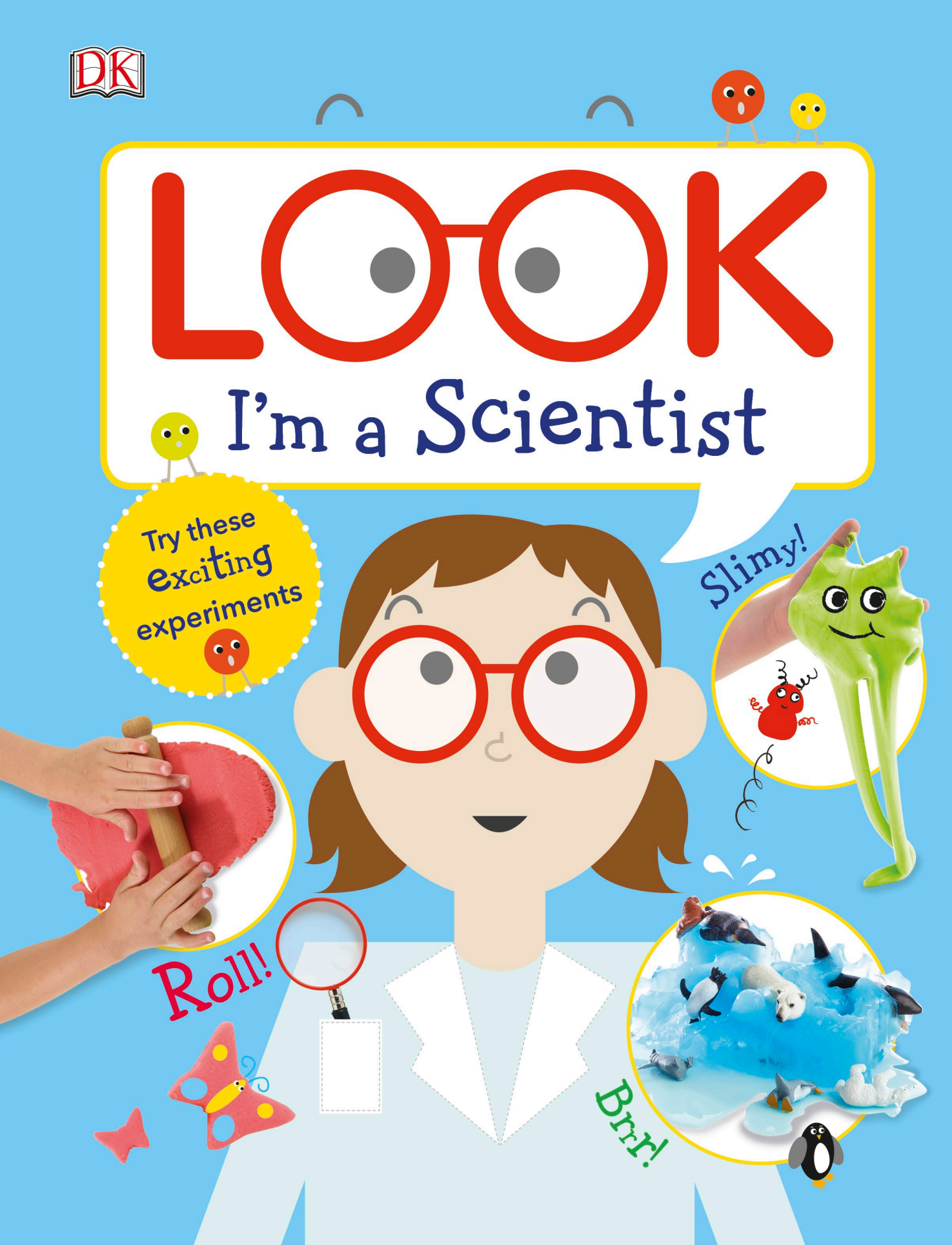
DK
LOOK
I'm a Scientist
Try these exciting experiments
Slimy!
Roll!
Brr!

LOOK

I'm a Scientist

DK

For the grown-ups

This book is full of hands-on activities that will tap straight into your child's natural scientific curiosity. Each activity is designed to let your child play and learn with all their senses. Together, you can grow their love of science and their understanding of the world.

Here are a few tips to help you along the way:

Your child should be supervised at all times when conducting these experiments, but try to give them time and space to lead the direction of play. The questions in this book are suggestions. Let your child ask, and answer, their own questions.

•

Involve your child in the preparation of each activity. Let them measure, mix, and follow the instructions. The measurements in this book are often proportional, so you can use the same cup or mug to measure equal quantities of ingredients.

