

Make a Compass

YOU WILL NEED

- 1 Bowl
- Magnet
- Slice of Cork
- Steel Needle
- Water

1. Rub one end of the Magnet on the Needle, 20 times.
   LIFT THE MAGNET AFTER EACH RUB.
2. Fill the Bowl with water.
3. Place the slice of Cork on water, so that it floats.
4. Place the magnetised Needle on the Cork.

Did You See?

The Needle turned!

Science Behind This!

The needle is made from steel. Steel contains iron. Iron can be magnetised. There is a lot of iron inside the Earth. Earth acts like a huge magnet. It produces a magnetic field. The magnetised needle lines up with Earth's magnetic field. Hence, the needle acts like a compass.



Blubber Experiment

YOU WILL NEED

- Lard or Vegetable Shortening
- Latex Gloves
- Ice
- Bowl
- Stopwatch
- Water

1. Place Ice and water in a bowl.
2. Dip your hands in ice water.
3. For how long can you keep your hands in water? Use a stopwatch.
   PULL YOUR HANDS OUT BEFORE IT GETS UNCOMFORTABLE!
4. Wear the Gloves. Cover it with Lard.
5. Dip the gloved hand in ice water. For how long can you keep your hands in water?

Science Behind This!

The lard is an insulator. It protects your hand from cold water.
An insulator does not allow heat to escape easily. That's how polar bears stay warm in cold areas. They have a layer of insulating fat.

Melting Ice Caps

YOU WILL NEED

- Large Container
- Small Bowls
- Stones
- Polar Animals
- Ruler
- Stopwatch
- Blue Colour
- Water

1. Freeze 3 ice caps using Bowls and water.
2. Fill the Container with some water.
3. Add 5-6 drops of Blue Colour.
4. Place Ice Caps, Stones and Polar Animals in the container.
5. Measure height of water in Container, every 15 minutes.

Did You See?

The final water level was much higher than the first!

Science Behind This!

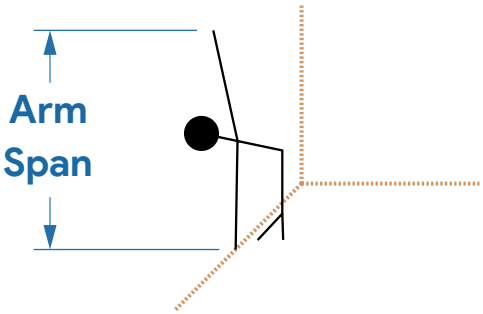
An ice cap is a thick layer of snow and ice covering less than 50,000 square kilometres. Ice caps form when snow falls. Snow that melts becomes harder and compressed. New snow falls on top and the snow underneath becomes denser. This happens over and over again. Finally a huge mass of solid ice forms known as a glacier.

Measure Your Arm Span

YOU WILL NEED

- Chalk
- Measuring Tape
- Adult

1. Stand against a wall.
2. Stand as shown.
3. Mark with Chalk where the top finger reaches.
4. This is your Arm Span.
5. Calculate your Ape Index. Divide your Arm Span by your Height.



Science Behind This!

An ape index of greater than 1 is thought to be useful for some sports, such as swimming. Longer arms may give greater propulsion. An ape index of less than 1 is thought to be useful for weight lifters. They don't have to lift the weight as high.



Tornado Jar

YOU WILL NEED

- Wide Jar with Lid
- Water
- Dish Soap
- Glitter
- Spoon

1. Fill the Jar to the top with water.
2. Add 1 spoon Dish Soap.
3. Add Glitter.
4. Close the Lid on the Jar.
5. Swirl the Jar around.

Did You See?

You made a Tornado in the Jar!

Science Behind This!

Tornadoes form when moist and warm air collides with dry and cold air in the atmosphere. The warm air rises; the cold air falls. This movement along with winds create a spinning effect. A funnel shaped cloud forms. If it becomes long enough to touch the ground, it turns into a Tornado.



Weight Crumble Challenge

YOU WILL NEED

- Paper Cups
- Thick Cardboard

1. Stand on 1 Paper Cup.

What happens?

2. Place 9 Paper Cups evenly.
3. Place 1 sheet of Cardboard on the top.
4. Stand on it.

Did You See?

