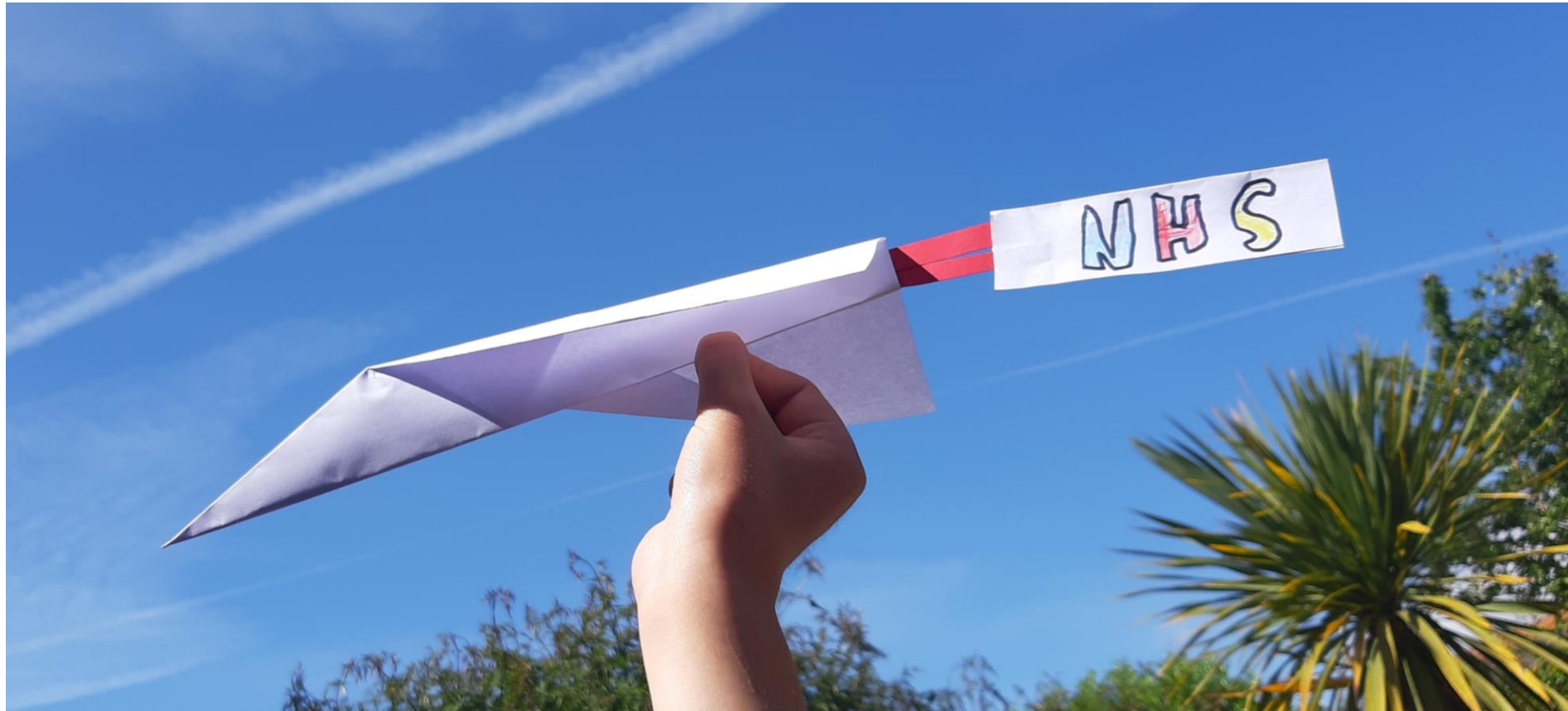


PAPER AEROPLANES





According to Guinness World Records



<https://www.guinnessworldrecords.com/world-records/farthest-flight-by-a-paper-aircraft>

69.14 metres



This is almost the length of TWO football pitches!