•

Adult Alert stars show where your child will need extra grown-up help.

•

Protect the area where your child will be playing and encourage them to wear old clothes. Be especially careful when using food colouring, which can mark fabrics and temporarily stain skin. Being prepared lets your child enjoy themselves to their fullest. Making a mess is part of fun and learning!

Editor Hélène Hilton
Design and Illustration Rachael Parfitt Hunt
Additional Design and Illustration Charlotte Milner
Educational Consultant Penny Coltman
Photographer Dave King
Additional Photography Lol Johnson
Jacket Designer Charlotte Milner
Jacket Co-ordinator Francesca Young
Editorial Assistance James Mitchem, Marta Rybarczyk
Design Assistance Eleanor Bates, Rachael Hare, Pauline Korp
Pre-production Dragana Puvacic
Production Amy Knight
Managing Editor Penny Smith
Managing Art Editors Mabel Chan, Gemma Glover
Publisher Mary Ling
Creative Director Jane Bull

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Contents

Little minds have big ideas!

You don't need a **white coat, safety goggles,** and a **fancy lab** to be a scientist. You already have everything you need to be the best scientist ever: **your brain** and **your amazing senses**!

Curious questions

Science is about asking questions, as much as answering them. Here are some questions to ask yourself as you play.

- What will happen if I do this?
- What can I hear, smell, see, taste, and feel?
- Why did that happen?
- Does the same thing always happen?
- How can I find out more?

Your science senses

Brain

Your brain is not one of your senses, but it gathers information from them all and tries to understand it.

Hearing

There are so many noises to listen to! What can you hear?

Sight

Super scientists use their eyes for looking really, really carefully.

Smell

Use your nose to find smelly clues!

Taste

Your tongue is great at tasting different flavours.

Touch

Your skin tells you how things feel. Be careful with objects that might be hot, cold, sharp, or that might hurt.

Let's see what we can do!

Ooey gooey slime

Mix up your own easy-peasy **slime**. Then see how it acts as both a **liquid** and a **solid**.

You will need:

2 cups cornflour + 1 to 2 cups washing-up liquid + food colouring + 1 to 2 cups warm water

Scientists say that slime is "viscous". That means it's thick and sticky.

1 In a bowl, **mix** the cornflour, washing-up liquid, and a few drops of food colouring.


2
Add a little of the **water** to your slime and mix until **smooth**.
pour
mix
smooth
3
Keep adding **water** and mix until your slime is **runny** but **thick**.
Time to get all slimy! Ewwwww!
Experiment to see how much water, washing-up liquid, and cornflour makes the perfect slime.
slimy

Now turn your slime into aliens!

Let it flow

Hold the slime in your hands to watch it **flow** through your fingers like a **liquid**.

squash and squeeze

Roll it

If you roll up the slime, the tiny bits of cornflour inside squash together and the slime becomes **hard** like a **solid**.

How far can your slime stretch?

What planet are you from?

Try adding googly eyes to give your alien a face.

SENSE-ible science

- Can you feel the slime change as you play?
- How does the slime smell? Do you like it?
- Is the slime squelching in the bowl?
- Do you think your slime is a liquid or a solid?

Liquids

Liquids flow and can change the shape that they take.

Solids

Solids are stiff and hold their shape.

Can you think of other liquids and solids?


water


juice


spoon


brick

Iceberg animal rescue

Water is a **liquid**, but what happens when it gets very cold? It freezes into **ice** - a **solid**! Make an **iceberg** then **melt the ice** to rescue the animals.

You will need:

plastic tub

plastic toy animals

water

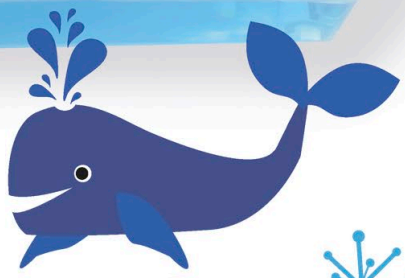
blue food colouring

Water flows. It feels wet and you can splash in it! Where can you see water around you?

Icebergs are huge blocks of ice that float in the sea.

10

Pour **water** and a few drops of food colouring in a freezable tub. Add your **animals**.



I use my flippers to swim.

Yay! It's my turn next!

Can you splash?

2

Put the tub and your toy animals in the **freezer** overnight.

3

Is the iceberg frozen? Turn the tub upside down until your iceberg pops out.

Adult ALERT!

Check your freezer to see what is happening to the water. When it gets to 0°C, the water will start to freeze.