The Cups did not crumble!

TRY!
Place a second layer of Paper Cups and ask a heavier person to stand on it.

Science Behind This!

When the cups are arranged evenly, the weight spreads itself over all the cups rather than on just one. This means that the paper cup structure can hold more weight.



Smelly Science Experiment

YOU WILL NEED

- Blindfold
- Adult
- Different food items

1. Hold your nose. Try one of the foods.

How does it taste?

2. Ask an adult to blindfold you.

3. Hold your nose. Ask the adult to give you a food item.

What flavour is it?

4. Try different food items with and without your nose covered.

Do You Notice a Difference?



Science Behind This!



Your tongue is covered with taste buds. These taste buds can detect salty, sweet, sour and bitter foods.

When you eat, chemicals are released from the food. These chemicals travel up your nose. These chemicals and the taste buds tell your brain about the taste.



Spider Slime

YOU WILL NEED

- Chia Seeds
- Clear Glue
- Cornflour
- Water
- Cup
- Tray
- Spoon

1. Soak Chia Seeds in water for 4 hours.

2. When they look thick, add 20 ml of Glue.

3. Add Cornflour to make the mixture thick.

4. Add more Cornflour to make a drier slime.

Did You See?



You made a stretchy Slime!

Science Behind This!



Slime is made up of polymers. A polymer is made up of very large chains of molecules. The glue used in slime is made up of long chains of polyvinyl acetate molecules. These chains slide past one another, that keeps the glue flowing.

Teddy Zip Line

YOU WILL NEED

- Teddies
- String or Wire
- Pipe Cleaner
- Straw
- Stopwatch

1. Tie a String between two points, one higher than the other.
2. Make a harness for your Teddy. Use Pipe Cleaners and Straw.
3. How long does the teddy take to travel down the zip line?
4. Try different types of strings. Change the incline of the zip line.
   CHANGE ONLY 1 VARIABLE AT A TIME!

Which combination brings Teddy to the bottom of the Wire fastest?

Science Behind This!

A smooth wire and a smooth harness reduce the friction. Hence, the travel is faster.

Fossil Experiment

YOU WILL NEED

- Modeling Clay
- Clay modeling tools

1. Roll out a sheet of Clay.
2. Etch the shape of a fish on the sheet.
3. Let it dry.

Did You See?

You made your own Clay Fossil!

Science Behind This!

A fossil is the remains of a dead organism. After an animal dies, its soft parts rot away or are eaten by scavengers. Sediments cover the hard part (bones, teeth). More sediments cover this layer and turn into sedimentary rocks. Water seeps into the rocks and dissolves bones, leaving a replica of the original bone behind.



Journey Stick

YOU WILL NEED

- 20 cm long stick
- String
- Bands

1. Go for a walk.
2. After every 5 minutes, stop.
   YOU CAN ALSO STOP WHENEVER YOU SEE SOMETHING INTERESTING.
3. Each time, look around and choose an object that reminds you of that place.
   DO NOT PICK OBJECTS THAT ARE LIVING.
4. Tie these objects to your stick.

Ask your friend to make a journey stick for the same route.
Compare your stick to your friend's!

Science Behind This!

A journey or map stick is useful for working on our observational skills, communication and for learning about habitats.

It encourages us to think about features of our environment, the similarities and differences.



Mud Volcano

YOU WILL NEED

- Cornflour
- Water
- Straw
- Bowl
- Black Food Colour
- Cup

1. Pour 1 Cup Cornflour into Bowl.
2. Pour half Cup water into Bowl.
3. Place 1 Straw under the surface.
4. Blow through the Straw.
   DO NOT SUCK UP THE CORNFLOUR!

Did You See?

You made a Mud Volcano!

Science Behind This!

Azerbaijan has lots of oil and gas reserves. Mud volcanoes have formed above some of these reserves. These reserves release gases causing eruptions of water, sand, gas and oil.



Orange Peel Tectonics

YOU WILL NEED

- 1 Orange
- Plastic Knife
- Plate

1. Remove the peel from the Orange as one large piece.
2. Cut the peel in 3-4 pieces.
   THESE ARE YOUR TECTONIC PLATES.
3. Place the pieces back on the Orange.

