



The Science of Flight with...



Scientist Kristina from

little Science LAB

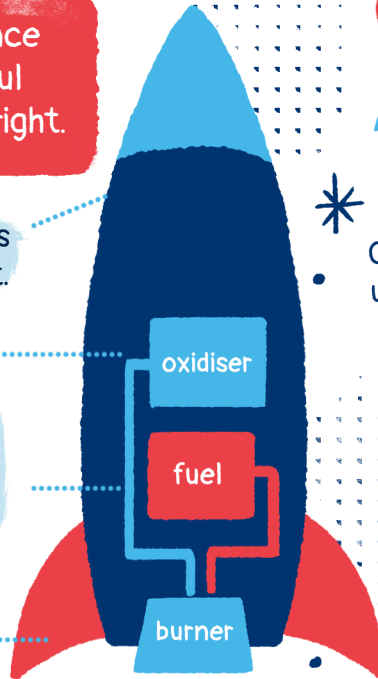
Paper rockets still follow the same science as giant rockets! The trick to a successful flight is to get all the component parts right.

Aerodynamic shape of the NOSE CONE helps prevent air from slowing the rocket.

The BODY is the main section

The FUEL SYSTEM is a mixture of fuel and a chemical called an oxidizer that gives off oxygen. The fuel and oxidizer burn together to launch the rocket from the ground.

The FINS help guide the rocket to fly in a straight line.



Our paper rockets in this experiment use air as the fuel to launch, and the launch pad is a straw!

EQUIPMENT

- Paper, various types and sizes
- Tape, scissors
- A straw

METHOD

STEP 1: Take a strip of paper approx. 6cm wide by 10cm long and wrap around the end of a straw. Tape it together – this is the body.

STEP 2: Fold or tape over one end of the tube to make a point – this is the nose cone.

STEP 3: Add fins to the body of the rocket at the back. The easiest way to make triangular tailfins that are of equal size is to fold a piece of paper in half and cut across a corner producing two triangular offcuts!

STEP 4: LAUNCH! When you blow through the straw you introduce air into the rocket body to launch the rocket.

You can measure the distance flown and re-engineer your rocket to fly further.



THE SCIENCE

In this experiment there are important forces at work. **THRUST** of the rocket which propels it up into space because of the air you blow through the straw.

The fins act like rudders on the rocket, to keep it travelling on a smooth path and exerting a force called **DRAG** which pulls the rocket backwards and makes sure it doesn't do somersaults! Without **DRAG** all of the force is in the front of the rocket making this part **TOO HEAVY** and likely to somersault over and crash. The longest distance will be the straightest flight path.

Lastly, the pointed nose cone ensures that the rocket is **AERODYNAMIC** and flies far and straight through the air.

TAKE IT FURTHER

You could add extra tail fins, make the fins larger or different shapes, use a different material – is paper too heavy? You can also test the angle that you launch your rocket – does this make a difference?

Check out Kristina's video to help you do this experiment! bit.ly/PaperStrawRockets
And if you want more... you could watch: bit.ly/ScienceOfFlight