Brrr!

It's cold in the freezer.

To the rescue!

Your rescue tool kit:

water
Warm water heats up the ice and melts it.

sponge
Use a sponge to soak up the water.

salt
Salt turns solid ice back into liquid water.

spoon and fork
Carefully use a spoon or fork to break the ice.

Squeeze

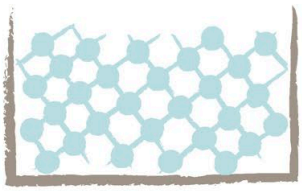
Pour **warm** water on the ice or squeeze it on with a sponge.


Melting the ice
Scatter some **salt** on the iceberg to see what happens! Does it **melt** the ice?
In real life, penguins and polar bears never meet. They live on opposite sides of the world.
Thanks for rescuing us!
Spoon rescue
Carefully use a spoon or fork to **wiggle** the animals free.

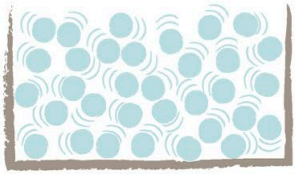
melting

From ice to water

If water gets cold enough, the molecules (the tiny water bits) hook on to each other and stop moving. The water goes stiff and turns to ice (it freezes from a liquid to a solid). Melting is the opposite of freezing.



solid ice



liquid water

SENSE-ible science

- What is the best way to melt the ice?
- Does the ice make a cracking sound?
- Can you see the ice melting back to liquid water?
- Can you feel the difference between the ice and water?

Float your iceberg in warm water to watch it melt super fast.

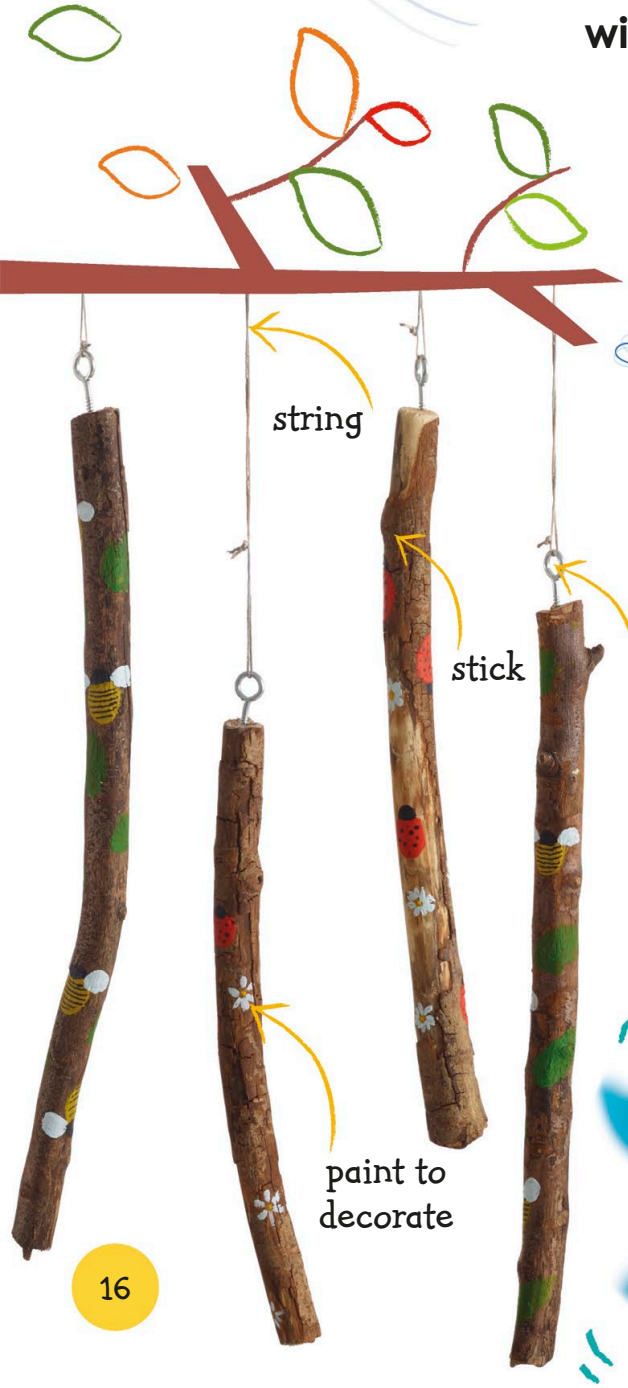
How does your iceberg feel?

The warmth from your hands makes the ice melt. The ice makes your hands cold too.

