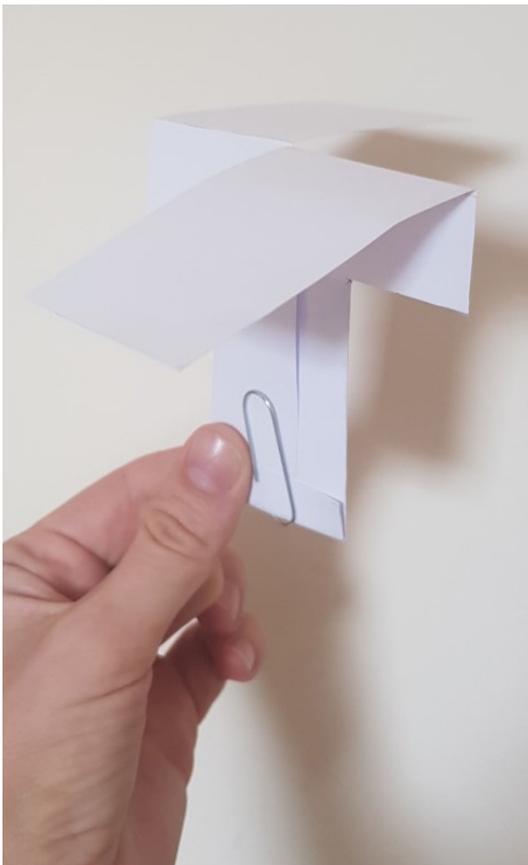


Flight

If you have ever visited the Roker and Seaburn seafronts in Sunderland on the last week of July, you may have been met with the loud roars of engines or the whoosh as planes fly overhead at the Sunderland International Air show.

Traditionally the Red Arrows perform a series of acrobatics over the sea, leaving a trail of red, white and blue smoke.



Let's experiment with flight

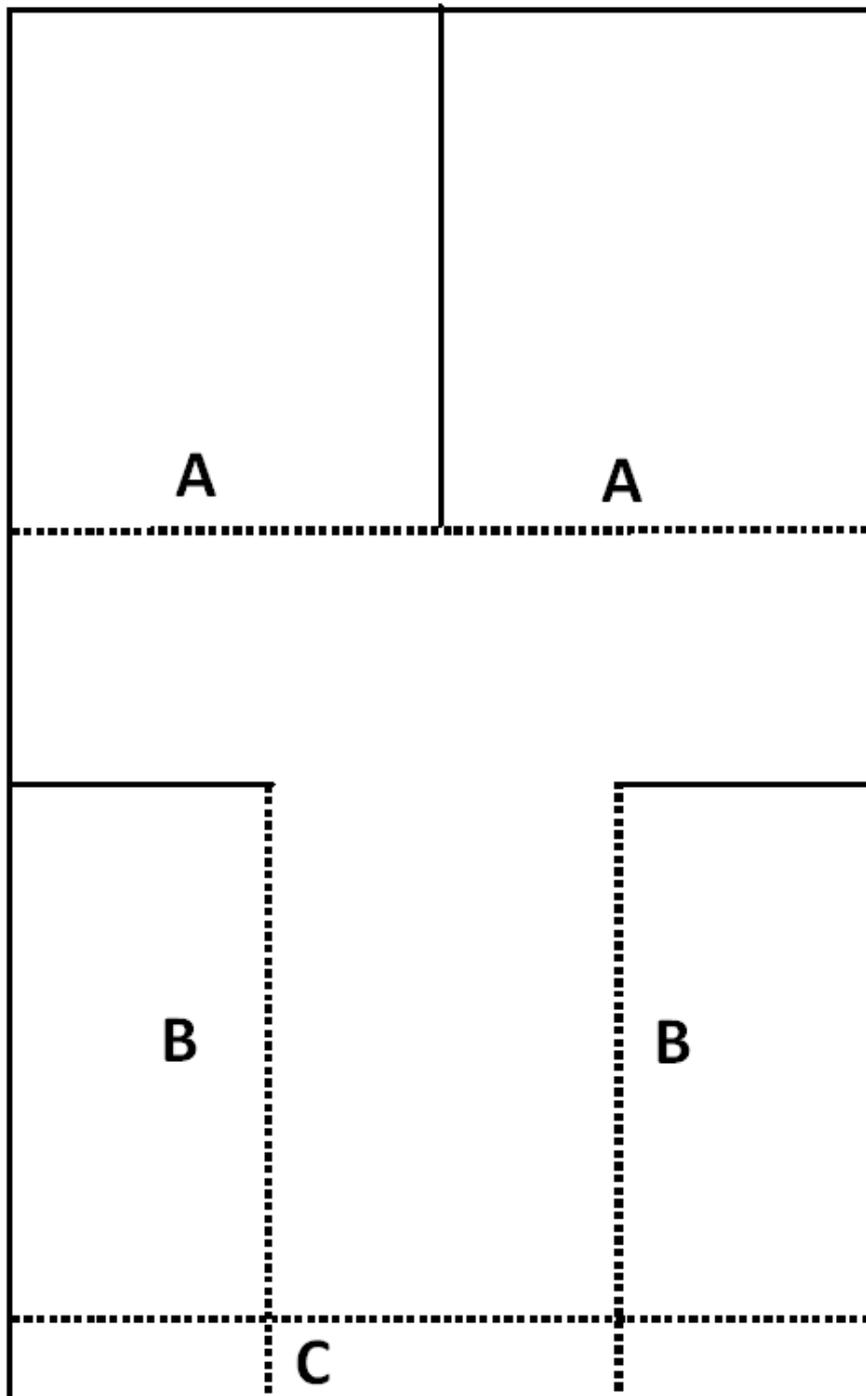
I bet you have all had a go at making a paper plane. There are so many different designs of paper planes, but let's try something different. Have you ever made a paper helicopter?

