nustem

MAKE PAPER AEROPLANES

Make paper aeroplanes that you can fly and test at home.

Overview

In this activity, you will make planes using paper. Then you'll test how fast and far they can fly.

All you need is paper, timer, tape measure, somewhere inside to test the plane.

Printable version

What you'll need

- Paper
- Timer
- Tape measure
- A place to test the plane

Duration

20 minutes or so.

Suitable for...

Age 4 and up.

Safety notes

You know your children better than anyone, and you should judge whether they're ready for this activity. You might want to think in particular about:

More STEM at Home

What you'll need

- Paper
- Timer (a Smartphone works perfectly)
- Tape measure (you could pace out the distance instead)
- A place to test the plane

Duration

20 minutes or so.

Suitable for...

Age 4 and up.

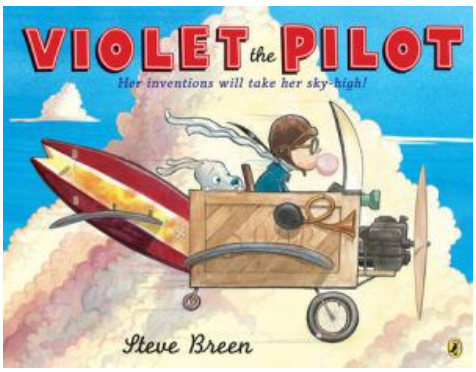
Safety notes

You know your children better than anyone, and you should judge whether

- Do not fly your plane towards someone; the front bit of the plane is pointy!
- Be cautious of the paper you are using, you could get a paper cut.

What to do

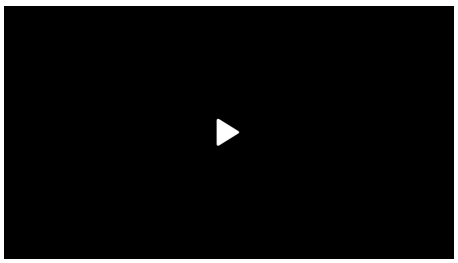
Before you start, you might want to listen to the story on the left as inspiration for your paper aeroplanes. It is called Violet the Pilot by Steve Breen. The story is about a young girl with a gift for engineering, who uses her creativity and hard work to build flying machines.



Step 1

Use a piece of A4 paper. Fold the paper in half to make a long thin rectangle. This makes a crease in the centre. Now unfold the paper.

If you want to watch how to fold the plane instead, this video might help.



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- Do not fly your plane towards someone; the front bit of the plane is pointy!
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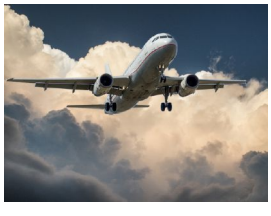
Careers Link: Aerospace Engineer

Aerospace engineers design, build and maintain aircraft, spacecraft, satellites, and missiles. They may be involved in creating and testing prototypes, researching ways to make fuel efficient parts, developing navigation systems, or supervising the manufacture and maintenance of aircraft or spacecraft.

Attributes: creative, passionate, tenacious



Step 2

Fold both top corners so that they meet the centre line.

Step 3

Fold the new left and right corners to the centre line.

Step 4

Fold plane in half from right to left.

Step 5

Now fold one edge back out to make a wing. Use your fingernail to help make the tip as pointy as possible. Turn the plane over, then fold other wing to line up with the first wing.

Step 6

The final step is to unfold the wings slightly so that it looks (a bit) like an aeroplane.

Testing the plane

You're ready to start testing your plane.

Put your tape measure on the floor. This is your test-flight area. It's sensible to test the planes somewhere out of the way of other people.

