plane and measure how far it flies.
Which paper plane design flies furthest?

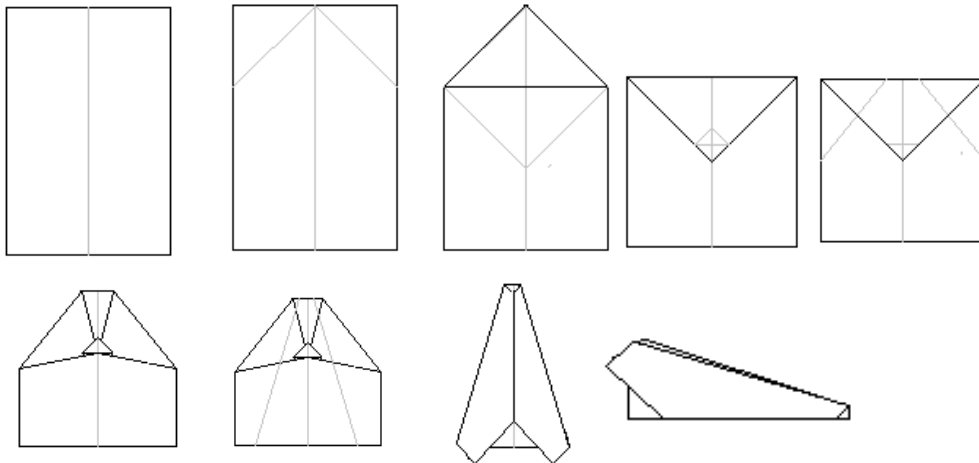
Paper Plane Design #1

1. Fold an A4 piece of paper in half (landscape).
2. Open out the piece of paper, revealing a crease in the middle of the paper.
3. Fold the top corners of the piece of paper down towards the centre crease.
4. Fold the diagonal sides to the centre crease.
5. Fold the whole thing in half.
6. Turn the plane 90 degrees.
7. Fold down each side to make wings.
Your plane is finished!



Paper Plane Design #2

1. Fold an A4 piece of paper in half (portrait).
 2. Open out the piece of paper, revealing a crease in the middle of the paper.
 3. Fold the top corners of the piece of paper down towards the centre crease.
 4. Fold down the top triangular part of the piece of paper.
 5. Fold up the tip of the triangle.
 6. Fold back the tip to reveal a crease.
 7. Fold the top left and right corners down to the tip crease.
 8. Fold up the tip to keep the two corners in place.
 9. Fold the diagonal sides to the centre crease.
 10. Turn the plane 90 degrees and fold in half.
- Your plane is finished!



What's happening?

Paper planes are great fun, but they also have a lot of science flying along with them!

When you launch a paper plane, you give the plane kinetic, or moving energy. As the plane flies through the air it is pulled down by gravity, but the wings help to deflect air backwards, so the plane can continue to fly forwards. In the end, the plane glides to the ground.

All paper planes need to be symmetrical, so each side is a mirror image of the other. This is important for planes to fly straight in the air. If one side is heavier than the other, it will veer that way when it flies.

It is also important for a plane to be heavier at the front. You can test this out by simply dropping the paper plane. If the nose dives forward, then the front of the plane is heavier. This helps give the plane forward motion. If the weight was at the back of the plane, it would drag and not fly as far.

But which plane design is better?

The first plane has a pointy tip at the front and wide wings to carry it through the air. The second plane has a bigger body and a blunt tip at the front.

Scope conducted many, many tests and we found the second design to fly further, which was to do with the weight distribution. It is important for a plane to be heavier at the front than at the back, but when there is too much weight at the front, like with plane #1, the plane nose dives and doesn't fly very far.

Did the same thing happen to your planes?