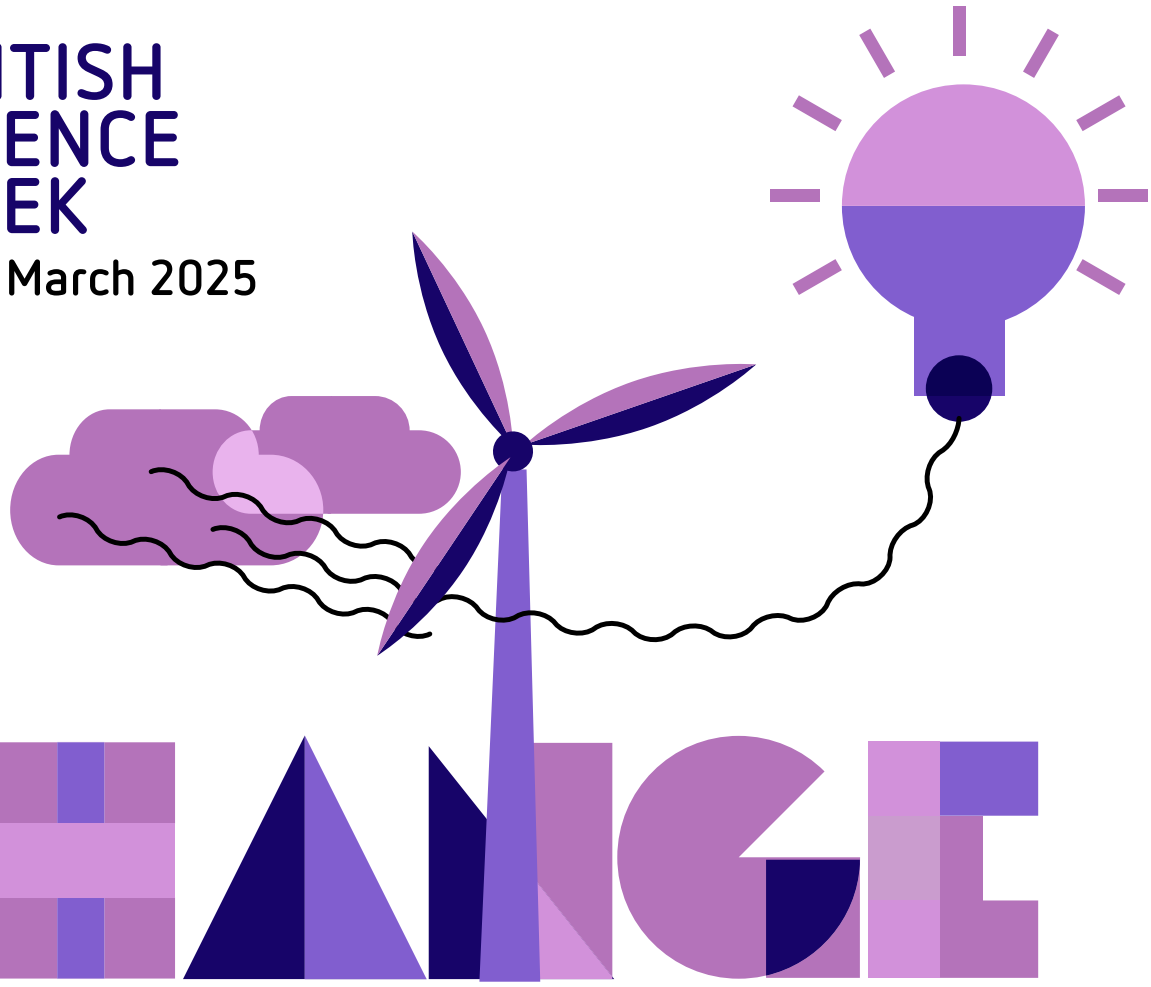
BRITISH SCIENCE WEEK

7-16 March 2025



CHANGE & ADAPT

CHANGE & ADAPT

COMMUNITY ACTIVITY PACK

A set of activities that can be carried out in a community group or family setting, with young people or adults

britishscienceweek.org

Delivered by

BRITISH SCIENCE ASSOCIATION

Supported by

UK Research and Innovation

Welcome to the British Science Week 2025

This pack is a one-stop shop to support you during British Science Week, and you can use it all year!