Brrr!

Blowing in the wind

Air is all around you. When air moves from one place to another, we call it **wind**. You can't see air, but it's **strong** enough to blow your hat off!



Attaching the screw eyes can be tricky. Ask an adult for help.

Adult ALERT!

Hear the wind

You can make simple **wind chimes** with sticks. Hang them outside then listen to the wind **bang** the sticks together.

You breathe in and breathe out air with your lungs. You can use this air to blow on a paper windmill and make it spin.

See the wind

Make this rainbow **wind catcher** then watch the wind move the ribbons. Thread ribbons onto a hoop and hold it up outside. The wind will **lift the ribbons** like a kite. Can you see which way the wind is blowing?

Brilliant balloons

Balloons are great to **play** and **experiment** with. Take **a big breath in** and blow into your balloon to fill it with **air**. Then try these tricks.

Hair-raising electricity

Rub the balloon on your hair. Then lift the balloon above your **head**. What happens to your **hair**?

It's electric!

Rubbing the balloon on your hair makes a special kind of electricity called static electricity. This makes your hair stick to the balloon.

I'm powered by electricity.

Balloon rocket

Thread the string through a drinking straw.

tape

Tie up the string tightly.

balloon

Thread string through a straw and tie it up tightly. Blow up your balloon, pinching the end closed. Tape it to the straw. **Ready, steady... Let go!**

When you let go, air rushes out of the balloon and pushes the balloon forward. How fast will it go?

Make a hovercraft

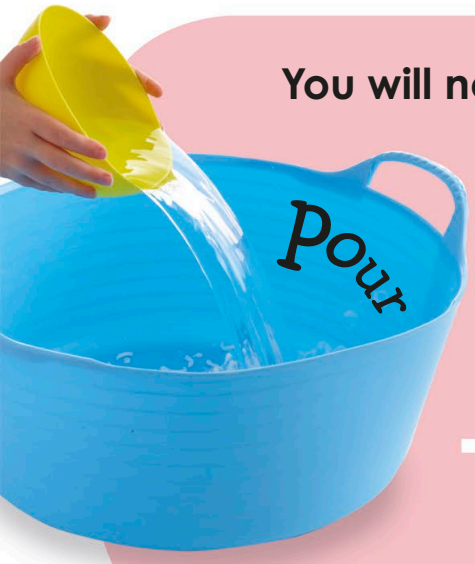
Stick a pop-up bottle cap onto an old CD or DVD. Pull a blown-up balloon on top. Then open the cap. Push your **hovercraft to watch it glide** along the table!

Air flows out of the balloon and through the cap. This makes an air cushion under the disc and lifts the hovercraft a tiny bit off the table.

Tiny bubbles

You can make **great bubbles** by trapping **air** inside **soapy water**. These bubbles are small and super soft.

You will need:



warm water + soap + food colouring

These bubbles are so tiny that you have to look closely to see them. Together they make a thick foam.

1

Very carefully, **grate the soap** into little bits. Be careful of your fingers!

cheese grater

Adult ALERT!

2

Add the grated soap to warm water and mix it around until it **dissolves**.

3

Whizz up bubbles in your mixture with a hand mixer until they make a thick foam that holds its shape.

soft and squishy

hand mixer

plastic tub

Adult ALERT!

4

Add food colouring to make your bubbles **more colourful**.

What **shapes** can you make?

What shape is a bubble?

Play with your bubbles, but DON'T EAT THEM!

BIG bubbles

Use a hula hoop to make these **HUGE** bubbles!
How tall can you make them?

You will need:

paddling pool
half-full of water

+

1 bottle of
washing-up liquid

+

1 bottle of
glycerine (optional)

Glycerine only works if you make your bubble mix a few days ahead.

How big is your bubble?

Glycerine makes bubbles stronger.


Wow! This bubble is taller than me!
Mix all your ingredients in a **paddling pool**. Dip a **hula hoop** into the mix and **slowly lift it** out to make a long bubble.
hula hoop
SENSE-ible science
What bubble shapes can you make?
Can you see colours in your big bubbles?
Do the big bubbles feel the same as the tiny bubbles?
What other objects could you use as a bubble wand?

Hear that sound?

SENSE-ible science

- Do all noises sound the same?
- Can you see the water rippling when you tap the bottles?
- What different sounds can you make?

