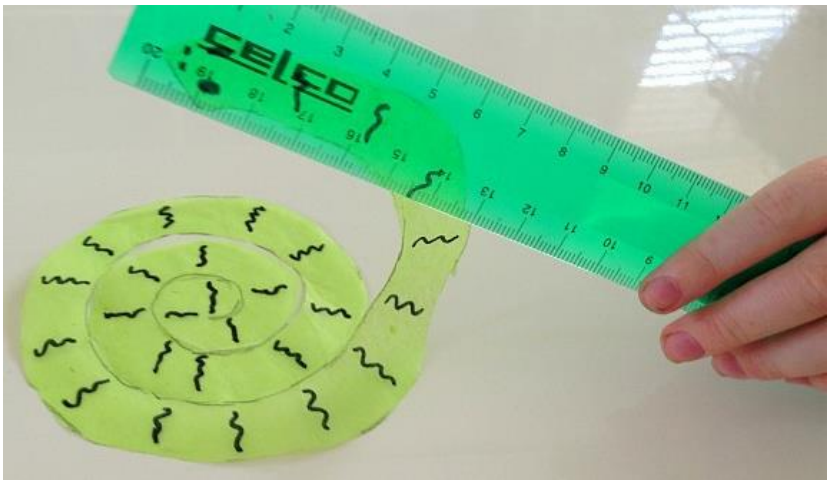
Snake Charmer



Apparatus:

- Tissue paper
- Plastic ruler

Method:

- Cut a snake shape out of tissue paper.
- Arrange the snake on a table or on the floor.
- Rub a plastic ruler with a sweater for a couple of minutes.
- Hold the ruler over the snake. Slowly bring it closer. What happens?

Results:

Rubbing the ruler makes static electricity build up in it. This attracts the tissue paper so the snake first seems to hover and then stick to the ruler.

Clever Clown

Apparatus:
- A piece of white A4 paper
- Colouring pens
- Two five pence coins
- Glue
- Scissors
- Drinking straw or pencil

Method:
- Make two copies of the clown image on the piece of white paper.
- Cut out both of the clown shapes and colour them in.
- Place one shape face down on the table. Cover it with glue and place the coins on the clown's hands.
- Place the other shape on top (coloured side up). Line up the edges and leave to dry.
- Hold the clown's hand so its head is resting on the glass.

Results:
The coins placed between the clown's hands have shifted the centre of gravity –the point where the weight is focused. As long as the centre of gravity is over an object, the clown will remain balanced and not fall off.

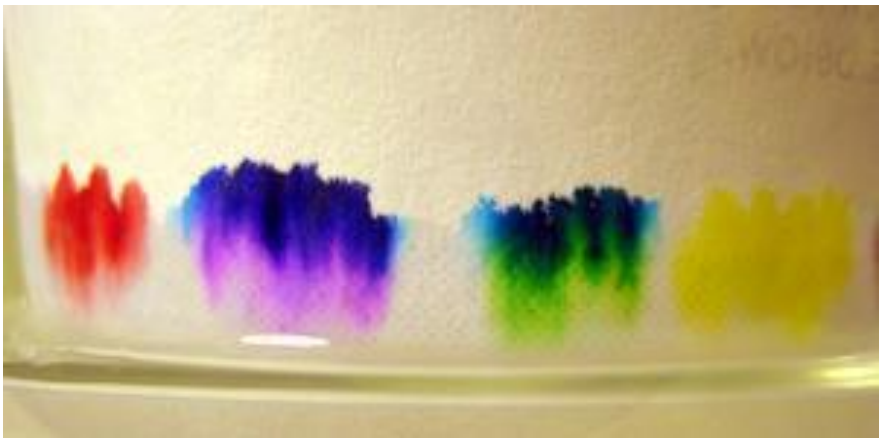
Sparkling Raisins

Apparatus:
- Glass
- Raisins
- Sparkling water

Method:
- Pour some sparkling water into a glass.
- Then sprinkle in a few raisins.
- What happens to them?

Results:
At first the raisins sink. However, sparkling water contains bubbles of gas which stick to the raisins and make them float up to the surface. There, the gas escapes leaving them to sink again.