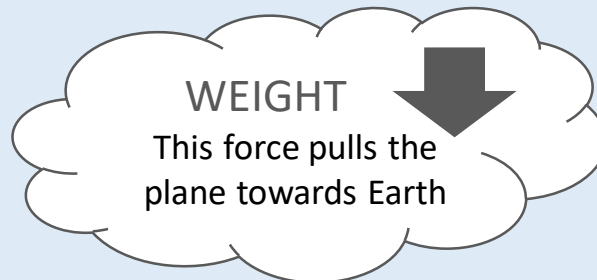
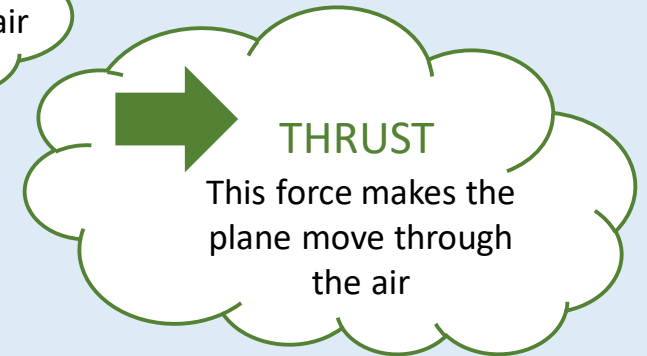
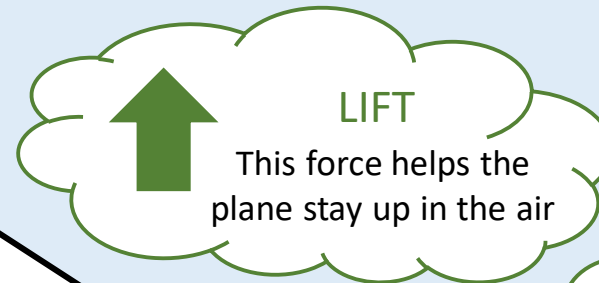
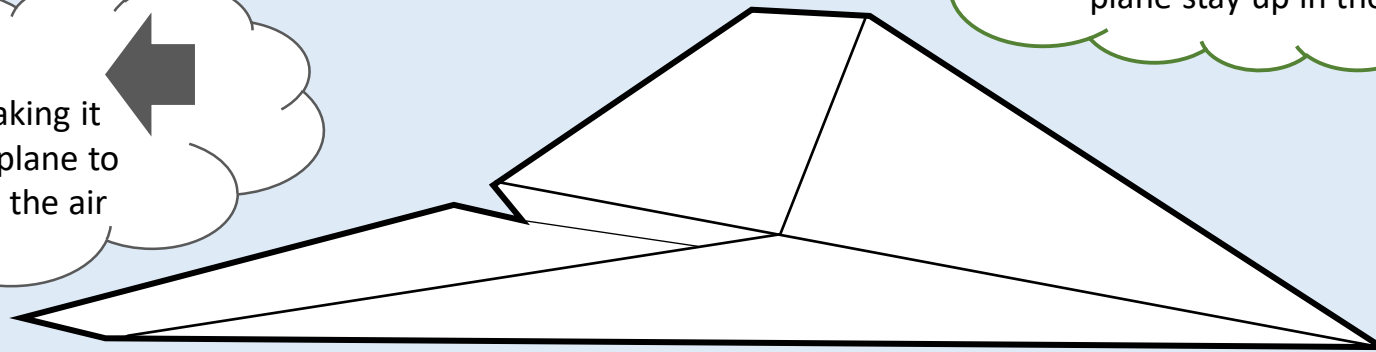
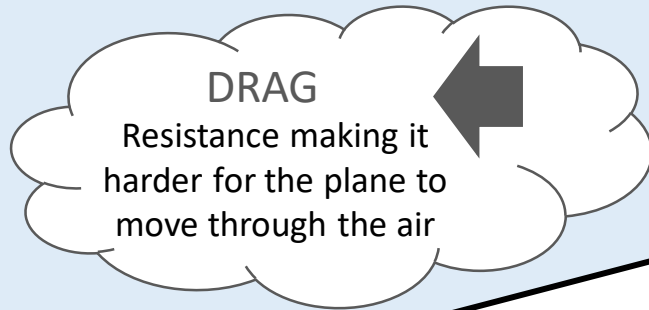




There are four forces that really effect how the paper aeroplane flies: drag, weight, thrust, and lift
A long flight occurs when these four forces are balanced.
The forces are shown here as arrows.



Green arrows are 'good' forces that help the glider stay up and move through the air.

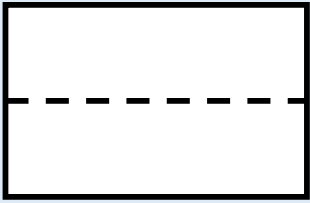


The more thrust we apply to our plane the further and faster it flies.
In a real aeroplane, thrust is made by the engines.
Paper planes don't have engines so what's giving them thrust?