When objects **touch** each other, they **vibrate** (move backwards and forwards). This makes the **air** vibrate too. Your ears pick up the **vibrations** and **your brain turns them into sounds.**

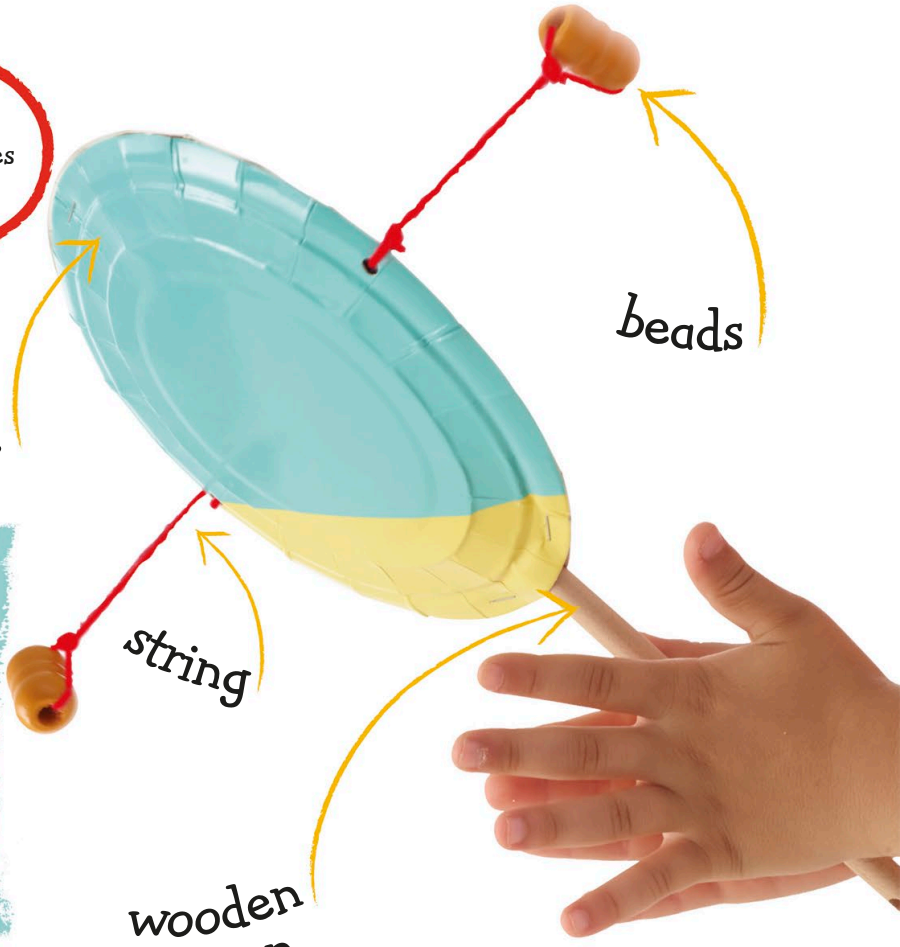
Musical bottles

Fill glass bottles with water. When you **tap** the bottles, the water and the air inside them **vibrate**. Depending on how much water and air they contain, the bottles make **different sounds**.

Spin the drum so that the beads hit the paper plates and make a banging sound.

Spinning drum

To make a drum, tape a wooden **spoon** between 2 **paper plates**. Stick the plates together. Then attach 2 **beads** to the sides of the plates with **string**.



Let's make a potion

Be a **science wizard** with this awesome potion experiment. This is a real **chemical reaction** you can do at home. It's messy, so be prepared!

You will need:

vinegar

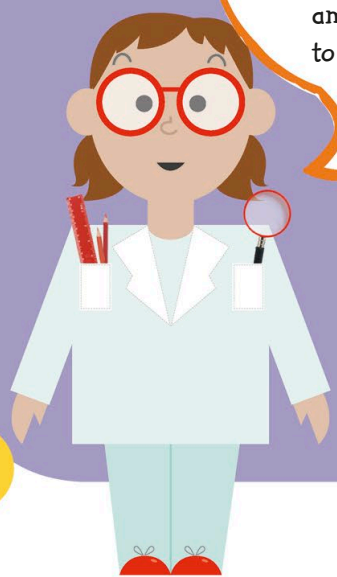
washing-up liquid

food colouring

glitter and glitter stars

baking soda

Trial and error is a big part of being a scientist. Try this experiment with different amounts of the ingredients to see if anything changes.



Make your potion magical!

1

Half fill a glass jar with **vinegar** and squeeze in a little **washing-up liquid**.

The washing-up liquid will help make it ...

2

... really, really bubbly!

Add a few drops of food colouring and some glitter. Give the mixture a **good stir**.

Wow! Pretty glitter stars!

