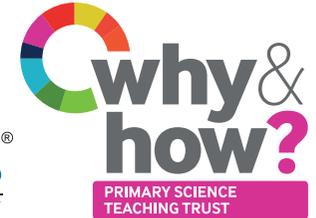




High in the clouds

LINKED CHALLENGE

To make and test paper aeroplanes



ACTIVITY OVERVIEW

Discuss the importance of air on Earth, primarily to sustain life, so it is paramount that it does not become polluted. Air also enables things to fly; in the session we will create a simple paper aeroplane to understand more about flight.

1. Fold a piece of paper in half lengthways and open out so the paper is flat.
2. On each side, fold the top corner down to the centre line.
3. Now take the newly formed corner on each side, and again fold down to the centre line, so the angled edges line up with the centre fold.
4. Depending on the size of the paper, you may want to repeat this process once more.
5. Fold the plane in half again along the centre line and hold the plane that has been created with finger and thumb on either side, ready to throw.
6. Find a space to test your paper aeroplanes (either outside or in a corridor/cleared classroom).



Allow the children to use their new skill to try a range of sizes of planes and/or add paper clips to the nose to increase weight. Which ones fly furthest/highest? Why do think this happens?

Extension activity: Encourage children to adapt and test other plane designs. (*Use the link below for ideas.) How do these compare to the original design?

KEY FACTS/SCIENCE

There are four different forces acting on a paper plane when it is in flight: *Gravity*: a force pulling downwards on the plane. When this is bigger than 'lift', the plane will fall towards the Earth. *Lift*: a force from air pushing up under the wing. When this is bigger than the force due to gravity, the plane will rise upwards. *Driving force*: a push to move the plane forwards. (Here, this is provided by the throw.) *Drag*: forces working against the direction of movement, due to the air pushing back on the plane. When these forces are *balanced*, a plane will fly at a constant speed and height.

Air is mostly a mixture of gases, but it also contains other tiny particles like smoke and soot and these can cause pollution. Carbon dioxide in the air is important to life but too much can lead to a warmer atmosphere.

RESOURCES

Paper (a choice of sizes)
Pens or pencils to
decorate

Paper clips
Tape measure

QUESTIONS/FURTHER LEARNING

- Does the strength of your throw change how far the plane travels?
- How does the shape or size of the plane affect its flight?
- Try curling the tips of the wings. Does this change the direction the plane flies?
- Look at birds in flight. Notice differences and similarities between an aeroplane and a bird's wings.
- Why is air so important to living things?
- What happens when it becomes polluted?

Online supporting video on paper plane designs:

<https://www.foldnfly.com/#/1-1-1-1-1-1-1-1-2>