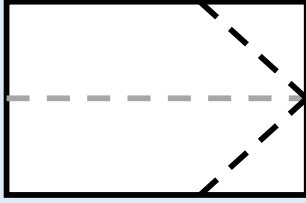
Here is a basic design for a paper aeroplane to get you started,
Can you adapt it to make it faster?

1



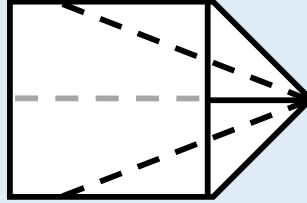
Fold a piece of A4 paper in half longways and open it flat.

2



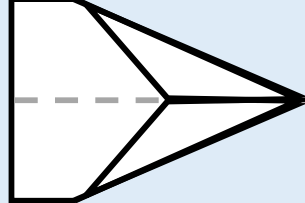
Fold in two corners so they meet at the centre fold.

3



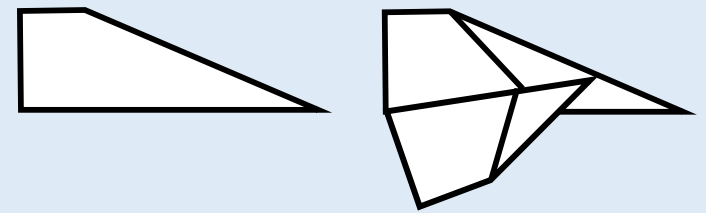
Fold the outer edges in again to meet at the centre fold.

4

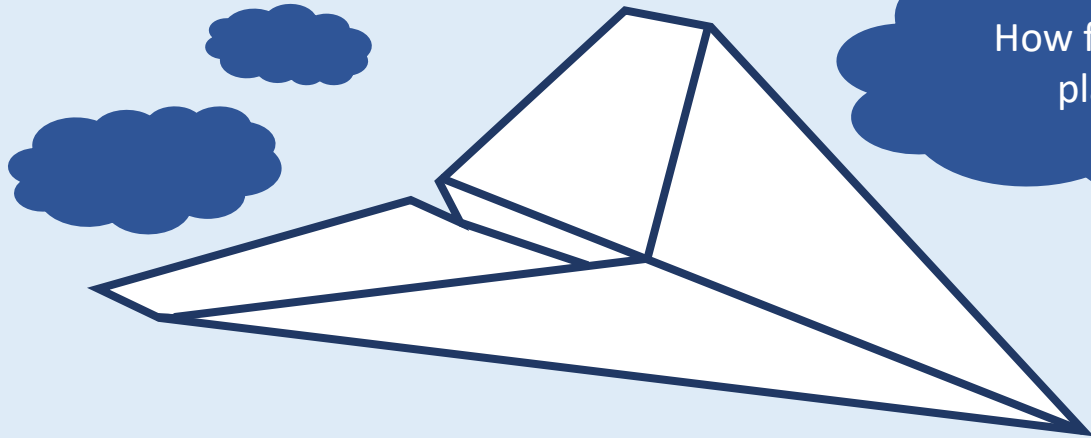


Fold it in half in the middle.

5



Fold down the wings on each side so they meet with the bottom of the planes.



Your paper aeroplane is ready to fly!

How far will your plane fly?

For more ideas...

YouTube
ThePaperAirplaneGuy
"How to Fold the World Record Paper Airplane"

Engineers start with designing and testing several different designs of an aeroplane before building a real one. By testing different designs, engineers can determine which one is best for distance, speed and other factors.

What affects how far a paper aeroplane flies?



Engineers consider all of these factors when designing aeroplanes.

The key to making a great paper aeroplane is to experiment.

Make three different paper aeroplanes and see how far they can fly. Here are some ideas...

- Change the **wingspan** by making the wings smaller or larger.
- Change the **size** by using smaller or larger paper to make the plane.
- Change the **weight** by using heavier paper such as cardboard.

Which design flies the furthest?

Fly each plane and observe how each of them fly. Measure their flight distances using a tape measure.

	Design Feature	Distance Travelled
Design 1		
Design 2		
Design 3		

Which design can carry cargo?

Tape paperclips to the plane to see how far it will fly. Which design can carry the most paperclips and still fly a distance?

	Distance travelled with one paperclip	Distance travelled with two paperclips
Design 1		
Design 2		
Design 3		