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Inspiring Nurseries and Pre-Schools

SCIENCE WEEK

with Kindred Nurseries

OUR LITTLE BOOK OF SCIENCE

Fun science experiments for little hands using ingredients found in the kitchen cupboard!

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This Little Book of Science is your 'one-stop-shop' for fun experiments to explore during this year's British Science Week!

All the experiments use ingredients you will find in the kitchen cupboard and offer great opportunities for learning without your little one even realising they are learning!

Let's get started with creating those moments of awe and wonder - now, which experiment to try first...

British Science Week is a ten-day celebration of science, technology, engineering and maths. This year it is between the 5th and 14th March.

Our teams have been busy planning wonderful activities and experiments for our children to get stuck into across all our Kindred nurseries - it is a week we are particularly passionate about and our aim is to create endless possibilities of exploring and learning about the world around us.

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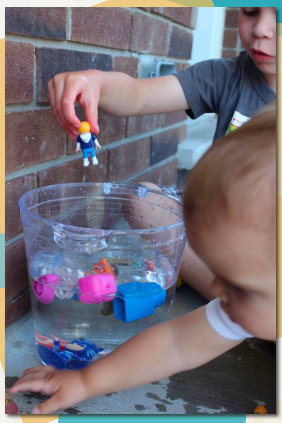

What You Need

- ☑ A large container, preferably transparent
- ☑ Light and heavy objects
- ☑ Water

How You Do It

1. Help your little ones collect objects up from around the house, guessing whether they will sink or float as you go along.
2. Fill the container up with water and decide between you which order you will test the objects in.
3. Take it in turns to drop an object into the water – after guessing one final time whether it will sink or float.

This is a classic science activity that explores the principle of buoyancy and can be done with even very young children. It engages everyone in the group as guesses come flying in – making it super collaborative and high-spirited.

Sink or Float?

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What You Need

- ☑ Cornflour
- ☑ Water
- ☑ Food Colouring (optional)
- ☑ Large Bowl
- ☑ Spoon

How You Do It

1. Pour your cornflour into a large bowl. NOTE: You will need at least double the amount of cornflour to water. (So, if you have 2 cups of cornflour, you'll add approx 1 cup of water, but experiment with this, that's the fun part!)
2. Add some food colouring to your water.
3. Slowly add your water to your cornflour, ensuring not to add more than half the amount of water to cornflour ratio.
4. Give it a stir part way through. This is a fun part of the experimenting. It allows children to see what is happening at this point and make decisions as to whether more water is required or not.
5. You will know when your slime has all come together. It should be easy to stir slowly and flow like a liquid, but try giving it a fast stir and see what happens!

This activity is a bit messy, but really fun and hands-on; children love exploring the strange properties of this cross between a liquid and a solid.

It is sure to delight young and old alike!

EXTEND

Part of the fun is getting the mix right so that you can form a solid (like a ball) that then turns into a fluid. Challenge children to roll a ball. Can they bounce it? Can they keep it from "melting" (lots of giggles here!).

Try adding some little plastic creatures like dinosaurs or insects to your slime to further the play.

Crazy Cornflour Slime

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What You Need

- ☑ Celery sticks (or white flowers)
- ☑ Glasses of water
- ☑ Food dyes

How You Do It

1. Put celery sticks (preferably with leafy tops) in separate glasses of water.
2. Add different food dye colours to each of the glasses of water.
3. Within an hour or two the celery will change colour as the dye moves up through capillary action.

Show how water moves up through plants using food colouring. This activity works particularly well (and quickly) with celery, but you could also use white-petalled flowers.

Colourful Capillary Action

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What You Need

- [x] Warm tap water
- [x] 3 tbsp baking soda
- [x] A glass of vinegar
- [x] Gummy worms
- [x] Empty glass
- [x] Spoon

How You Do It

1. Cut the gummy worms in half, length ways (try using a wet knife or one dusted with baking soda to prevent the worm from sticking to the knife).
2. Measure out 3 tablespoons of baking soda and stir them into a glass filled with 1 cup of warm water. Mix the worms into the baking soda and water concoction.
3. Now comes the hard part - wait a whole 15 minutes for the worms to soak in the baking soda mixture.
4. Fill a second clear glass with vinegar. As soon as the 15 minutes is up, carefully fish the worms out with a fork and start placing just a couple worms in the vinegar. They will instantly start forming bubbles. After a few seconds, the worms will be covered in enough bubbles that they started rising from the bottom, writhing their way to the surface - dancing along!

Inanimate objects wiggling round on their own is such a thrill for children, and adults. This activity brings hands-on fun together with the spellbinding reactions of science to make dancing worms. The bonus? If one or two worms are gobbled up during the activity, you can write it off as well-justified experimentation.

Dancing Worms

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What You Need

- ☑ 5 small containers
- ☑ Food Colouring
- ☑ Baking soda
- ☑ Vinegar

How You Do It

1. Place a few drops of food colouring at the bottom of each small container.
2. Fill up each container 1/2 way with vinegar.
3. Drop 1 to 2 teaspoons of baking soda into each container.
4. The mixture will start to fizz, then it will bubble, then it will rise, and before you know it, the colours will explode over the containers and melt into each other on the surface.

The reaction happens quickly, so be ready! If there is leftover liquid in the containers, add a little more baking soda or vinegar, and watch it happen again.

