

FREE RESOURCES

The Why and How Challenge

The 'Why and How' Challenge is intended to be **something for the staffroom table** that lots of teachers will try.

It is specifically designed to encourage the children to work scientifically to design and make something or to solve a problem.

This issue's Why and How Challenge is based on a simple 'O' ring flyer. You may have tried versions of this before, but have you used it as a **whole school competition**?

'O' ring flyer whose goes the furthest?

RESOURCES

Children need strips of card, drinking straws (please re-use where possible), scissors and sticky tape. They may also need a ruler and paper clips.

WHAT TO DO

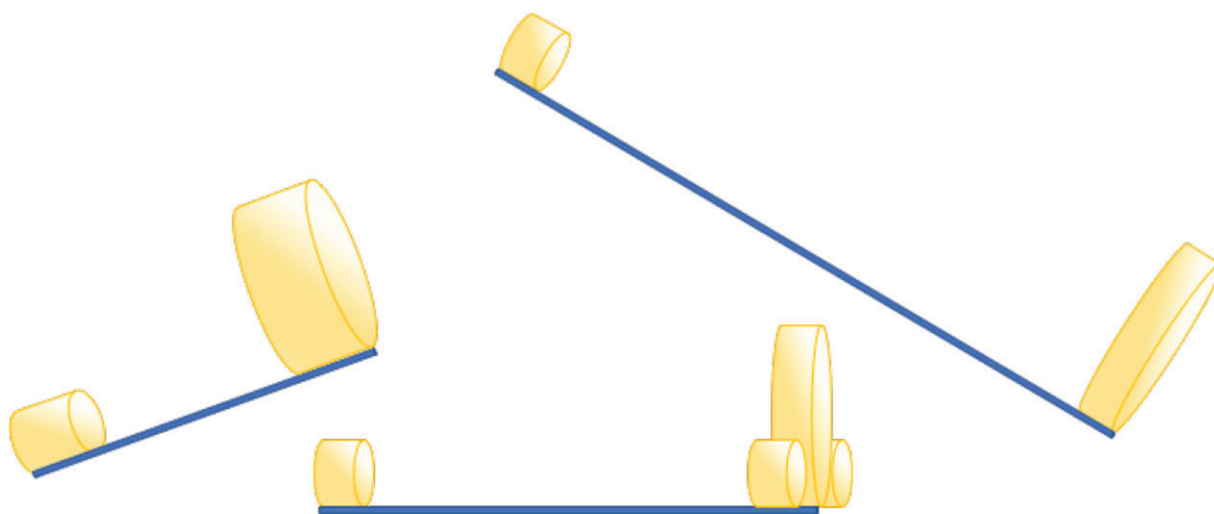
Cut two strips of card: one 15cm long and the other 8cm long, each 2cm wide. Form each strip into a loop and secure with a piece of sticky tape. Now attach the loops to either end of a drinking straw, again securing with a piece of sticky tape, as shown in fig.1.

Holding the straw around the mid-point, with the small ring at the front and larger ring at the air, try throwing the flyer as you would a paper aeroplane. It should fly well.

Now give the children an opportunity to make and test their own. They can vary the sizes of the loops, front and back, or adjust the length of the straw (shorten by cutting or lengthen by inserting the end of one straw into another and securing them together), to explore how this affects the way the flyer travels. They may also wish to add additional loops or try adding some form of ballast (paper clips) to the front of the flyer.



Flyer fig.1 – simple 'O' ring flyer construction



Flyer fig.2 – varying 'O'ring size, straw length or overall design

Once the children have had an opportunity to make changes to their flyers, compare the results as a class.

Tell the children about the whole school competition and that, as a class, they are going to produce **one flyer**, that **goes as far as possible**. This will then be their **class entry** to the competition.

Rules for a whole school competition:

- *all flyers must be made from the same type of card/ thick paper*
- *all straws should be the same type*
- *length, width and arrangement of card and straws may be altered*

HERE'S HOW YOU COULD STRUCTURE A WHOLE SCHOOL SCIENCE CHALLENGE DAY:

Morning

Quick assembly to introduce the competition.

Children in their own classes, working individually or in pairs to make the best flyer they can, ready to race them against the other flyers in their class.

After break

Each class holds their own races to decide on their competition entry – only one per class.

Afternoon

Whole school to hall for the grand competition. This is best done as a knock out. Two classes at a time race their flyers against each other in a best of three. The winner is the flyer that goes the furthest and this one goes through to the next round and so on.