Climbing Ink



Apparatus:

- Coffee filter paper
- Scissors
- Ruler
- Felt tip pens
- Saucer of water
- Sheet of newspaper

Method:

- Cut up a coffee filter paper to leave a flat piece.
- Draw a line along the straight edge, a little above the bottom of the piece of paper with a felt tip pen.
- Dip the bottom of the paper in a saucer of water, making sure the pen line stays above the water.
- Hold the paper in the water for a minute or so then leave it to dry on some newspaper and watch what happens.

Results:

Ink is usually made from a mixture of colours. When the water soaks up the paper and touches the ink, the ink dissolves, spreading out and separating into different colours. This is called chromatography.

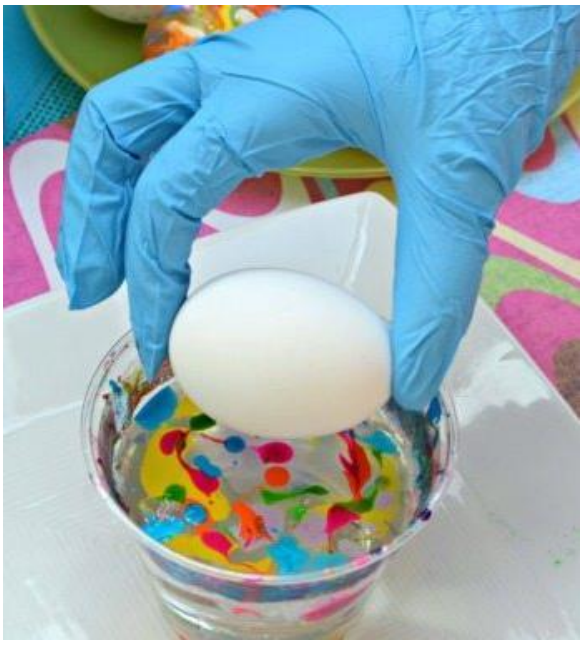
Moving Images

Apparatus:
- Thin white card
- Mug
- Pencil
- Scissors
- Glue
- String

Method:
- Make two circles on a piece of white card by drawing around a mug twice then cut them out.
- Draw a bird on one piece of card and a cage on the other piece of card.
- Turn the cage upside down. Glue them together back to back.
- Use a hole punch to make two holes on either side of the cage.
- Cut two pieces of string as long as your arm.
- Thread a piece of string through the pair of holes on one side of the card and knot the ends.
- Repeat with the remaining piece of string on the other side of the card.
- Hold the knots so that the circle hangs down. Flip the circle over and around until the string is twisted up tightly.
- Now, with both hands, pull the string tight. This makes the circle spin around really fast. What can you see?

Results:
As the circle spins, your eyes see one picture after the other. The pictures come around so fast that your brain cannot separate them. Instead, it merges the two so you see one picture –of the bird caught inside the cage.

Nail Varnish Test



Apparatus:

- Bowl of water
- Nail varnish
- Paper

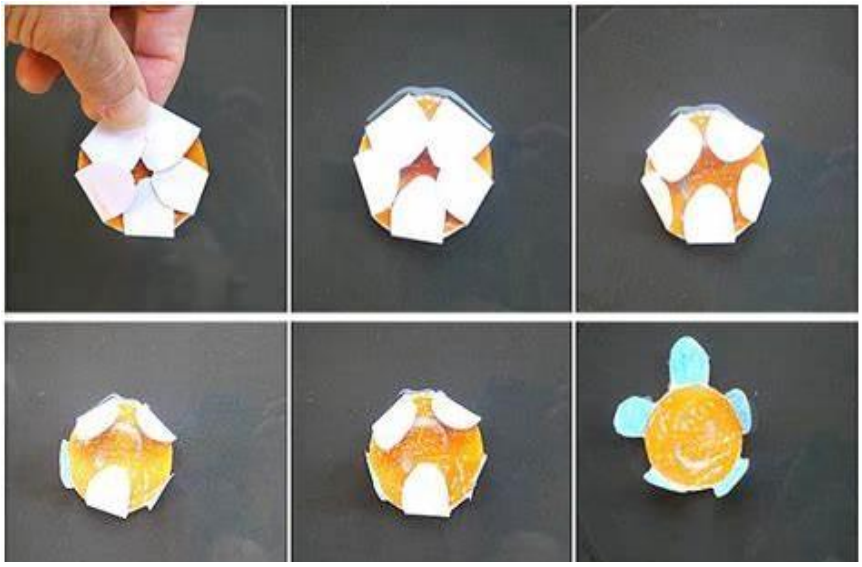
Method:

- Pour some water into a small bowl.
- Add some drops of nail varnish in different colours.
- Lay some paper over the top and then lift it off.

