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Opening extract from

The Usborne Big Book of Science Things to Make & Do

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Please print off and read at your leisure.

If you make the bubbling brew in a bottle, make sure you use one with a wide neck.

Tiny gold star confetti was added to this jar to make the brew look really magical.

Bubbling wizard's brew

YOU WILL NEED: a clean glass jar, clear vinegar, food dye, glitter, washing-up liquid, bicarbonate of soda



1. Half-fill a glass jar with clear vinegar. Add several drops of food dye, then sprinkle a little glitter over the top of the vinegar.



2. Add a good squeeze of washing-up liquid to the jar. Then, gently stir the mixture with a metal spoon to mix everything together.



3. Put the jar in the middle of a large baking tray or a sink. Add a heaped teaspoon of bicarbonate of soda to the jar and see what happens.

Foaming brew

The foam that pours out of the jar is formed by a simple chemical reaction. When the vinegar and bicarbonate of soda mix, they make lots of tiny bubbles of gas. The bubbles churn up the washing-up liquid, making lots of foam.

The wizard's brew is not a drink, so don't drink it.

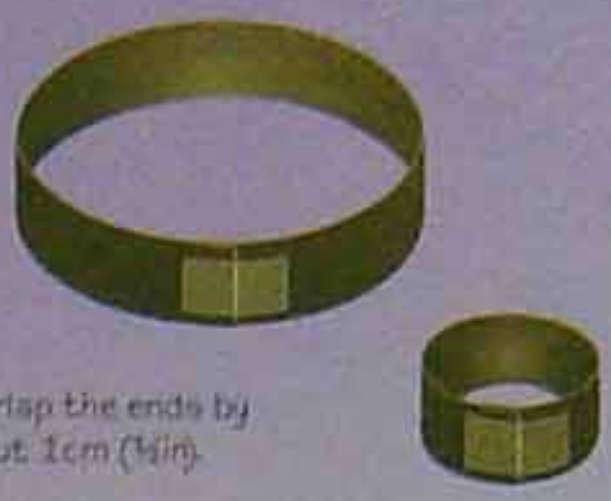
Zappy zoomer

YOU WILL NEED: cardboard, drinking straws

You need to be able to bend the cardboard, but it still needs to be fairly strong.

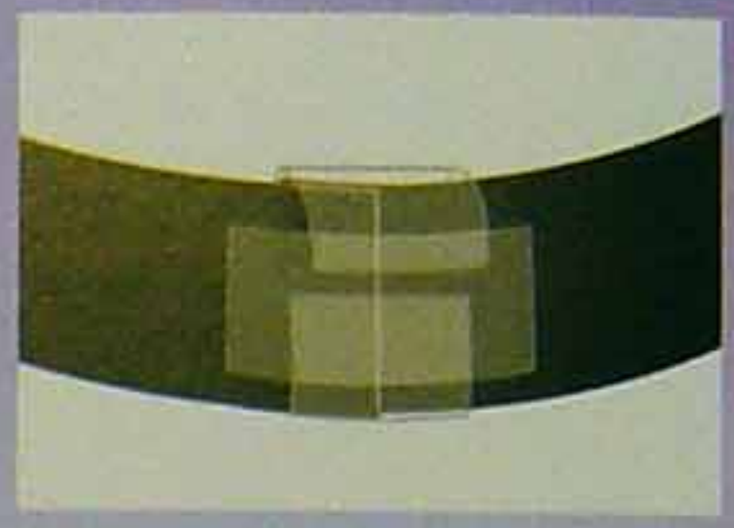


1. Cut a cardboard strip that is 2.5 x 24cm (1 x 9½in) in size. Then, cut a second strip that is the same width, but only 12cm (5in) long.



Overlap the ends by about 1cm (½in).