Did You See?

Each piece of the peel represents a continental plate!

Science Behind This!

Earth's crust is made up of moving pieces called tectonic plates. When these plates collide with each other, volcanoes erupt, rifts form and earthquakes occur. This process is called plate tectonics.



Colourful Salt Crystals

YOU WILL NEED

- Bowl or Jug
- Table Salt
- Warm Water
- Spoon
- Plate
- Food Colours

1. Ask an adult to pour 200 ml warm water into a Jug.
2. Add 2 tablespoons of Salt. Mix to dissolve.
3. Add 6-8 drops of food colouring.
4. Pour a small amount of the salt solution on a flat plate.
5. Let it dry in a warm place for a few days.

Did You See?

Colourful salt crystals appear on the Plate!

Science Behind This!

Water evaporates in the warm weather, leaving behind salt crystals.



Syrup Races

YOU WILL NEED

- Maple Syrup
- Honey
- Glycerin
- Chopping Board
- Stopwatch
- Chalk or Marker

1. Place the Board like a ramp.
2. Draw a Start line on the Board. Draw a Finish line.
3. Pour the liquids down the ramp, one at a time.
4. Start the stopwatch when liquid passes the Start line.
5. Stop the stopwatch when liquid passes the Finish line.
6. Repeat for each liquid.

Which liquid is the fastest?

Which liquid is the slowest?

Science Behind This!

Viscosity is a liquid's resistance to flow. More viscous or thicker liquids flow slowly than thinner liquids. Thicker liquids have more internal friction. This friction slows them down.



Make a Sundial

YOU WILL NEED

- Chart Paper
- Paper Plate
- Clay or Dough
- Stick or Pencil
- Marker
- Alarm Clock

1. Roll Clay or Dough into a ball.
2. Fix the stick in the clay ball. Place it in the centre of the Paper Plate.
3. Go outside. Place the Chart paper on the ground.

   SELECT AN AREA THAT GETS FULL SUN.
4. Place the Paper Plate on the centre of the Chart paper.
5. Note the time. Mark a line on the Chart Paper, along the shadow of the Stick.
6. Repeat every hour.

Your Sundial is ready!
Use it to tell time when playing outside.

Science Behind This!

Earth rotates around its axis. Hence, for any location on earth the position of the sun changes during the day. Because of which the shadow cast by the sun changes as well. This change in shadows can be used to tell time.



Sink or Float?

YOU WILL NEED

- Different items like paper, coins, eraser
- Paper
- Pen or Pencil
- Big container or Bowl
- Water

1. Feel each item. Predict if each item would sink or float.
2. Record your predictions on a paper.
3. Fill a big bowl or container with water.
4. Test each item. Drop it carefully in water.
5. Record the results on the same paper.

How many did you get right?

Science Behind This!

Some objects are more dense than others. In more dense objects, molecules are tightly packed. In less dense objects, molecules are loosely packed. Objects that are more dense than water sink. Objects that are less dense than water float.



Friction Experiment

YOU WILL NEED

- Round Pan
- Marble
- Construction Paper
- Felt
- Craft Foam

1. Cut Construction Paper, Felt and Foam to fit into the Pan.
2. Roll the Marble in the Pan.
3. Place Construction Paper in the Pan. Roll the Marble.
4. Place Felt. Roll the Marble.
5. Place Foam. Roll the Marble.

Did you notice any difference?

Science Behind This!

There is a force that slows down moving objects. This force is called Friction. Some surfaces have more friction than others.



Sunscreen Painting

YOU WILL NEED

- Sunscreen
- Paintbrush
- Black Construction Paper

1. Paint using paintbrush and sunscreen on the black paper.
2. Place the painting in the sun.
   PLACE WEIGHT ON CORNERS SO THAT IT DOESN'T BLOW AWAY!
3. Wait for 3 to 4 hours.

Did You See?

Sunscreen covered paper was black. Rest of the paper had faded!

Science Behind This!

Ultraviolet waves in the Sun's rays break down the chemicals in the black paper. That's why the colour looks faded. Sunscreen makes a barrier between the paper and the Ultraviolet waves. This is how you avoid sunburns.



