SCIENCE FUN AT HOME

Have some fun at home with these science activities from **Science Sparks** and the **Primary Science Teaching Trust**

BEFORE YOU START! Please read through this with an adult:

- Make sure you have read the 'IMPORTANT NOTICE' on the back of this page.
- If you have a space outside that you can use safely, then you can do the 'Try this outdoors' activity outside. Don't worry if not as you could still do it indoors.
- Talk to your adult about sharing the science you have done and if they want to share on social media, please tag **@ScienceSparks** and **@pstt_whyhow** and use **#ScienceFromHome**

SINK OR SWIM?

1 TRY THIS INDOORS ....

Fill a large bowl or container with water. One at a time, put the different things you have chosen to test into the water and watch to see which of them floats and which of them sinks.

Put the orange in the water. Does it float or sink? What happens when you peel the orange and put it back into the water? Does the orange float or sink? What about the peel?

You will need

- Large bowl or container
- Water
- Selection of things to test, e.g. small toy, pencil, coin, cork, elastic band, candle, empty plastic bottle ....
- A small orange
- Paper, lollipop sticks, card, foil, sponge, playdough or plasticine
- Lego pieces, coins or other small items

WHAT DO YOU NOTICE? Things to talk about ...

What are your ideas about why some things float and others sink? Can you predict which things will float or sink? Why does an orange float with its skin on, but sink with its skin peeled off? Do other fruit or vegetables float or sink? What happens if you take off the skin?

2 TRY THIS OUTDOORS .... MAKE A BOAT

Fill a large container with water. Make boats or rafts out of different materials, e.g. lollipop sticks, playdough, paper, sponge or aluminium foil. Float the boats in the water. Choose coins or pieces of lego and add these one at a time to each boat until the boat sinks. Count how many coins or lego pieces it took to sink each boat.

WHAT DO YOU NOTICE?
Things to talk about ...

Which material was best for making a boat? Why do you think this is? Which type of boat held the greatest number of coins/lego before it sank? Why does a ball of playdough or piece of foil sink, but will float when you make it into a boat? Why do big, heavy ships float?

3 WHAT IS THE SCIENCE?

Whether something floats or sinks depends on its density. If something has a lower density than water, it will float, and if it has a higher density than water it will sink. Density is how tightly packed the material inside an object is. Just because something is heavy does not necessarily mean it will sink. For example, a ship might be very heavy but if it is less dense than water, it will still float.

The orange peel has tiny air pockets in it which make the peel less dense than water, so it will float. The orange on without the peel is denser than water, and so it will sink. But when the peel is still attached to the orange it makes the orange less dense **overall**, so it will float.

4 MORE ACTIVITIES YOU COULD TRY

MAKE A SALT VOLCANO https://wowscience.co.uk/resource/salt-volcano/

MAKE A DENSITY JAR AND LEARN MORE ABOUT FLOATING LIQUIDS
https://www.science-sparks.com/floating-and-density/

MAKE A PAPER CLIP FLOAT ON WATER! https://spark.iop.org/paperclip-afloat

TAKE A SCIENCE SELFIE! Maybe you could show other people what you have been doing?

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SCIENCE WITH ICE

You will need

- A container
- Small plastic toy
- Water
- Freezer (or ice compartment in the fridge)
- Salt
- Warm water
- Ice cubes

1 TRY THIS INDOORS .... ICE RESCUE

Place a small plastic toy or figure (Lego works well) into the container and fill to almost the top with water. Leave in a freezer or ice compartment in the fridge until the water is frozen. Remove the container and leave for 5-10 minutes until the ice loosens and then tip it out onto a plate or tray.

WHAT DO YOU NOTICE? Things to talk about ...

What happens when you pour a little bit of warm water onto the ice? What happens if you put salt onto the ice? What do you think would be the fastest way to rescue your toy from the ice? What could you do to find out? Are bigger toys easier to rescue from the ice than smaller toys?

2 TRY THIS OUTDOORS .... MELTING ICE

Freeze several small ice cubes or shapes of the same size. Put them in separate containers and choose different places to leave them. If you can go outside, you could put one in the shade, one in the sunshine and also leave one inside. You could also try making ice cubes out of different liquids like milk, vinegar or cooking oil.