3

Add a big spoonful of **baking soda** and **stir** it in. Quickly take out the spoon and **watch what happens**.

Watch your potion...

Fizzy chemistry

When vinegar and baking soda meet, they react with each other. Together, they make a gas called carbon dioxide. This gas floats away so it makes lots of bubbles as it escapes.


...fizz!
SENSE-ible science
Does your potion make a noise?
Can you describe how your potion smells?
What do the bubbles feel like?

The Milky Way

Make these awesome milky **planets** and watch the colours **swirl** round and round as the **milk** tries to escape from the **washing-up liquid.**

You will need:


full-fat milk

+


washing-up liquid

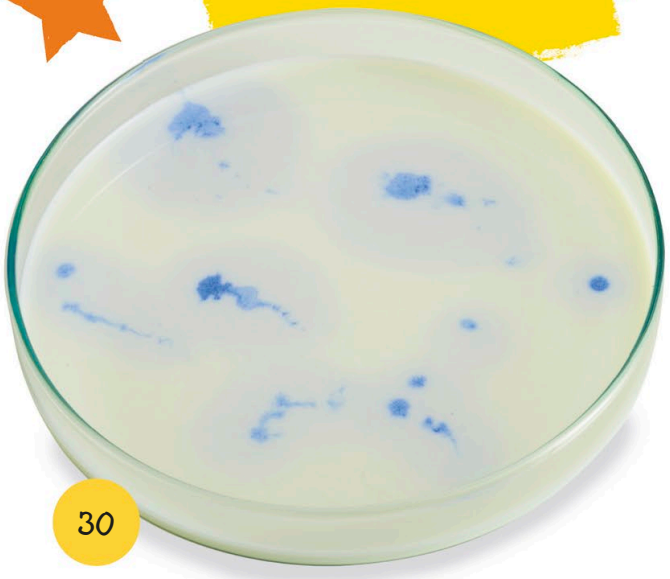
+


cotton buds

+


food colouring

1 Pour **milk** into a dish or jar lid and add a few drops of **food colouring**.



2 Dip a cotton bud in **washing-up liquid**. Swirl the cotton bud around in the milk and watch what happens.

SENSE-ible science

- What happens when the colours mix?
- Do you know the names of any planets?
- Do your milky planets look like real planets?

Our galaxy

At night, our galaxy looks like a white starry path, so we call it the **Milky Way**.

Real planets have swirls too. These are usually huge storm clouds.

Swirling milk

The washing-up liquid makes the fat inside the milk move around in all directions. By adding colour, you can see the milk swirl and twirl.

Homemade playdough

Playdough is even **better** when you make it yourself! **Mix** your ingredients together to make a really squishable dough.

You will need:

food colouring (optional)

2 cups plain flour + 1 cup salt + 2 tablespoons of oil + 2 teaspoons of cream of tartar + 2 cups water

1 Pour **all the ingredients** (except the food colouring) into a saucepan.

2

mix
mix
mix

Place the pan on a **medium heat.** Mix everything together until the ingredients form a **dough**.

Adult ALERT!

Be careful, it's hot!

Make your dough colourful.

3

squeeze

Let your dough cool, then add food colouring. Now **squeeze** the dough until it's **smooth and soft**.

Play with your playdough

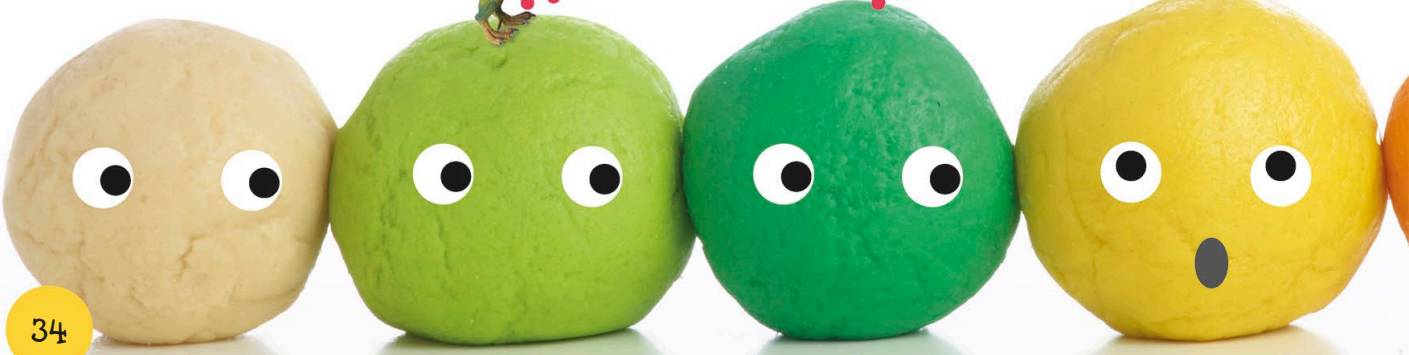
Your printing tool kit:

rolling pin

leaves, pine cones, and flowers

cutters

Make your dough any colour.