Coins Boat

YOU WILL NEED

- Large Bowl
- Water
- 30 Coins
- Aluminium Foil

1. Fill 3/4th of the Bowl with water.
2. Make a small boat using Aluminium Foil.
3. Place the boat in water.
   RESHAPE IF IT DOESN'T FLOAT.
4. Add Coins, one at a time.

How many Coins can your boat hold without drowning?

Science Behind This!

There are 2 primary forces in this experiment. Force of gravity pulls the coins and the boat downward. And, the force of buoyancy pushes the boat upward. Your boat will float as long as the force of buoyancy is greater than the force of gravity.

Eggshell Chalk

YOU WILL NEED

- 10 egg shells
- Plain Flour
- Hot water
- Food Colour
- Paper Towel
- Spoon
- Mat

1. Clean eggshells thoroughly. Let them dry.
2. Grind the dry eggshells.
   ASK AN ADULT.
3. Place Eggshell Powder in a bowl.
4. Add 2 tablespoons of Flour.
   Add 4 tablespoons of hot water.
5. Add Food Colour. Mix to make a thick paste.
6. Place the paste on a thick paper towel.
7. Roll the Paper Towel into a tube.
8. Leave the paste to dry for a few days.

Your Chalk is ready!

Draw your masterpiece!

Folding Mountains

YOU WILL NEED

- Towels
- 2 Boxes

1. Fold each towel in half. Stack them.
2. Place 1 Box on either side of the towels.
3. Push the Boxes towards each other.
4. Notice the folds and shapes.

Did You See?

You made a mountain!

Science Behind This!

Boxes represent the Earth's continental plates. Towels represent the sedimentary rock layers. Mountains are formed when 2 plates move towards each other and the sedimentary layers start folding and rising.



Water Xylophone

YOU WILL NEED

- Water
- Wooden Sticks
- 4 Mason Jars
- Food Colours

1. Fill each Jar with a different amount of water.
2. Add a different food colour to each Jar.
3. Tap each Jar, using the Wooden Sticks.

Did You See?

Each Jar made a different sound!

Science Behind This!

Sound waves are vibrations that travel through a medium. When sticks hit the Jar, vibrations are produced. These vibrations are sound waves. Jars with different amounts of water produce different vibrations. The more the water, the lower the pitch.



Does it Absorb?

YOU WILL NEED

- Sponge; Napkin
- Ziploc Bag
- Aluminium Foil
- Cotton Balls
- Sock
- Wax Paper
- Dropper
- Water
- Food Colour
- Bowl

1. Fill a bowl with coloured water.
2. Which material will absorb water? Write your predictions on a paper.
3. Squeeze coloured water on each material.

Were your predictions correct?

Science Behind This!

Materials that absorb water are called porous. Porous materials have pores or openings that allow air or water to pass through them easily. Materials that repel water or don't absorb water are called non-porous.



Salt Water Volcano

YOU WILL NEED

- Bottle or Jar
- Water
- Vegetable Oil
- Salt
- Food Colour
- Spoon

1. Fill half of the Bottle or Jar with coloured water.
2. Fill 1/4th of the Jar with Oil.
3. Sprinkle 1 spoon of Salt into the Jar.

Did You See?

You made a volcano!

Science Behind This!

Oil is less dense than water. Oil floats on water. Salt is denser than water. Salt sinks to the bottom. When salt falls, it carries some oil with it. When salt enters the water, it starts to dissolve in water. Because of this, the oil stuck to the salt becomes free and moves up to the top.



Screaming Balloon

YOU WILL NEED

- Balloon
- Hex Nut

1. Stretch the Balloon.
2. Push the Hex Nut inside the Balloon.
3. Blow the Balloon. Ask an adult to tie the Balloon.
4. Hold the Balloon like a bowling ball.
5. Spin the Balloon.

Did You See?

You heard a screaming sound!

Science Behind This!

When you spin the balloon, the hex nut inside the balloon starts moving in a circular path. The Hex nut has six sides. These sides bounce inside the balloon and vibrate against the inside wall of the balloon. These vibrations are the screaming sound.