Results:

The surface of the water is like a thin, stretchy skin held together by a force called surface tension. Nail varnish is light enough to sit on the water's surface and it remains there as you swirl it around. When you lay paper over the pattern, the varnish sticks to the paper instead.

Paper Flowers



Apparatus:
- Paper
- Card
- Kitchen roll
- Scissors
- pencil
- Bowl of water

Method:
- Fold a square of paper in half and then half again.
- Draw a petal shape on the square and cut it out.
- Open up the flower shape.
- Fold each petal inwards, towards the centre of the flower.
- Repeat with a piece of card and kitchen roll.
- Place the flowers in the bowl of water.
- What do you think will happen?

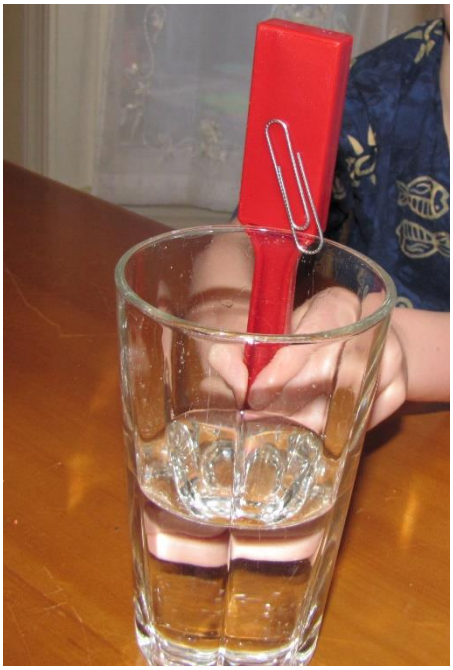
Results:

The paper is made of tiny fibres pressed together. As the fibres absorb the water, they expand and push the flower petals open.

Kitchen paper is made of very thin layers of paper. It absorbs water so fast that the flower sinks before it has a chance to open.

Card is thicker than paper because it contains more fibres. Therefore, it takes longer than paper to absorb water so the flower takes longer to open.

Underwater Trick



Apparatus:
- Empty glass
- Glass of water
- Magnet
- Two paperclips

Method:
- Drop a metal paperclip into a glass.
- Use the magnet to try and get the paperclip out of the glass.
- Now drop the paperclip into a glass of water.
- Can you get the paperclip out of the glass of water without getting your fingers or the magnet wet?

Results:
Magnets pull some metals, such as iron and nickel, towards them. Most metal paperclips contain iron or nickel so they are pulled towards the magnet. Magnets are able to work through water so you should be able to get the paperclip by dragging the magnet along the bottom and up the side of the glass.

Dice Tower

Apparatus:
- 6 Dice
- Piece of Paper

Method:
- Stack three or more dice in a tower on one end of a piece of paper.
- Make sure the other end of the paper
- is hanging over the edge of the table.
- Pull sharply on the edge of the piece of paper.
- Ensure you keep it level with the table as you pull it away.
- What happens to the dice?

Results:
You should be able to pull the piece of paper out without knocking down the dice. This is because of the inertia of the dice. Inertia measures how hard it is for a force to move an object. The paper is light and easily moves when you pull it therefore it has low inertia. However, the dice are much heavier so they are not moved so easily and have high inertia.

Balloon on a String

Apparatus:
- Balloons
- String
- Straw
- Sellotape
- Scissors
- Paperclips

Method:
- Cut a piece of string about 3m long.
- Thread the string through a straw and tie one end to a chair.
- Tie the other end of the string to another chair and pull the chairs apart to make the string tight.
- Blow up a balloon and hold the neck closed with a paperclip. Tape the balloon to the straw.
- Push the balloon to one end of the string, with the neck facing a chair.
- Take the paperclip off. What happens?

Results:
As the balloon deflates, it pushes out the air inside the balloon. The air pushes the balloon away from the chair and along the string in the opposite direction. Scientists describe this with a rule: every action has an equal and opposite reaction.