WHAT DO YOU NOTICE? Things to talk about ...

Where does the ice cube melt the most quickly? Why might that be? Can you find the place where the ice cube will take the longest time to melt? Or the shortest time to melt? What happens with frozen cubes made from different liquids?

3 WHAT IS THE SCIENCE?

Water can be a solid, liquid or a gas. A liquid turns into a solid (freezes) when its temperature drops below its freezing point. For water this is at zero degrees Celsius. Ice melts when its temperature rises above its freezing point. Ice melts faster when salt is added as the salt makes the freezing point of the ice lower. Different liquids have different freezing points. Oil freezes at a lower temperature than water, so an 'ice cube' made of oil will melt faster than one made of water.

Did you know? Fresh ice feels sticky because it immediately freezes the moisture in your skin, making it feel sticky to touch.

4 MORE ACTIVITIES YOU COULD TRY

MAKE ICE CREAM IN A BAG! https://www.science-sparks.com/how-to-make-ice-cream-with-ice-and-salt/

WATCH A VIDEO ABOUT HOW PLANTS SURVIVE IN ICY CONDITIONS
https://wowscience.co.uk/resource/adaptation-of-plant-life-to-extreme-cold-temperatures/

FIND OUT ABOUT ICEBERGS AND WHAT HAPPENED TO THE TITANIC
http://www.nicurriculum.org.uk/docs/key_stages_1_and_2/areas_of_learning/the_world_around_us/activity5.pdf

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How Do Polar Animals Stay Warm in Icy Water?

Science Experiment

You will need:

A bowl of icy water with ice cubes in

A selection of toy polar animals

Wool glove

Version 1:

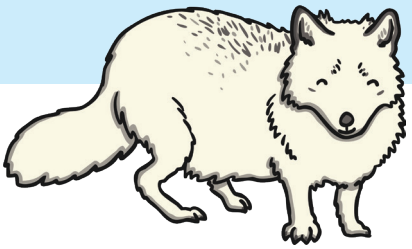
Vegetable oil

3 zipper storage bags

Version 2:

Latex/plastic glove

Lard



Method

1. Start off by talking about the toy animals you have and where they live. What is the weather like where they live? (Penguins live in the Antarctic in the South Pole, polar bears live in the Arctic in the North Pole.)
2. How do the children think the animals keep warm? Listen to the children's suggestions.
3. Show the children the bowl of icy water and let them feel how cold it is for themselves.
4. It is possible that one of the children may have suggested that the animals have thick fur coats to keep them warm, so let the children wear a woollen glove each.
5. Do the gloves keep the children warm?
   What happens when the ice starts to melt?
   The gloves get wet and hands start to get cold.
6. The explanation of fat keeping the animals warm can be demonstrated in 2 different ways:
   - Fill 2 zipper storage bags with vegetable oil and seal them. Then put those 2 bags inside another small bag and get the children to put their hand inside between the two bags of oil. They then put both hands in the bowl of ice to see the comparison in temperature.
   - Put a plastic glove on each child and then cover the glove in lard. Again, put both hands in the water and feel the difference in temperature
7. Conclusion - Polar animals stay warm when it's dry with their thick fur coats. When it's wet they have a layer of fat, called blubber, that insulates their bodies from the cold and even water.

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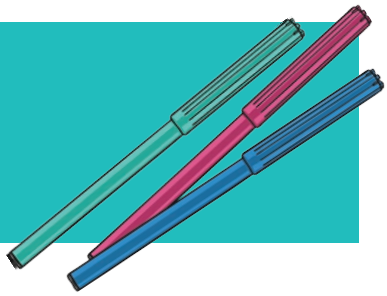
Colour in Felt-Tip Pens

Science Experiment



You will need:

5 different coloured felt-tip pens

Glass jar

Coffee filter paper

Method

1. Cut 5 strips of coffee filter paper.
2. Put a dot of felt-tip pen, about 4cm up from the bottom of the filter paper. Use a new strip of filter paper for each of the colours.
3. Pour a small amount of water into the jar (approximately 3cm deep).
4. Place the end with the dot on it into the jar so that it is just touching the water. Do not let the coloured dot touch the water.
5. Leave for a couple of minutes and then check. You should see colour starting to spread up the filter paper.
6. After 10 minutes, the water will have moved up the filter papers and left areas of different colours along the paper.