Make Your Butter

YOU WILL NEED

- Plastic Container or Mason Jar
- Whipping Cream
- Salt
- Spoon
- Cup

1. Fill half of the plastic container with Whipping Cream.
2. Add 1/4th spoon of salt.
3. Screw the lid of the Container.
   DO NOT FILL MORE THAN HALF!
4. Shake the Container for 10 minutes.
   CREAM SHOULD BECOME A YELLOW BLOB

Did You See?

You made pure Butter!

Science Behind This!

Butter is a mixture of milk fat and water. This mixture is called an emulsion. When you shake the whipped cream, the fat molecules start to stick together. Over time more and more fat molecules stick together to form the blob of butter.



Invisible Ink

YOU WILL NEED

- Lemon Juice
- Clothing Iron
- Paintbrush
- Paper
- Bowl
- Towel

1. Write your secret message on a paper, using a paintbrush and lemon juice.
2. Let it dry.
3. Ask an adult to press the hot clothing iron on the paper.
4. Hold for a few seconds.

Did You See?

Your secret message was visible!

Science Behind This!

Lemon juice is made up of different types of sugars and acids. When lemon juice is heated, the sugars react with oxygen and turn brown.



Floating Rice

YOU WILL NEED

- Uncooked Rice
- Bottle
- Pencil

1. Fill the Bottle with Rice.
2. Stick the Pencil into the Rice. Pull the Pencil out.
3. Repeat until the Rice is packed tighter.

Did You See?

You lifted the bottle with the Pencil!

Science Behind This!

Friction between the rice grains becomes so strong that the pencil won't come out. And you can lift the bottle with the pencil.



Salt Vibrations

YOU WILL NEED

- Plastic Cup
- Balloon
- Salt
- Scissors
- Speaker

1. Cut off the neck of the Balloon.
2. Stretch it over the Cup.
3. Sprinkle Salt over the Balloon.
4. Switch on the Speaker.
5. Place the Cup near the Speaker.

Did You See?

The Salt started dancing!

Science Behind This!

Sound waves are vibrations. The sound produced by the speaker vibrates the salt crystals. And the salt crystals start dancing or vibrating.

Graphite Tree

YOU WILL NEED

- Wooden Tree
- Soft Pencil
- LED
- 2 Wires with Crocodile Clips
- 9V Battery

1. Use a Pencil to draw a garland on the Wooden Tree.
   NOTE: IT MUST BE UNBROKEN.
2. Connect 2 wires to the 2 ends of a 9V Battery.
3. Connect +ve wire to the longer leg of the LED.
4. Connect -ve wire to the bottom of the Garland.
5. Move the free leg of the LED over the Garland.

Did You See?

The LED lit up!

Science Behind This!

The Pencil lead is made up of Graphite. Graphite has a layered structure which helps the electrons to move freely. That's why it is a good conductor of electricity, which means current can flow through Graphite. And, that's why the LED lit up!

Highlighter School Trick

YOU WILL NEED

- Highlighter
- Lemon
- Cotton Swab
- Textbook

1. Highlight text in a textbook.
2. Dip a Cotton Swab in a half-cut Lemon.
3. Rub the dipped end of Swab on the highlight.

Did You See?

The Highlight disappeared!

Science Behind This!

Yellow Highlighter Ink contains a chemical called Pyranine. Pyranine fades in the presence of an acid. Lemon is acidic. Hence, the highlight disappears.

Bubble Notepad

YOU WILL NEED

- Tray
- Liquid Soap
- Pen
- Balloon
- Water

1. Pour water and Liquid Soap in a Tray.
2. Open up a Pen.
3. Attach a Balloon to the Pen.
4. Blow into the Balloon.
   ASK AN ADULT, IF NEEDED.
5. Release air through the pen, onto the Tray.

Did You See?

You can write and draw with Bubbles!



Science Behind This!

In normal water, bubbles are unstable; they burst quickly because of water's surface tension.

When soap is added, surface tension reduces. The bubbles do not burst and they stay together because of the foam.

Cranberry Messages

YOU WILL NEED

- Baking Soda
- Water
- Cotton Swabs
- Cranberry
- Paper

1. Add water and 4 spoons of Baking Soda in a Cup.
2. Dip a Cotton Swab in the Baking Soda solution.
3. Use the Cotton Swab to write a secret message on a paper.
4. Dry the Paper.
5. Rub some Cranberries on the Paper.

