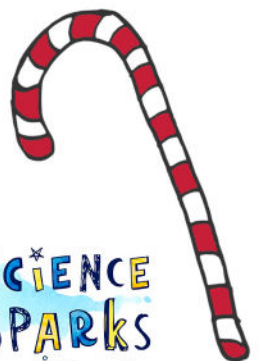
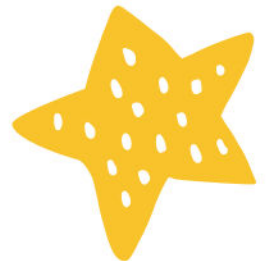
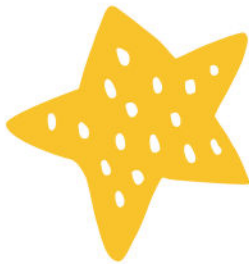




ELF

EXPERIMENTS



EXPANDING? ELF SWEETS

You'll need

Gummy sweets

Water

Shallow tray or plate



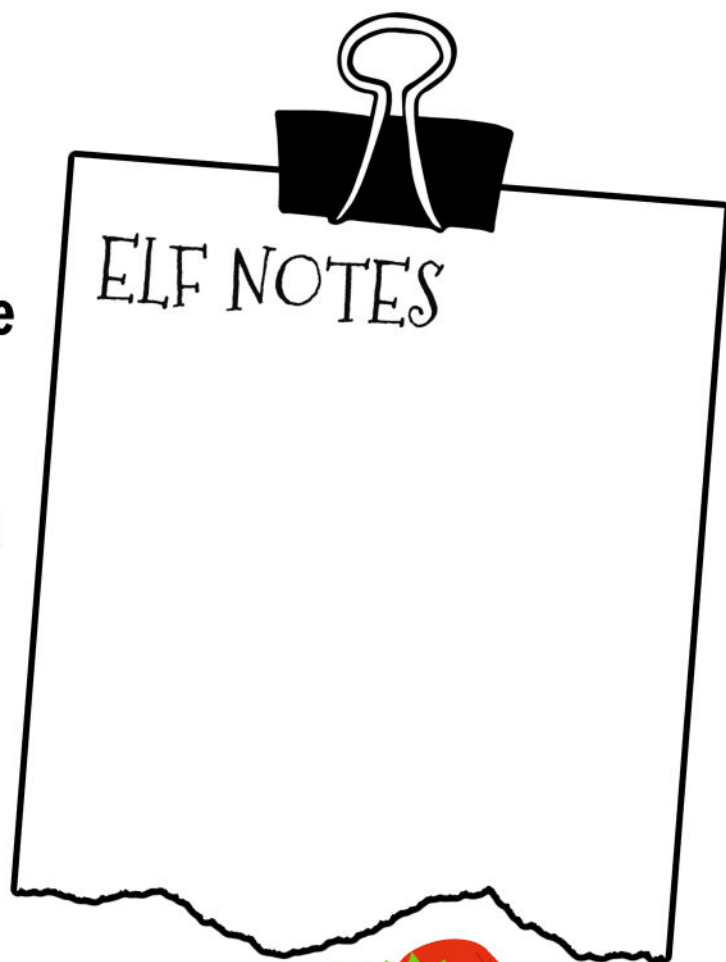
Instructions

Place gummy sweets in the centre of a shallow tray or plate.

Carefully pour water over the top.

After a few hours the sweets should look much bigger.

The gummy sweets absorb the water and expand! They may be bigger but probably don't taste as good as the flavour is diluted.



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FROST ON A CAN

You'll need

A clean empty can

Ice

Water

Salt

Spoon



Instructions

Fill the tin can with ice.

Add water until it reaches the top.

Drop in about 3 tablespoons of salt.

Wait and watch the frost form. If it doesn't work, add more salt and ice.

Why does it work?

Initially the temperature of the icy water in the can will be around the freezing point of water 0°C . However, for frost to form it needs to be even colder. Salt lowers the freezing point of ice, making the ice melt. In order to melt, the ice must draw heat from the surroundings (in this case the tin can). The temperature on the surface of the can is reduced to below 0°C which makes the water vapour in the air condense and freeze on the surface!!

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ELF FIREWORKS

You'll need

Vegetable or sunflower oil

Warm water

Food colouring

Glass or jar



Instructions

Fill the glass or jar about 3/4 full of warm water.