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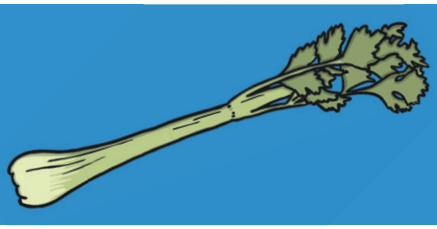
Coloured Celery

Science Experiment



Method

1. Pour some water into the glass.
2. Add a few drops of food colouring to the water and stir to distribute the colour.
3. Cut 2cm off the bottom of the celery stalk and put the stalk into the glass of coloured water.
4. Leave the glass and celery in a sunny spot for a couple of hours or overnight.
5. Observe the results.

You will need:

Celery stalk with leaves

Tall glass

Water

Food colouring

Scissors

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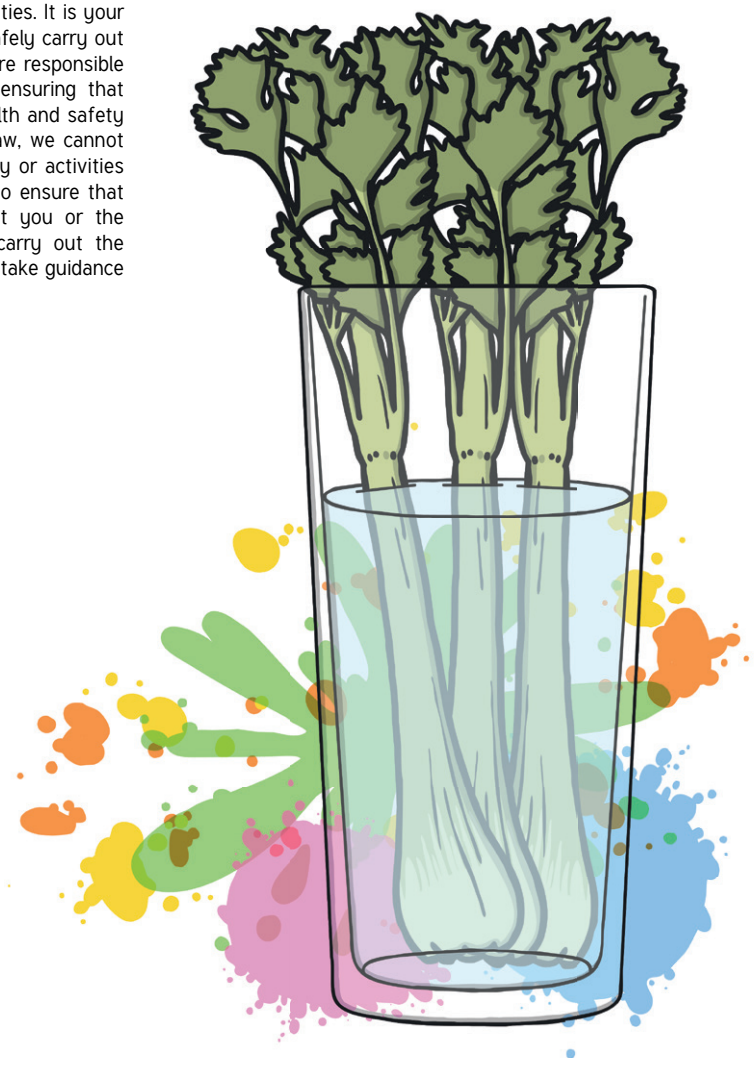
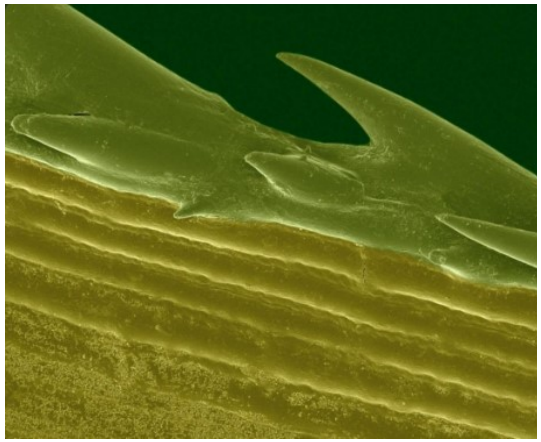
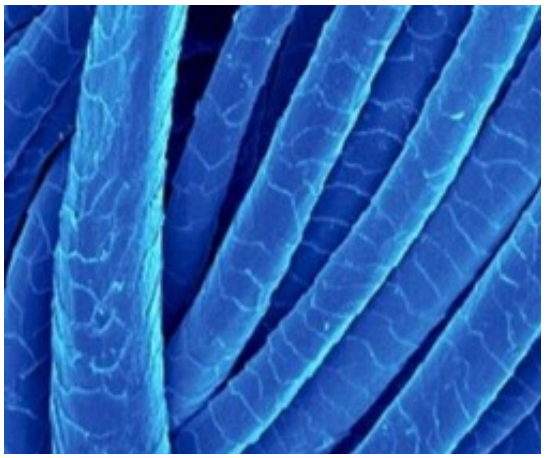