Did You See?

The message appeared!

Science Behind This!

Cranberries contain natural dyes. These are called Anthocyanins. They change colour in alkaline mediums. Baking Soda solution is alkaline. That's why the message (written in baking soda solution) changes colour.



Pure Gluten

YOU WILL NEED

- Wheat Flour
- Water
- Bowl
- Spoon

1. Mix 100 gms Flour with 5 tablespoons of Water.
2. Let the mixture sit for 2 to 2.5 hours.
3. Rinse the mixture with water.

Did You See?

You got a Yellowish Elastic Lump!

Science Behind This!

Flour is made up of mainly Gluten and Starch. Starch is soluble in water. Gluten does not dissolve in water. When you wash the flour, you get almost pure gluten. Grains such as rice and corn are gluten free.



Fake Skin

YOU WILL NEED

- Gelatin
- Glycerol
- Water
- Spoon
- Water Colour
- Bowl

1. Mix 2 spoons of Gelatin, 2 spoons of Glycerol and 2 spoons of water in a bowl.
2. Stir thoroughly.
3. Ask an adult to microwave for 2 to 3 minutes.
   THE MIXTURE SHOULD NOT BOIL!
4. Let it cool for a while.
   OTHERWISE IT CAN CAUSE A PAINFUL BURN!
5. Apply it on your hand.
6. Apply some red and brown colour

Did You See?

Your fake skin is ready!

Science Behind This!

When you heat the mixture, Glycerol molecules and water molecules come in between the Gelatin molecules. Attraction between Gelatin molecules becomes weak. That's why the mixture becomes elastic.



DIY Eco-Friendly Packet

YOU WILL NEED

- Glycerol
- Water
- Starch
- Pan
- Stove
- Non-Stick Baking Sheet
- Spoon

1. Mix water and Glycerol in a cooking pan. Heat to boil.
2. Add Starch. Stir. Wait for the mixture to become smooth.
3. Pour the mixture on a Baking Sheet.
4. Leave it for 2 days to dry.

Did You See?

You made a thin, eco-friendly film!

Use it to pack food!

The used film can be dissolved in water.

Science Behind This!

Starch is made up of large molecules. These molecules are called Polysaccharides. When you heat the mixture, these molecules form weak bonds with water and Glycerol molecules. When the mixture dries, these bonds strengthen and you have an elastic film!



Starry Tornado

YOU WILL NEED

- Star Confetti
- Transparent Bottle
- Water
- Glycerol

1. Fill a bottle with water.
2. Add Star Confetti and cap the bottle.
3. Shake the bottle.

What happens?

4. Pour out half the water from the bottle.
5. Add Glycerin.
6. Cap the bottle and shake again.

Did You See?

The Confetti settled down much more slowly!

Science Behind This!

Glycerol is more viscous than water. In a more viscous liquid, the confetti faces more friction while coming down. That's why the confetti comes down more slowly in Glycerol than in water.



Magic Syringe Prank

YOU WILL NEED

- Syringe
- Balloon
- Thread

1. Tie a barely inflated balloon with a thread.
2. Place it in a Syringe.
3. Ask your friend to move the Plunger of the Syringe.

What happens?

4. Block the nozzle of the Syringe with your finger.
5. Pull the Plunger of the Syringe.

Did You See?

The Balloon inflated!

Science Behind This!

When you block the nozzle, you fix the amount of air inside the Syringe. Upon pulling the Plunger, air pressure decreases inside the Syringe. Air pressure inside the Balloon is higher than the surrounding air. Hence, to balance the pressure the balloon inflates.



Invisible Picture

YOU WILL NEED

- Glass
- Hot Water
- Wax Candle
- Paper
- Watercolour Paints
- Paintbrush

1. Drop some Candle Wax in a Glass.
2. Add hot water.
3. Dip a paintbrush in the melted wax.
4. Draw an invisible painting on paper.
5. Apply watercolour paint on the paper.

Did You See?

Your hidden painting appeared!

Science Behind This!

Wax is made up of fats and fatty acids. Fat molecules repel water molecules. Watercolour paint is mainly made up of water molecules. These coloured water molecules are repelled by the wax painting and are absorbed by the remaining paper. Hence, your painting becomes visible.