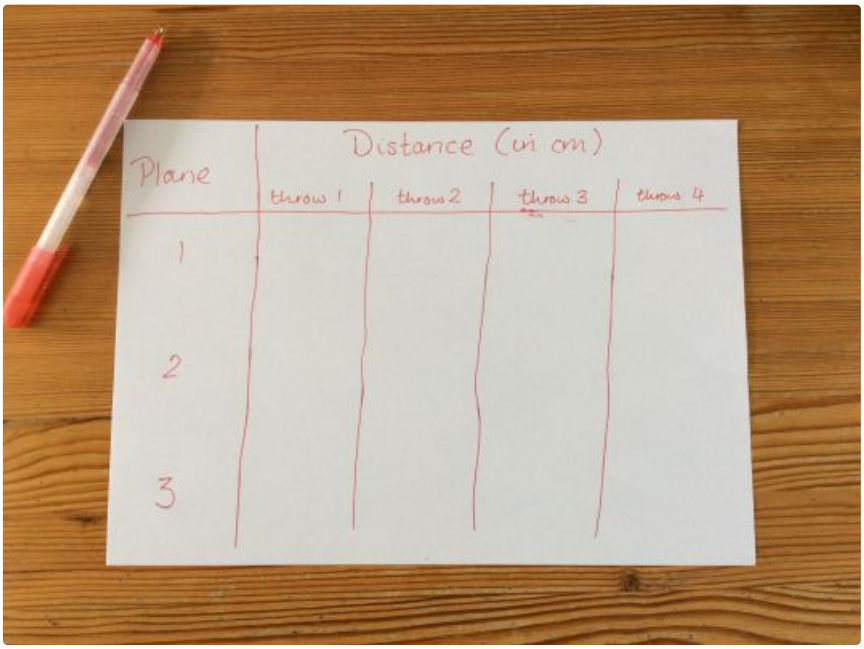
Stand at one end of the tape measure. Carefully launch your plane so that it flies along above the tape measure. When the plane lands, you can then measure how far it flew. You'll need to try a few throws to get an average distance.

You can make different size planes by using smaller rectangles of paper.

Try to predict which plane will fly furthest.

Fly your aeroplanes, and record the distance of each flight to the nearest cm.

Which went farthest? Was your prediction right?



Things to discuss

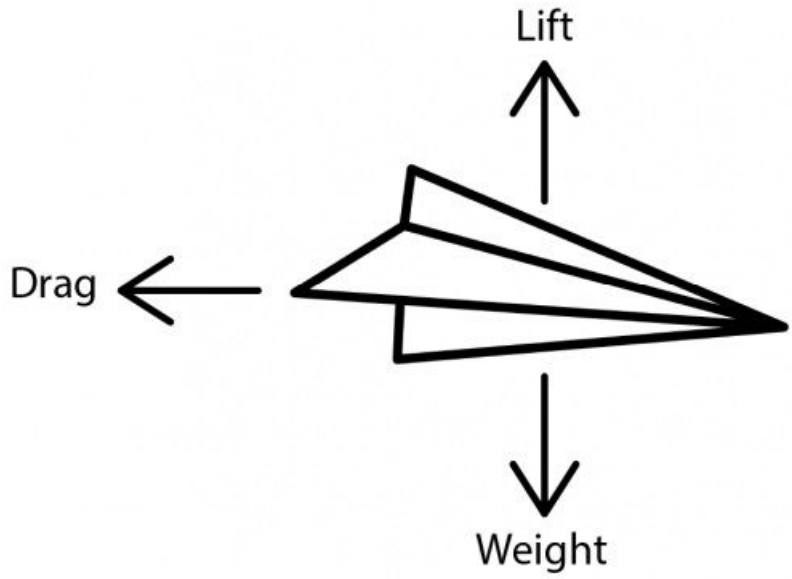
You could ask questions like:

- What do you think will happen when you throw the aeroplane?
- Which planes flew the farthest distance and why?
- Which planes flew the fastest and why?
- Does the type of paper affect a paper aeroplane?
- Can you try to design a different shaped aeroplane? What will happen then?

How does it work?

As your paper aeroplane glided through the air there were 3 forces acting on it: **weight**, **drag** and **lift**.

Weight pulls the plane towards the ground, **drag** slows it down as it glides through the air, and **lift** kept the plane in the air for longer.



Other things to try

Learn how to make other paper planes such as: a Star crusher plane, Spy plane, Headhunter plane.

Once you have made your planes you could test them all to see which one flew the furthest.