Carefully pour a small layer of oil onto the surface of the water and leave to settle. Note that oil and water don't mix!

Carefully drop small amounts of food colouring into the jar. You should see the food colouring drop through the oil into the water leaving colourful trails behind.

Why does it work?

Food colouring is more dense than water so sinks to the bottom of the glass leaving trails (resembling fireworks) as some of the colour diffuses into the water.

The water based food colouring forms a bead shape in the oil as oil is hydrophobic (water hating).

Oil molecules are more attracted to each other than water molecules so repel the food colouring. Surface tension between water molecules pulls them into the coloured spheres you see in the oil.

ELF NOTES



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OPTICAL ELF ILLUSIONS

You'll need

White cardboard
Pencils or colouring pens
Straw or pencil
Scissors
Glue/tape



Instructions

Cut out two squares from a sheet of white cardboard.

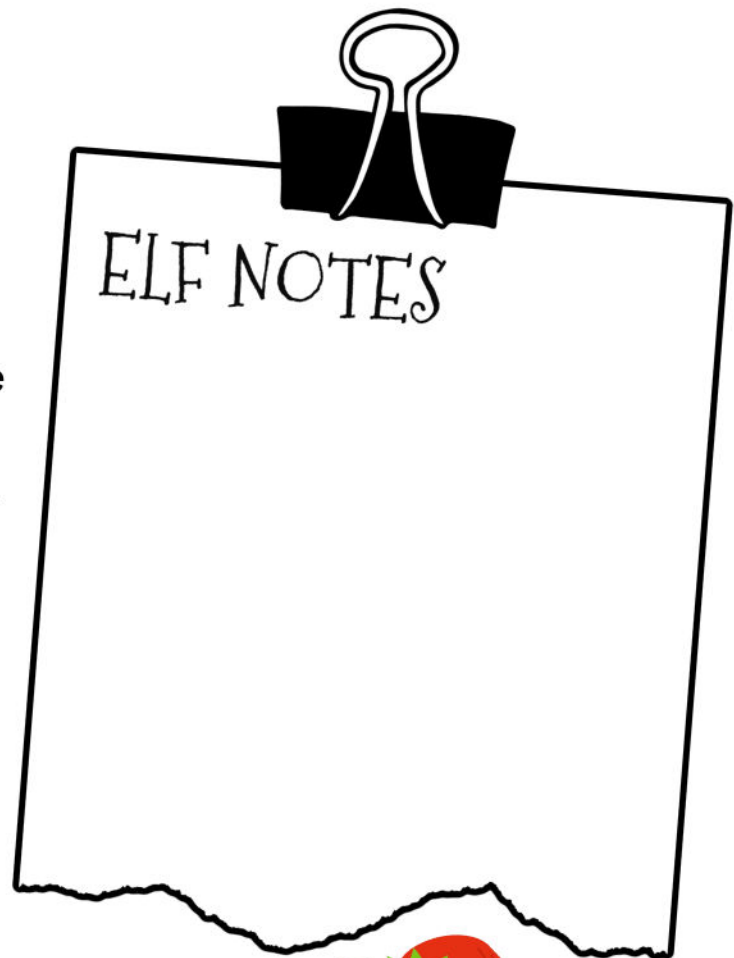
Draw a Christmas tree on one piece of card and a decorations for the tree on the other piece.

Glue or sellotape a pencil or straw in between the two pictures.

Hold the pencil between your palms and rub your hands to make the picture spin around.

The decorations should look like they are on the tree as it spins.

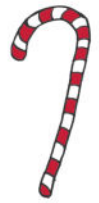
As the paper spins, your eyes see one image after the other so quickly that your brain can't separate them. This means you see the decorations on the tree!



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BUILD AN ELF RAFT



You'll need:

Lolly sticks

Tape

Corks

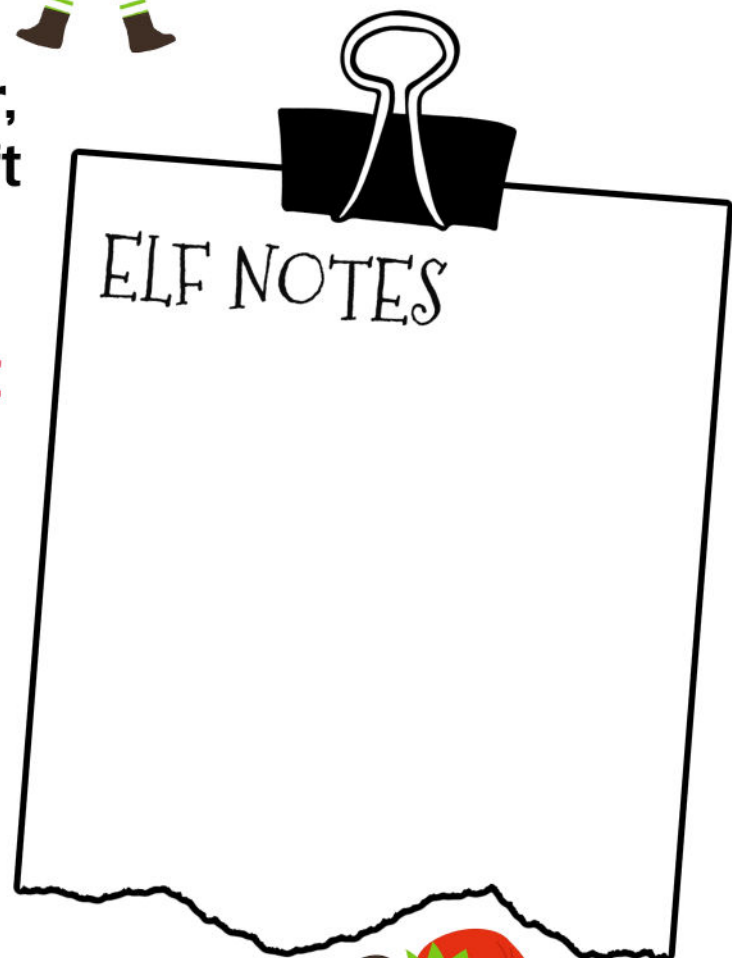
Card/foil etc



Instructions

The elves need to cross a river,
can you design and build a raft
that won't sink?

Once you've built your raft
test it in a bowl of water.
Can it hold the weight of a
small elf or present
without sinking?



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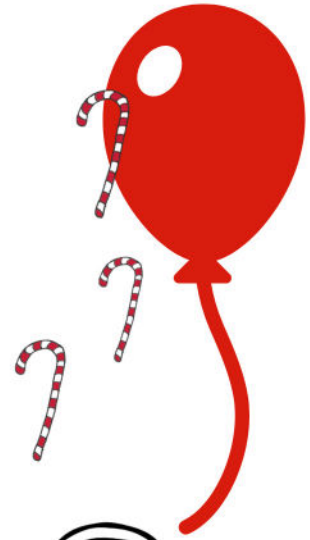
JUMPING CANDY CANES

You'll need:

Balloon

Hair or wool jumper

Tissue paper - cut into
candy cane shapes



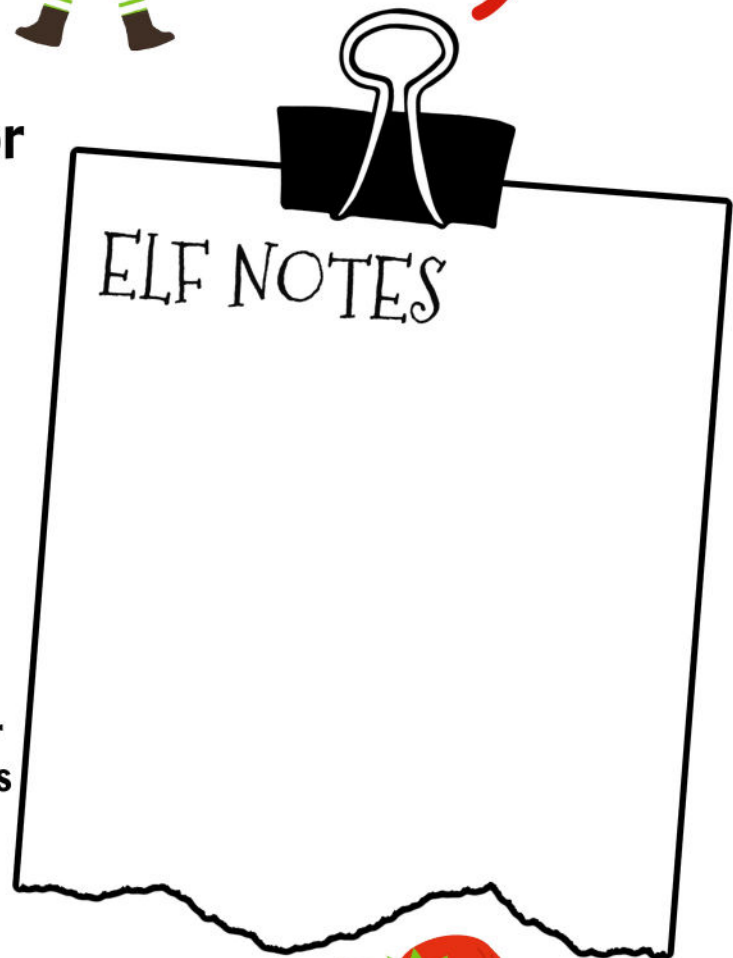
Instructions

Rub the balloon on your hair or
jumper.

Hold the balloon over the
tissue paper candy canes and
watch as they jump up to the
balloon.

Why does it work?

Rubbing the balloon on a wool jumper or hair
charges it with static electricity. This attracts
the tissue paper making it jump up to the
balloon where it will stay until the charge
wears off.



ELF PARACHUTE



You'll need

Gift wrap or brown paper
4 pieces of string
Scissors
Sellotape or masking tape
Elf



Instructions

Lay the gift wrap out flat and cut out a large square.

Make a hole in each corner, thread a piece of string through the hole and tie a knot. Secure in place with tape.

Attach all four pieces of string to the elf.

Hold the parachute up high and drop!

Extension Ideas

Create a basket for the elf to sit in.

Try dropping the parachute from different heights.

What's happening?

Two main forces act on a parachute. These are gravity and drag or air resistance. Gravity pulls the parachute down but as it falls it creates a drag force which pushes the parachute upwards, slowing the fall.

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ELF HOT CHOCOLATE

You'll need:

Hot Chocolate

Candy Canes

Marshmallows

Timer



Instructions

Can you time how long it takes the marshmallows to melt in your hot chocolate?

Try again with cold milk? What happens this time?

What happens to the candy cane if you use it as a stirrer in the warm drink?

ELF NOTES



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FIZZY ELF LAB



You'll need:

Test tubes or containers

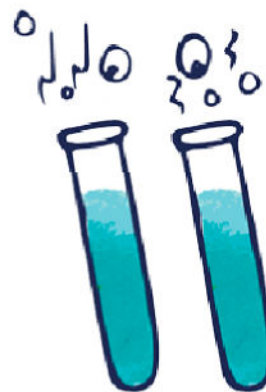
Test tube holder

Baking soda (bicarbonate of soda)

Vinegar

Red and green food colouring

Funnel or spoon



Instructions

Use a funnel to neatly add a teaspoon of baking soda to each test tube.

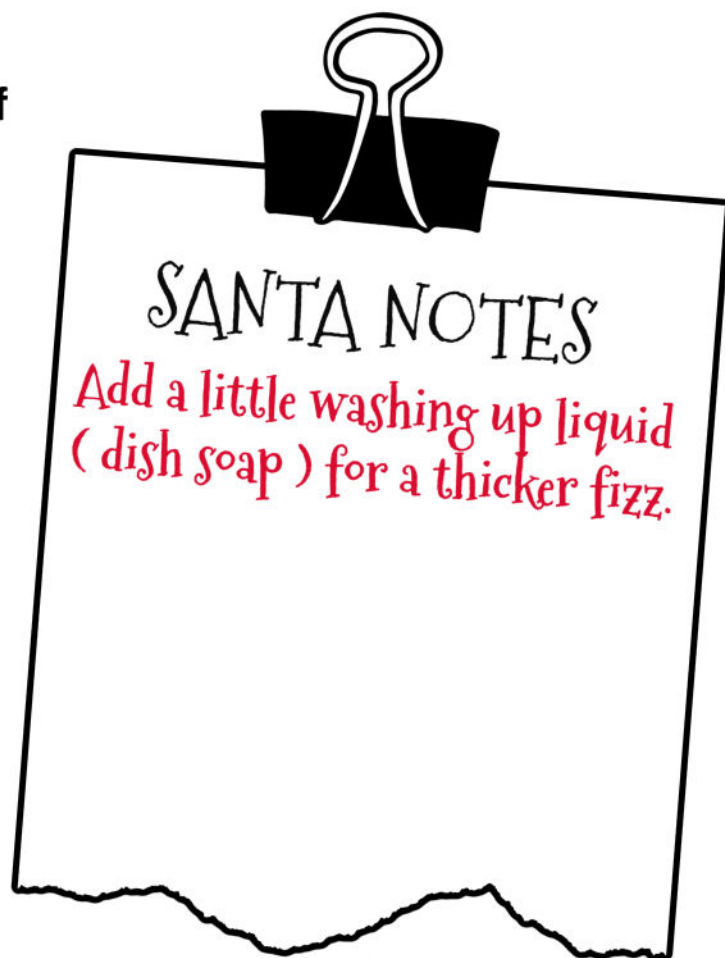
Add a few drops of food colouring.