Under the Microscope!

Take a much closer look at this familiar object. Can you work out what the object is?

Don't forget to explain why you think it is that object!

- I think it is a … because…
- In my opinion…
- I believe that…
- I already know that … so …
- Based on… I think that…
- I agree/disagree with …

Explorify

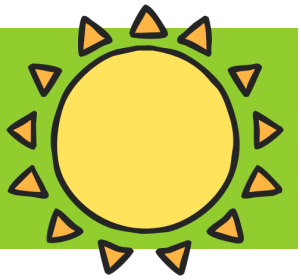
1. A blade of grass
2. A rugby boot
3. Running track
4. A shell
5. A bird
6. A woolly hat
7. An orange
8. A dog's nose
9. A daisy

Want to have a go at some more? Use the website: https://explorify.wellcome.ac.uk/

Explorify

Grow a Bean in a Bag

Science Experiment



Method

1. Wet the paper towel and put it inside the bag.
2. Put the bean on the paper towel and seal the bag.
3. Tape the bag to a sunny window.
4. The seed needs warmth to germinate and the sun should provide that. Plus the light will enable everyone to see the germinating seed better. It should take 3-5 days for the seed to germinate. Keep the paper towel moist, you may need to add a bit of water to it if it dries out. After 2 weeks, your bean can be planted in the soil or in a pot.

You will need:

A ziplock bag

Paper towels

Water

Bean seed

Sticky tape

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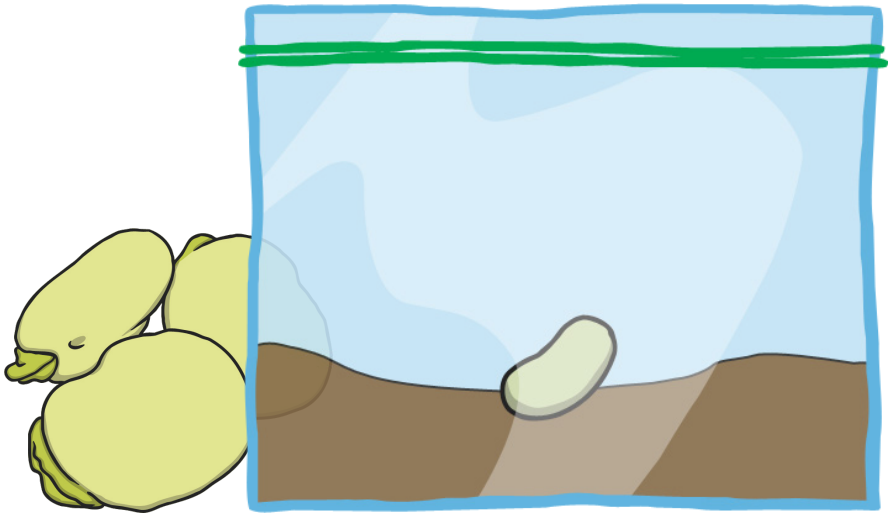
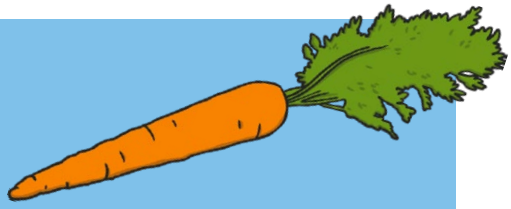