And don't forget to explain to your little ones how it works: Carbon dioxide is a gas that's created when vinegar (an acid) is mixed with baking soda (a base).

Rainbow Eruption

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What You Need

- [x] 2 cups of cornflour
- [x] 1/3 to 1/2 of a cup vegetable oil
- [x] Edible (just in case) glitter (optional)

How You Do It

1. Mix the ingredients together with a spoon until combined, then use fingers to rub the oil right into the flour until it's completely integrated. It should feel smooth, slightly damp and will take a form if moulded.
2. Add objects you could find in the snow like toy polar bears or penguins. Encourage children to use their imaginations to create a fantastic Arctic small world scene. Have a go at forming some snow balls in your hands or blocks to build your own igloo.

It's so soft and silky and yet can be moulded loosely into shapes. Best of all, it can be made form just 2 ingredients! And it's SO easy, bright white and even crunches between your fingers like snow!

This is a great sensory activity.

DIY Snow Play

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DIY Lava Lamp

What You Need

- ☑ An empty jar
- ☑ Water
- ☑ Bicarbonate of Soda
- ☑ A torch
- ☑ Food colouring
- ☑ Sunflower oil

How You Do It

1. Open the jar and pour the sunflower oil into the jar to about halfway.
2. Add some drops of food colouring into the oil.
3. Top it up with water.
4. Switch on your torch and put it behind the jar.
4. Put in a spoonful of bicarbonate of soda and put the lid back on.
4. Watch your lava lamp fizz!

When you drop in the alka-seltzer or Bicarbonate of Soda, it sinks to the bottom and starts dissolving. As it dissolves, it forms a gas which rises to the top and takes a little of the coloured water with it. The gas bubble breaks on the surface and the coloured water sinks back to the bottom.

This is a great experiment for all ages, even our littlest ones will love watching the coloured bubbles rising.

EXTEND

Try using a type of alka-seltzer effervescent tablet instead of Bicarbonate of Soda.
Try using different types of oil.
Try mixing the different types of oil to get your favourite "lava" flow.

Credit: CBeebies

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What You Need

- ☑ Balloons

How You Do It

1. Inflate and tie some balloons. Encourage your child to rub the balloon on their hair and gently raise it so that they can their hair stand up. Stand in front of a mirror so that they can see it too.
2. Turn it into a game: Let them rub the balloon again, on their hair or a woollen pullover, and try to stick it to the wall. You do the same. They will enjoy seeing whose balloon stays up for the longest. For a more active game, encourage them to recharge and reapply the balloons to make sure that the wall always has at least one balloon stuck to it. See how long they can keep this going!

Static electricity experiments are a way of introducing exciting scientific concepts to young children in a playful way. It engages their attention and enables them to gain hands-on experience.

EXPLAINING THE SCIENCE

Static electricity is a form of energy which can flow from one place to another, or remain in one place. Electricity that moves is current electricity which flows through wires to power lights, televisions and other appliances. Electricity which collects in one place is called static electricity (static meaning still or non-moving).

Static electricity can be created by rubbing certain things together, like the balloon on hair or wool. Explain it as invisible energy getting stored up on the balloon. Explain that the rubbing has not created it, but that tiny pieces of electricity called electrons are transferred from one material to the other. Depending on how many they end up with, they either get drawn together or push each other away, like different ends of a magnet.

Discovering Static Electricity

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Finding a Rainbow

What You Need

- A glass or glass bowl
- White piece of paper
- A sunny windowsill or sunny outside area

How You Do It

1. Fill the glass or bowl of water up with water and place it in a sunny are or on a sunny windowsill.
2. Look around the glass, on the floor or the wall, for a rainbow. It might be easier to see the rainbow by p;lacing a piece of white paper near the glass.

Before starting this experiment, begin by chatting to your child about rainbows. Have they seen one in the sky? When did they see it? Where was it?

Remind them that for there to be a rainbow it needs to be both sunny and rainy at the same time!

EXTEND This experiment can also be done outside on a sunny day. Use a hose to create a fine mist and hold it up in the air - you should be able to see a rainbow through the mist. Remember to have your back to the sun for this one!

What You Need

- ☑ Ice Cube Tray
- ☑ Eye Dropper
- ☑ Food Colouring
- ☑ Water
- ☑ Assortment of Bowls

How You Do It

1. Freeze coloured water in ice cube trays. A good starting point is 4 red, blue and yellow ice cubes.
2. Set out an assortment of small bowls, an eye dropper and warm water.
3. First put one of each coloured cube into separate bowls and use the warm eye dropper to melt them.
4. Next chose a different colour to mix in each bowl, but first guess what colour it is going to make!
5. Finished by melting the three colours together to get a brownish, black colour.

Interesting Observation: If you melt more of one cube before the other, you can change the shade of the two colours being mixed. More blue-green or more yellow-green until the two cubes are thoroughly melted!

Frozen Colour Science

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Creating **awe** and **wonder** in every moment

Kindred Nurseries is a family of inspiring nurseries and pre-schools with a distinct home from home environment. Kindred's central mission is to create inspiring worlds full of awe and wonder for little ones to grow and thrive in.

By creating days filled with unique moments and opportunities, each nursery is able to truly enrich a child's development during the 0-5 years.

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