DIY Liquid Soap

YOU WILL NEED

- Glass with a lid
- Glycerin
- Soap Bar
- Boiling Water
- Spoon
- Grater
- Empty Container

1. Grate 1 Soap Bar.
2. Mix 2 spoons of grated Soap Bar, 1 spoon of Glycerin and 1 litre of boiling water in a glass.
   ASK AN ADULT FOR BOILING WATER.
3. Cover the glass with a lid.
4. Store in a cool dry place for 3 hours.
5. Transfer to an empty dispenser.

Did You See?

Your liquid soap is ready!

Science Behind This!

Soaps are made up of mainly sodium salts and fatty acids. Soap sticks to the dirt and grease on your hands and takes away microorganisms with them when washed.

Candle Seesaw

YOU WILL NEED

- Candle
- Matchbox
- Needle
- 2 Glasses
- Tray

1. Find or make a Candle which has wicks on both ends.
2. Find the centre of the Candle.
3. Pierce it with a Needle.
   ASK AN ADULT.
4. Place 2 Glasses on a Tray. Place the Needle on the Glasses.
5. Light both ends of the Candle.
   ASK AN ADULT.

Did You See?

The Candle seesawed on its own!



Science Behind This!

When the wick burns, candle wax drops on the tray. One end of the candle becomes heavier. This end swings down. The flame at this end becomes bigger and burns more wax. This end now becomes lighter and lifts up. And this goes on.

Break A Nail

YOU WILL NEED

- 2 Nails
- 4AAA Batteries
- Battery Holder
- 2 Alligator Clips
- Wires
- Brush
- Molten Wax
- Soy Sauce
- Glass

1. Apply molten wax on 1 Nail.
2. Remove wax around the centre of this Nail.
3. Place this Nail and another Nail in a glass.
4. Fill the glass with Soy Sauce.
5. Connect +ve end of the Battery Holder to the Wax-coated Nail.
6. Connect -ve end to the other Nail.
7. Leave for 30-40 minutes and remove the Nails.

Did You See?

Coated Nail had dissolved at the gap. You can break it easily!

Science Behind This!

Soy Sauce contains a lot of salt. That's why it is able to conduct electric current. When the nails are connected to the battery, the current flows. On the positive electrode, the exposed part of the waxed nail dissolves.

DIY Kombucha

YOU WILL NEED

- Black Tea
- Sugar
- Apple Cider Vinegar
- Boiling Water
- Large Glass Jar
- Thin cloth
- Sieve
- Rubber Band
- Bowl

1. Pour 3 spoons of Black Tea and 100 gms sugar in a bowl.
2. Add 1 litre of boiling water. Stir well to cool.
   ASK AN ADULT.
3. Transfer the liquid to a Glass Jar.
4. Add 4 spoons of Apple Cider Vinegar.
5. Cover the Jar with gauze or thin cloth.
6. Store in a dark, warm place for 3 weeks.

Did You See?

A thin film formed on the solution's surface!

Science Behind This!

The yeast ferments sugar to form alcohol and carbon dioxide. The acetic acid bacteria oxidises the alcohol and converts it into organic acids. They gradually make a thin film on the liquid's surface. As the bacteria and yeast multiply, the film thickens and becomes jellyfish-like.

Sugar Snake

YOU WILL NEED

- Powdered Sugar
- Baking Soda
- Cup
- Lighter Fluid
- Bowl of Sand
- Spoon
- Matchstick

1. Mix 4 spoons of Powdered Sugar and 1 spoon of Baking Soda in a cup.
2. Pour some Lighter Fluid into a bowl of sand.
   ASK AN ADULT.
3. Transfer the sugar-baking soda mixture into the bowl of sand.
4. Set it on fire.
   ASK AN ADULT.

Did You See?

A Sugar Snake began to grow!

Science Behind This!

Burning the mixture of Baking Soda and Sugar produced Carbon, Carbon dioxide, water vapour and Sodium Carbonate. Carbon dioxide and water vapour are gases. These gases foam the Carbon and make a snake like body which is airy and porous.