Regrowing Vegetables

Science Experiment



Method

1. Carrot - Place the top cut-off end of a carrot in a shallow bowl of water. The green leaves will shoot from the top. Keep inside and place in a sunny spot.
2. Celery - Cut off the bottom 8cm of the stalk and place in a small bowl of water. After 3 or 4 days it will start to grow from the centre of the celery. Keep inside and place in a sunny spot.
3. Lettuce - Cut off the bottom of the head of lettuce and place it in a small bowl of water. It will start to regrow in around 3 days. Keep inside and place in a sunny spot.
4. Spring Onion - Use the white part of the onion, with any roots still intact. Place in a glass with water and it will start to grow. Keep inside and place in a sunny spot.

You will need:

Water

Bowls

Carrot

Celery

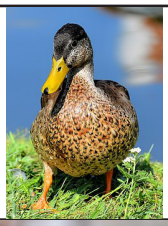
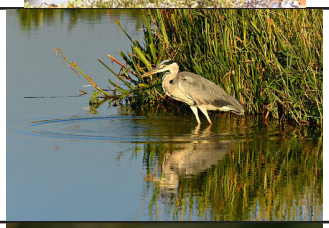
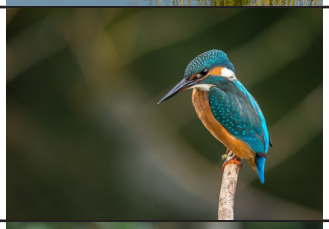
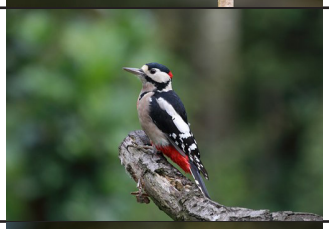
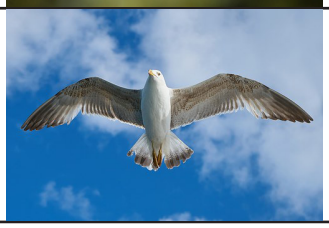
Romaine lettuce

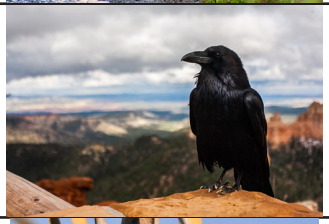
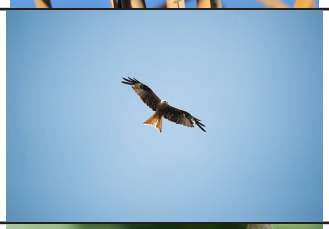
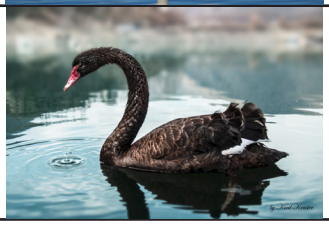
Spring onion

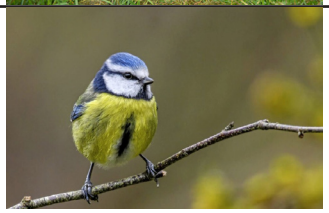
Scavenger Hunt - Birds

Discover the countryside of the United Kingdom.
The United Kingdom is home to many different types of birds.

This scavenger hunt has a general list of some of the common birds you might find in the United Kingdom. Give yourself 2 points for every bird you find and see how many points you can score. Good luck!