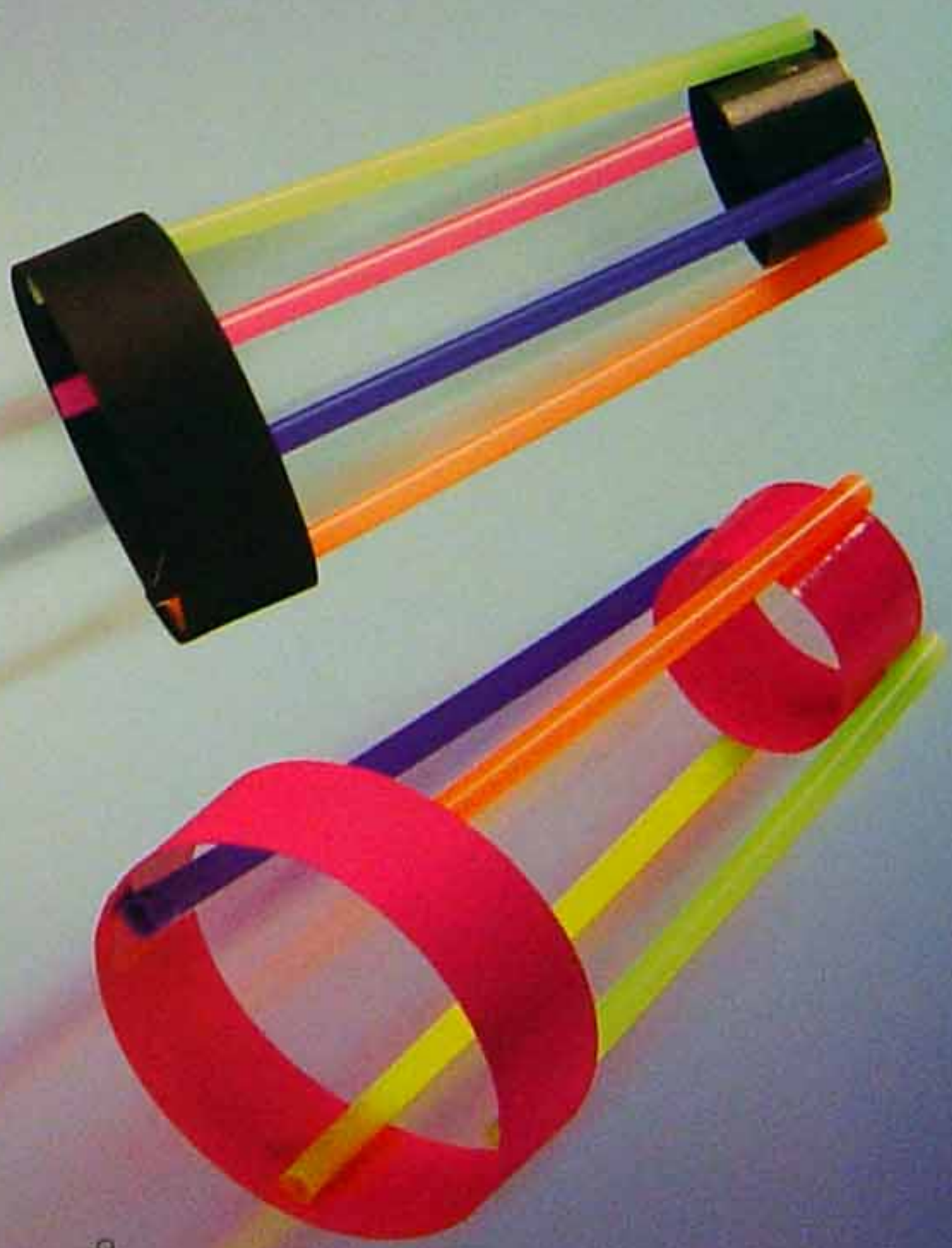
2. To make the strips into round loops, press a piece of sticky tape onto one end of each strip. Overlap the ends, then press down the tape.



3. To make the joins in the loops stronger, cut two longer pieces of sticky tape. Wrap one piece around the join in each loop, like this.



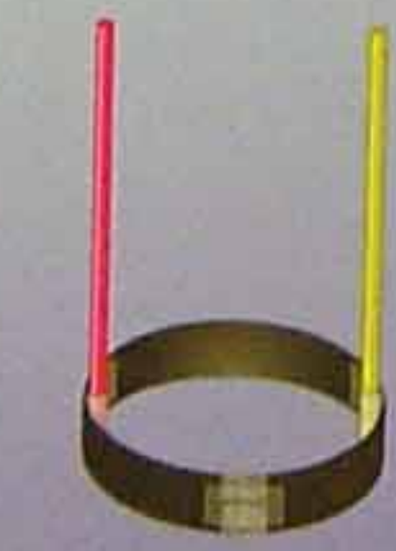
4. To make the sides of the zoomer, cut off the bendy part of four drinking straws. The straight pieces of straw should all be the same length.



You could make a zoomer with three straws, like this one – it will still fly well!

Flying high

The zoomer flies because it is light and cuts through the air. Smooth, streamlined shapes allow air to flow around them easily. Planes and cars are designed like this – the more streamlined they are, the faster they can go.



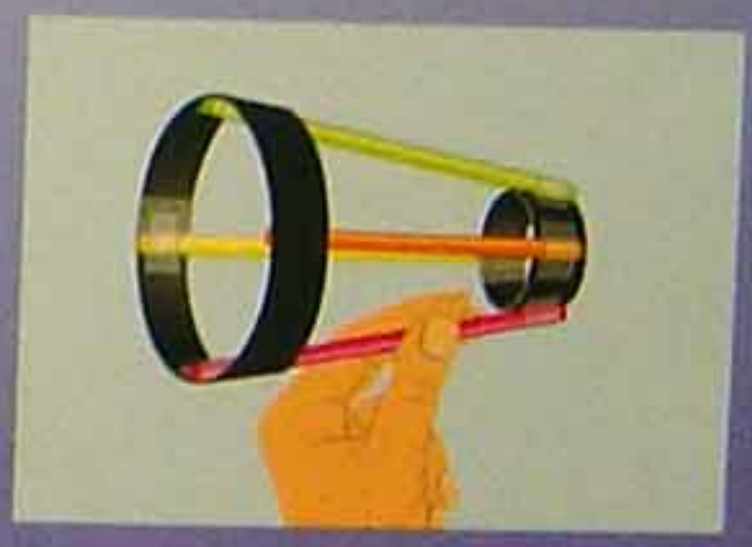
5. Tape the end of one straw to the inside of the larger cardboard loop. Then, tape a second straw opposite the first one, like this.

Tape the straws on like this...



... then like this

6. Tape the ends of the straws to the outside of the smaller loop. Tape the last straws between the first two, so that they are evenly spaced.



7. To make the zoomer fly, pick it up with the smaller loop facing forward. Hold it by the straw at the bottom, then throw it hard.