Look at all the colours!

Prints and shapes

Roll your playdough flat with a rolling pin. Then use objects to make really **bumpy** prints or **cut out** fun shapes.

SENSE-ible science

- What objects can you print in your playdough?
- Does your playdough smell of anything?
- What prints can you see most clearly?
- Can you describe how your playdough feels?

It's like a rainbow!

Let it snow!

Snow is made when **tiny ice crystals** inside clouds stick together and become a snowflake. You can make **pretend snow**, then build your very own **snowpeople**!

You will need:

Mix it!

1

Mix the ingredients with your hands. Your snow should be **crumbly** but **stick together** if you pat it together into a **snowball**.

Can you make a snowball?

2

If the mixture is ***too crumbly****, add more shaving foam. If it's* ***too wet****, add more baking soda.*

Sprinkle your soft snow.

It's snowing!

Now make a snowy person.

3 Roll 2 snowballs to make your snowperson's **body** and **head**. Try adding googly eyes to decorate.

How does your snow feel?

SENSE-ible science

- Does your snow feel like real snow?
- Can you hear your snow squelching?
- Have you ever seen real snow?

This hat and scarf will keep me warm and cosy. Thanks!

Be a tabletop scientist

There's lots of **easy-peasy science** you can do while you're waiting for your dinner. These 3 tabletop experiments play with **light** to **trick your eyes.**

The ladybird trick

Draw a picture on a piece of paper and hold it **behind a glass of water**. Slowly move the glass towards you. Look through the glass to see the ladybird **turn around**.

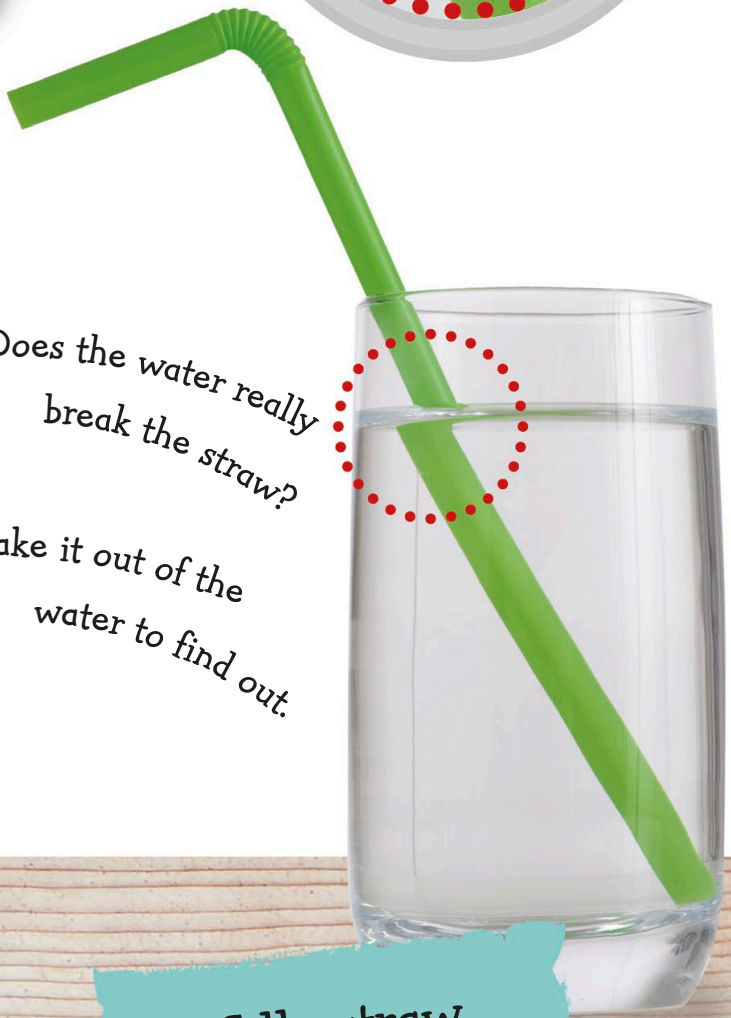
For this trick to work, your drawing has to be facing either left or right, but not straight on.