Item		Number I Have Found	Points
	duck		
	robin		
	heron		
	kingfisher		
	woodpecker		
	sparrow		
	seagull		

Item		Number I Have Found	Points
	pheasant		
	raven		
	wren		
	eagle		
	chaffinch		
	grouse		
	magpie		
	white swan		
	black swan		

Item		Number I Have Found	Points
	owl		
	peacock		
	goose		
	chicken		
	blue-tit		
	kestrel		

Which other types of birds did you spot?			
Item		Number I Have Found	Points

Scavenger Hunt

Discover the countryside of the United Kingdom. The United Kingdom is home to incredible beauty, with many forests and places to explore. This scavenger hunt has a general list of some of the things you might find in these wonderful places. Give yourself 2 points for each item you find and see how many points you can score. Good luck!

Item		Number I Have Found	Points
	squirrel		
	ant		
	spiderweb		
	toadstool		
	worm		
	caterpillar		

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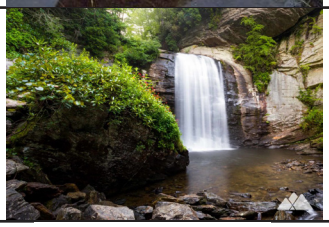
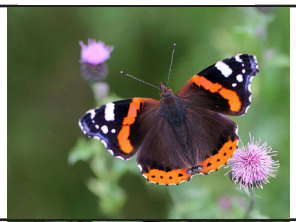
Item		Number I Have Found	Points
	skeleton leaf		
	conker		
	acorn		
	willow tree		
	frog or toad		
	waterfall		
	feather		
	admiral butterfly		
	nettle		

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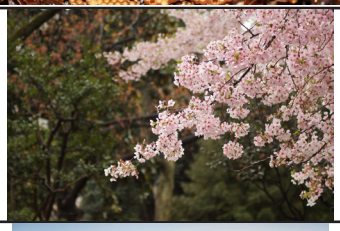
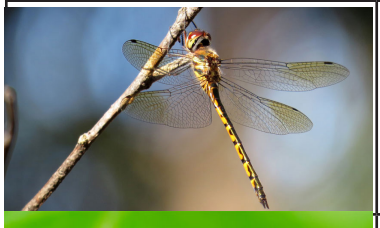
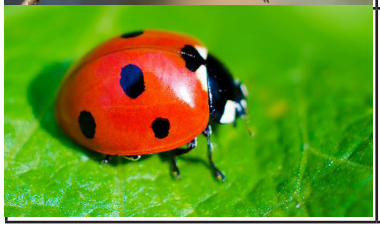
Item		Number I Have Found	Points
	tree stump		
	bee hive		
	cherry blossom tree		
	poppy		
	sycamore tree		
	woodlouse		
	oak tree		
	dragon fly		
	ladybird		

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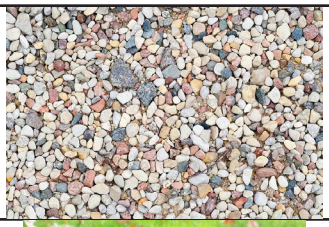
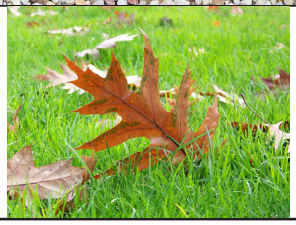
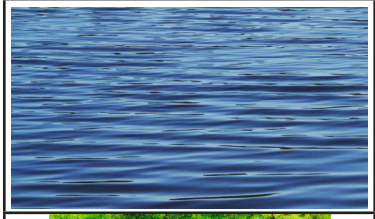
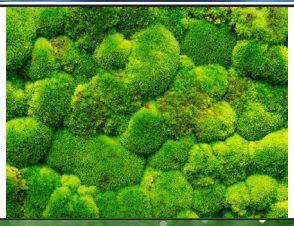
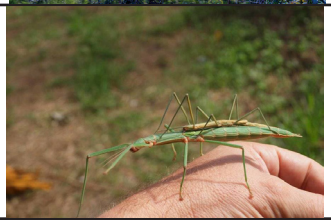
Item		Number I Have Found	Points
	small stones		
	leaf on the ground		
	water		
	moss		
	snail		
	hills		
	stick insect		
	mouse		
	tadpole		