Give the test tubes a good stir.

Add a few drops of vinegar to each test tube and watch them fizz!!

WHY DOES THIS HAPPEN?

Vinegar (an acid) and bicarbonate of soda (an alkali) react together to neutralise each other. This reaction releases carbon dioxide, a gas. The carbon dioxide bubbles mixed with the food colouring create a colourful, fizzy foam!



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COLOURFUL SKITTLES



You'll need

Skittles

White plate

Warm water



Instructions

Place the skittles around the edge of the plate.

Carefully pour warm water over the top.

Watch as the colours spread through the water!

Skittles are coated in food colouring and sugar. When you pour water over the skittles the coloured coating dissolves and diffuses through the water.

ELF NOTES



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FLYING SANTA HATS



You'll need

Paper or card
Felt tip pens
Scissors
Milk container
Tape

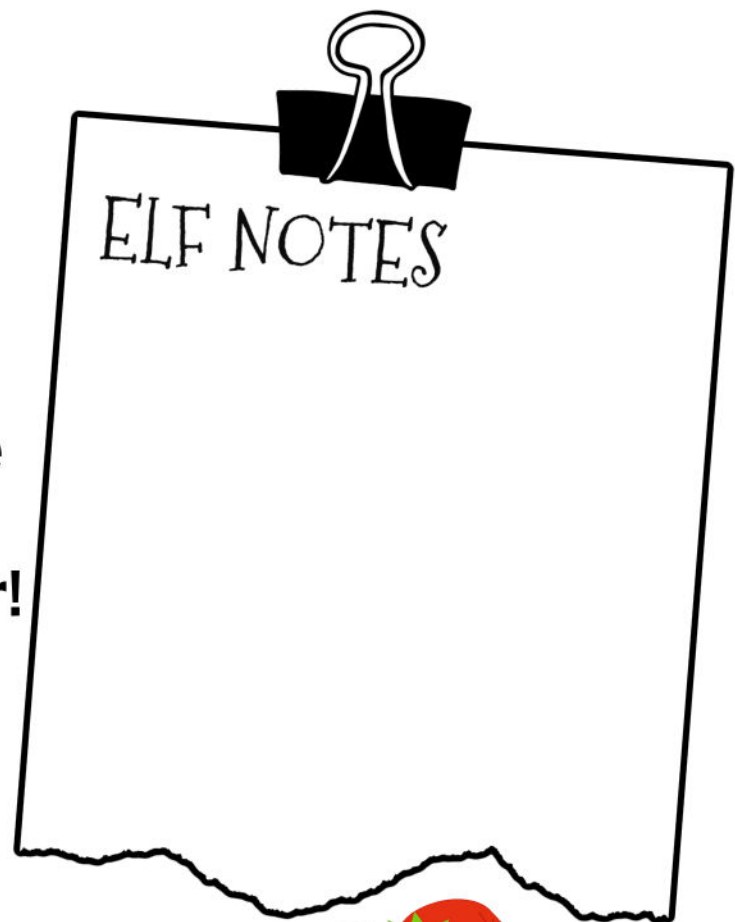
Instructions

Create a cone with the paper and tape.

Place the cone on top of the milk container.

Use both hands to squeeze the milk container and watch as the cone shoots up into the air!

When you squeeze the bottle, the air inside is forced out through the top. The force of the air against the cone sends it shooting upwards. The harder you push the sides of the bottle together, the greater the force of the air leaving the bottle and the higher the cone will fly!



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Name of elf _____



ELF EXPERIMENTS

Investigation _____

Hypothesis _____

Materials

Method

Results

Conclusion



Next time I will.....