What can you see inside the spoon?

Choose your shiniest spoon for this experiment.

Does the water really break the straw?

Take it out of the water to find out.



Mirror spoon

Look at your reflection in a **shiny spoon.** Then turn the spoon over. The **curve** of the spoon changes your reflection! Which side makes your face turn **upside-down**?

Silly straw

Put a **straw** into a glass of water and look at it **through the side**. Does the straw **look broken**?

When tiny things get big

Magnifying glasses help scientists look at things **very**, **very** closely. Try it! You might **see** things you'd **never noticed** before.

How does it work?

When you get closer to things, you can see them in **more detail**. But if you look at something too closely, it will look **blurry**. Magnifying glasses have a **curved lens** that makes things look **closer**, without making them blurry.


Try it yourself! Grab a magnifying glass and look at things on this page and around you. It's your turn to be a scientific observer.

Play with clouds

Clouds can be **fluffy**, **puffy**, or **wispy**, but they all have one thing in common. They are made of water.

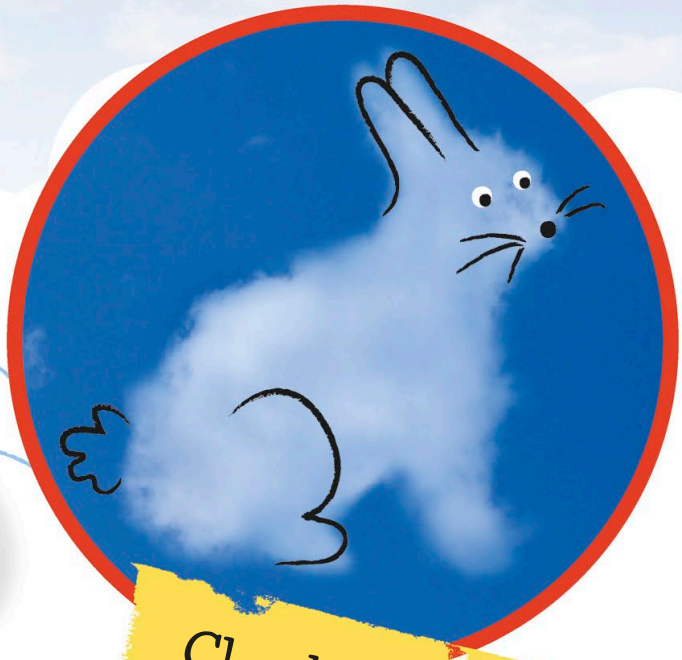
Cloud painting

Place a mirror on the ground outside. Can you see the clouds in the mirror? Use a paintbrush and shaving foam to colour them in.

Clouds are made up of tiny droplets of water. When the droplets fall, they become rain. What do you think clouds would feel like to touch?

What are rainbows?

When sunlight shines through raindrops, the raindrops split the light into lots of colours. This makes a rainbow.



Cloud spotting

When you're out and about, look up at the sky. What shapes can you spot amongst the clouds?

That cloud looks like a rabbit!

Look, you're a scientist!

Lots of scientists follow the same rules when they discover something new. You can follow them too. Think about the experiments you have done. Can you follow **the scientific method?**

1. What is this?

When scientists observe something interesting, they come up with a question about it, to find out more. **Scientists call this question a "hypothesis".**

2. What will happen?

Before trying out their hypothesis, scientists try to guess what the answer will be. **Scientists call this a "prediction".**

3. Time to play

Scientists love to play to try out their ideas. They have a go. Sometimes it goes wrong and they try to fix it. **Scientists call this an "experiment".**

A scientist's work is never done. There's always more to ask, more to discover, and more fun to be had!

4. What does it all mean?

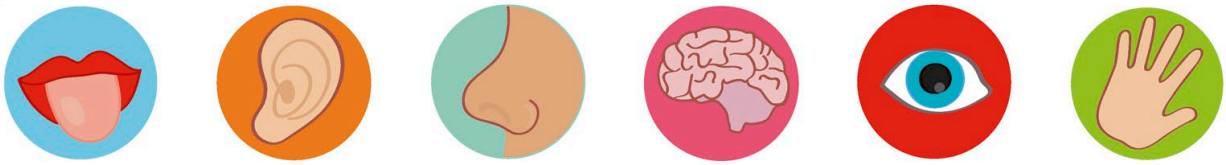
Scientists think about what happened in their experiment and what they can learn from it. **Did you predict what would happen? Was it a surprise?**

Well done!

.....

(Write your name here.)

is a scientist!



Index