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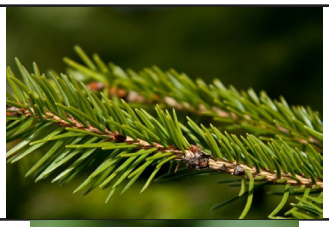
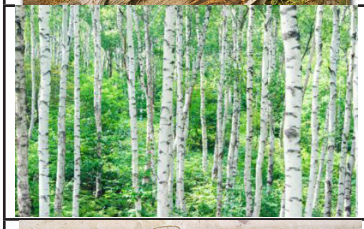
Item		Number I Have Found	Points
	pine needle		
	clover		
	berries		
	nest		
	ants carrying food		
	leaf eaten by insect		
	hollow tree trunk		
	birch trees		
	cocoon		

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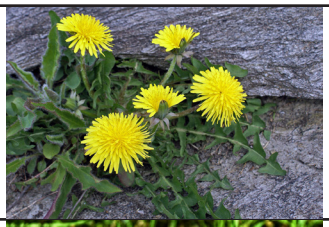
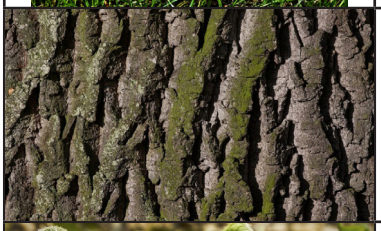
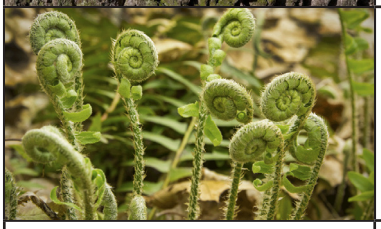
Item		Number I Have Found	Points
	dandelion		
	bird's egg shell		
	tree bark		
	fern fiddleheads		
	pine cone		

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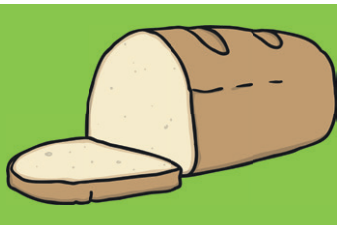
What Lives on Us?

Science Experiment



Method

1. Rub your hands over a slice of bread.
2. Put it in a plastic bag and label with your name and 'Unwashed'. Seal the back with sticky tape.
3. Wash your hands with soap and water.
4. Rub your hands on another slice of bread.
5. Put it in a plastic bag and label with your name and 'Washed'. Seal the back with sticky tape.
6. Keep both bags in a warm place. Check them daily, but **do not** open the bags.

You will need:

2 slices of bread per child

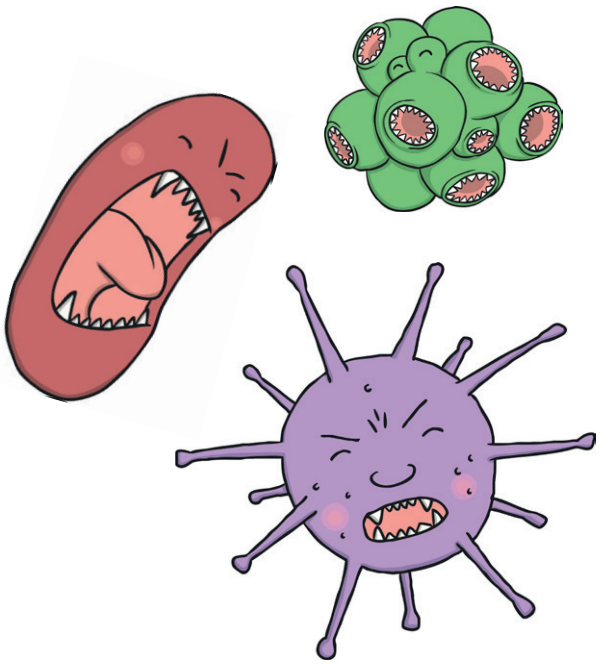
2 grip lock plastic bags per child

Soap

Sticky labels

Sticky tape

We hope you find the information on our website and resources useful. The activities set out in this resource are potentially hazardous. The activities are not suitable for all children and adult supervision may be required for some of the activities. It is your responsibility to assess whether the children in your care are able to safely carry out the activities and whether the children require adult supervision. You are responsible for carrying out proper risk assessments on the activities and for ensuring that activities can be carried out safely. We are not responsible for the health and safety of your group or environment so, insofar as it is possible under the law, we cannot accept liability for any loss suffered by anyone undertaking the activity or activities referred to or described in this resource. It is also your responsibility to ensure that those participating in the activity are fit enough to do so and that you or the organisation you are organising for has the relevant insurance to carry out the physical activity. If you are unsure in any way, we recommend that you take guidance from a suitably qualified professional.