DIY Water Filter

YOU WILL NEED

- Charcoal
- Plastic bottle
- Cotton Balls
- Hammer
- Napkin

1. Wrap the Charcoal in a napkin.
2. Hammer the Charcoal into small pieces.
   ASK AN ADULT.
3. Make some holes in the bottom of a plastic bottle.
4. Insert some Cotton Balls into the bottle.
5. Add some Charcoal and another layer of Cotton Balls.

Your Water Filter is ready!

Science Behind This!

When you pass dirty water through your water filter, cotton balls trap the large particles of dirt. Charcoal has tiny holes and pores. It traps smaller pollutants. Water molecules being very very tiny pass through the filter. This filter does not clear microorganisms and heavy metals.

Homemade Cement

YOU WILL NEED

- Building Lime
- Water
- Bowl
- Spoon
- Sand
- Bricks

1. Mix Building Lime with water in a bowl.
2. Add sand and stir.
3. Apply it to bricks and leave them for a week.

Did You See?

The Bricks stuck together!

Science Behind This!

Lime is Calcium Oxide. It reacts with water and air to form Calcium Carbonate. It envelops and sticks the sand particles together.

DIY Ferrofluid

YOU WILL NEED

- Laser Printer toner
- Vegetable Oil
- Glass
- Spoon
- Strong Magnet

1. Mix some Laser Printer Toner with some Vegetable Oil.
   WEAR A MASK WHILE POURING TONER.
2. Make a thick liquid.
3. Hold the Magnet close to it.

Did You See?

The liquid is attracted to the Magnet!

Science Behind This!

Laser Printer Toner contains a substance called Magnetite. Magnetite is mixed Iron Oxide. It is strongly attracted to Magnets.



Cleaning Egg Whites

YOU WILL NEED

- Egg
- Citric Acid
- Napkin

1. Sprinkle some Citric Acid on a spilled Egg White.
2. Wait for a few minutes.
3. Wipe with a napkin.

Did You See?

It was easy to wipe everything up!

Science Behind This!

Egg white is alkaline. It contains ovalbumin protein. Ovalbumin denatures in an acidic environment. When Citric acid is added, it neutralises egg white and denatures the ovalbumin.



Pumpkin Slime

YOU WILL NEED

- Leftover Pumpkin
- Clear Glue
- Contact lens solution
- Baking Soda
- Spoon

1. Pour PVA Glue in a leftover pumpkin.
2. Add Contact Lens Solution.
3. Add Baking Soda.
4. Stir using a spoon.

Your Pumpkin Slime is ready!

Science Behind This!

PVA Glue has polyvinyl alcohol. It is made up of long molecules. These molecules combine together, like spaghetti, in the presence of Baking soda and Boric acid (in contact lens solution). So the glue thickens rapidly and turns into slime.

Lung Capacity

YOU WILL NEED

- 2 Clear Bottles
- 2 Straws
- Clay
- Marker
- Water
- Scissors

1. Mark levels on a clear bottle using a Marker.
2. Make 2 holes in the bottle cap.
3. Pass 1 Straw through each hole. Seal the holes.
4. Cap the bottle.
5. Insert the free end of 1 straw into an empty bottle.
6. Take a deep breath and exhale into the other straw.

Did You See?

Water leaked into the empty bottle!

Science Behind This!

On an average human lungs have a capacity of 4-6 litres. Lung volume is measured through four indicators: tidal volume, inspiratory reserve volume, expiratory reserve volume, and residual volume. This experiment measures tidal volume. It is the amount of air inhaled and exhaled during normal respiration. On average, this ranges from 300 to 500 mL.

Balloon In Bottle

YOU WILL NEED

- Balloon
- Plastic Bottle
- Scissor

1. Slip a Balloon inside a Bottle. Stretch the Balloon's mouth around the mouth of the bottle.
2. Take a deep breath and blow into the Balloon.

Were you able to blow the Balloon?

3. Ask an adult to punch a hole near the base of the Bottle.
4. Try to blow the Balloon again.

Did You See?

The Balloon inflated this time!

Science Behind This!

When you try to blow the balloon the first time, the bottle is filled with air. There is no space for more air. Hence, the balloon does not inflate. When you punch a hole in the bottle, the old air can move out from the bottle so that the new air (when you blow the balloon) moves in.

1192 - VS03D260923