For this activity you need:

- Scissors
- A printout of the template
- A paper clip.

To make the helicopter you need to cut along the thick black lines and fold the dotted lines.

1. Start with the folds labelled A, fold them so they go in different directions.
2. With folds B, you simply need to fold them inwards, so that they sit on top of each other.
3. For folds C, the bottom ones, fold them together and then up, so that it sits on top of the middle section. Pop your paperclip over that piece.



Now, holding it high above your head, drop it.
What happened when it fell?

Did you notice that it didn't just fall straight to the floor,
it did something different?

Experiment with dropping it different ways. Drop it from different heights,
throw it in the air, attach things on it to see if it falls differently, or find a
windy day and drop it outside.

The paper helicopters work in a similar way to the helicopter Sycamore seeds.



Plane launcher

For this activity you need:

- Sellotape
- Paper
- A straw, or paper rolled to make a straw

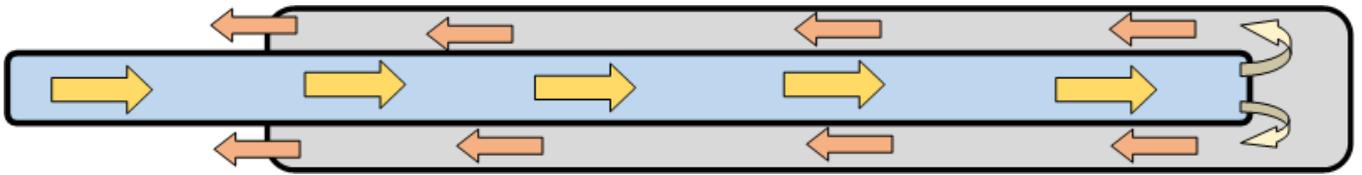
1. Find a straw or roll up some paper to make a straw.
2. With a spare piece of paper, roll this into another straw shape, but just make it a little looser. You want the first straw to fit inside of it comfortably.
3. With the second straw, fold over the end so that it is sealed up. Make sure to Sellotape it so that no air can escape out of the end.
4. Now you are ready to have a go. Pop the small straw inside of the other and then blow, super hard through the smaller one (just make sure you aren't touching the bigger second one with your fingers).

What happened?

When you blew air into the launcher, the air had nowhere to escape. You had sellotaped the end up so well that it couldn't get out, instead it had to come back the same direction it went well.

This then meant that the air pushed the second straw away.

Have a look at the diagram below to help understand how the straw launcher works.



You can see the air move through the blue straw (yellow arrows), it then hits the end of the tube and comes back out again (orange arrows).

Have an experiment and see if you can make the glider go further.

Maybe try adding some wings, or a nose cone. You could decorate it, too.