KS1 - Science Summer Revision Options

Seasons Y1

Draw a picture of each season. How does the seasons change?

Seasons Y1

Go outside and have a look at the trees. Can you draw a picture of Summer?

- What does Summer look like?
- What are the signs of Summer?
- What is the weather like?

How does this differ to the other seasons?

Everyday Materials Y1

Look around your house. Can you find out what the objects are made from?

Materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/ cardboard etc.

Can you sort them into groups based on what they are made from?

Everyday Materials: What would happen if? Y1

- What would happen if the table was made from jelly?
- What would happen if chairs were made from chocolate?

Can you create your own 'What would happen if' statement

Animals including Humans Y1

Go on a nature walk and see what animals you can find. Can you draw a picture of the nature walk?

- Can you name them?
- Can you name their basic parts (wings, teeth, tails, claws, feathers, fur)
- Can you describe their characteristics?
- Can you identify if they are a mammal, bird, fish, amphibian or reptile?

Animals including Humans Y1

We have five different senses; touch, smell, see, hear and taste. Use your senses to compare different tastes and textures.

For example: a chocolate bar

- What does it look like?
- What does it taste like?
- What does it smell like?
- What does it feel like?

Plants Y1

Look at different plants (photographs). Can you label the different parts of common plant? Can you identify if they are garden plants or wild plants?

Key vocabulary: leaf, flower, stem, roots, seed, blossom, petal, fruit, branch, trunk, bark, stalk

Plants Y1

Go on a nature walk and see what plants you can see. You could also grow your own plants at home. How do we care for plants?

Uses of everyday materials Y2

Have a look at different objects around your house. Can you identify what material they are made from?

- What objects can be squashed? Twisted? Bended?
- What objects are waterproof?
- What objects are transparent?

Have a go at testing different properties and materials. Can you sort the objects based on their properties?

Uses of everyday materials Y2

Investigate and research recycling.

- What does recycling mean?
- How can you recycle?
- Do you recycle at home? How?
- Do you recycle at school? How?
- What do you think happens to the materials we recycle?
- Is it important to recycle? Why or why not?

Living things and their habitats Y2

Sort and classify things according to whether they are living, dead or were never alive,

- All living things move, breathe, sense, grow, make babies, get rid of waste and get their energy from food (life processes).
- Things that are dead were once living such as plants and animals. They did have all the life processes but don't now.
- Things that were never alive are things that are made from materials such as plastic, fabric, metal and rock.

Living things and their habitats Y2

Identify different animals and sort them into their habitats.

For example: Fish, dolphins and sharks live in the ocean. Monkeys, parrots and snakes live in the rainforest.

Can you explore a micro-habitat?

You could also create a hedgehog hotel, a bird box or a mini-beast habitat.

Animals including humans Y2

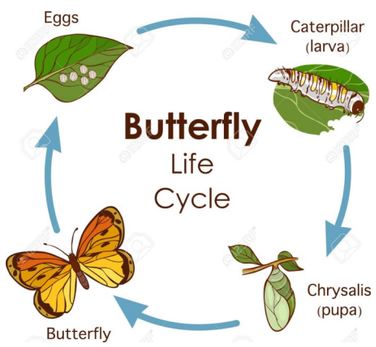
What do humans need in order to stay healthy?
Create a poster to show what humans need.

Humans need:

- to eat a balanced diet and healthy food
- some exercise to keep their muscles and bones healthy
- to take medicines that are given by doctors when feeling poorly
- to keep good hygiene by washing regularly
- to keep good personal hygiene

Animals including humans Y2

Research the life-cycle of a chicken, a butterfly or a frog. What stages do they go through before becoming an adult?



Why not have a go at some of the experiments on the school website?