We've looked for activities which promote learning and discovery, and that break down the stereotypes surrounding STEM. We encourage you to use British Science Week as an opportunity to link science to other topics relevant to your audience, including their own backgrounds, lives and interests.

The activities can be run as part of a community group, as a family, with friends or by yourself. You can do them at community events, clubs, or even at home.

You can share your brilliant activities, vlogs, or images on social media! Join the conversation or see what's happening during the Week by tagging British Science Week on X (**@ScienceWeekUK**) and using the hashtag **#BSW25** across all social media platforms.

Contents

BRITISH SCIENCE WEEK 2025

This year's theme

Each year there is a new theme for British Science Week, and for 2025 it's '**Change and adapt**'.

As British Science Week enters its fourth decade, it's a great time to think about how the world is changing and how we can adapt to those changes.

You can also think about all the types of change and adaptation we see in STEM – the options are endless!

Here are some ways you can introduce the theme to your audience in a fun, imaginative way to get them excited about the Week:

Poster competition

If you're working with young people aged 3-11 as part of your British Science Week celebrations, why not challenge them to design a poster based on the theme of 'Change and adaptation', using the activities in this pack, for the chance to win some fabulous prizes! Some of the activities in this pack can provide inspiration.

There is also a very special additional competition this year for young people aged 11-19 – scientists at University College London need your help! Find out more about their work and how your ideas could inspire new scientific research on **page 16**. You can also find more details about how to enter on our webpage: **www.britishscienceweek.org/plan-your-activities/poster-competition/**.

- Talk about what change and adaptation mean. How have you noticed the world around you changing, and how have you adapted? Think about your favourite science experiment or activity, did it involve change? How have animals and people adapted to new environments over time? Is ever-changing technology making our lives easier, or are we adapting to fit it in?
- If you work in a school or with a community group, invite a special guest to share their own experience of change and adaptation. Are there any STEM professionals local to you, or museums to visit? Maybe a city planner could talk about how the places we live have changed and adapted to technology and growing populations?
- Try a game, give an audio-visual presentation, explore a mystery or special object, or create a pop-up display which communicates the theme of 'Change or adapt'. These are great to use as fun warm-up activities and are a fantastic way to start British Science Week.

CHANGE & ADAPT

Making the most of volunteers

Face-to-face engagement is a great way to engage your audience, and volunteers and presenters are keen to support these activities, but don't forget that there are also opportunities to get volunteers and presenters to engage with your audience online.

STEM Ambassadors are volunteers who offer their time and enthusiasm to help bring STEM subjects to life, and to demonstrate their value to young people. It is now possible to request both in-person and remote STEM Ambassador support, meaning that Ambassadors from across the UK can inspire people wherever they are.

Find out more and make a request for STEM Ambassador support here: **stem.org.uk/stem-ambassadors/find-a-stem-ambassador**.

You could ask members of the community if they work in STEM-related jobs to describe what they do in more detail. You could also:

- Kick off British Science Week with a career talk or demonstration from an inspiring volunteer to engage your audience. The volunteer could highlight how change and adaptation plays a role in their work, or perhaps how they have changed throughout their career.
- Schedule two or three different guests for open conversations and discussions during the Week. If possible, get your audience anticipating who the next guest will be and what they do. Consider your audience and how to make it engaging, fun and accessible. Try to include an element of audience participation. These sorts of experiences can be intimidating if your audience isn't comfortable speaking to an expert on a particular subject – so giving them a bit of advance warning can help. It's also worth briefing your speakers in advance too – to make sure they know what to expect and to encourage them to be as inspiring, open, honest and inclusive as they can be.
- STEM volunteers can also help you develop your activities, bringing new ideas and learnings. If you already have activities in mind, why not see if a local researcher or other STEM volunteer can support you in developing them further?
- Where available, choose volunteers/Ambassadors who challenge stereotypes your audience might have of science or scientists, in order to promote a more positive attitude towards the subject. Let the volunteers/Ambassadors share what inspires them and how their job is making a difference in the world, or an anecdote about a science activity they really enjoy.
- Book your visitors early as many speakers get booked up during British Science Week. Have a clear idea of what you want them to do and communicate this ahead of time.

Volunteers come from a range of careers and experiences, from engineers, designers, and architects to scientists and technicians, so encourage your audience to attend inspirational career talks which broaden their choices and interests!

Visit the Inspiring the Future website (**inspiringthefuture.org**) for some helpful ideas for using volunteers.

Unlocking skills

A fantastic way to encourage your audience to take an interest in STEM is to introduce transferable skills used by those working in STEM-related jobs.

These skills will strengthen positive attitudes and reduce stereotypes of those working in the field.

You could, for example, use the **STEM Person of the Week** activity from NUSTEM at Northumbria University or introduce a scientist from the British Science Association's **Smashing Stereotypes** campaign.

Ask your audience to identify what characteristics people working in STEM need. These might include being observant, creative, patient, good at communication, or curious. Look out for the skills unlocked tags for each activity in this pack.

Opposite is a list of attributes developed by NUSTEM - talk about this with your group, what activities do you all do that require these characteristics?

- Observant
- Open-minded
- Committed
- Curious
- Logical
- Creative
- Imaginative
- Patient
- Self-motivated
- Collaborative
- Resilient
- Clear communicator
- Passionate
- Hard-working
- Organised

BRITISH SCIENCE WEEK 2025

Primary Science Teaching Trust

LET'S USE COLOURS & STRIPES TO INVESTIGATE CAMOUFLAGE

Some animals are camouflaged in their natural habitat because over time they have adapted to their environment. We're going to be scientists and learn whether different colours and different types of stripes affect the survival of moths. Creating our artificial moths and recording observations in different habitats can be done with all ages!

20 minutes to make plus time needed for hiding and finding moths

Kit list

- Paper/card
- Coloured pencils/ felt tips
- Scissors
- Rulers
- Tape or hole punch/string (to fix moths to plants or objects)

Instructions

1. Cut triangular pieces of paper/card to represent our moths.
2. Think about where you're planning to hide your moths to help you choose colours – which colours do you want to use and how many?
3. Consider horizontal or vertical stripes for your moths.
4. Now you're ready to create your moths! Draw stripes of different colour, width and positioning on your moths.
5. Hiding your moths is next, so grab your tape or hole punch & string.
6. The best hiding places will be outside, but these can be hidden around the room or building that you're in.
7. Can others find them?
8. How will you record your findings? Make sure to keep good records.

Get younger children involved

Take a closer look at the image here by zooming in and out to see it differently. What do you think the image is? **explorify.uk/en/activities/zoom-in-zoom-out/confusing-camouflage**.

An adult will be needed to create a free Explorify account.

Get older children involved

Create various camouflaged animals to stump friends or those at your home using this video: **vimeo.com/manage/videos/792200470**.

LET'S USE COLOURS & STRIPES TO INVESTIGATE CAMOUFLAGE

Similar materials are needed for this activity. You might want to include some natural materials such as leaves and twigs.

More practical science videos can be found in PSTT's 'Starters for Science' resource: **pstt.org.uk/resources/starters-for-science**.

Get adults involved

- Read more about the scientists' research with artificial moths in our article here: **pstt.org.uk/download/2874/?tmstv=1677079872**.
- This article on Stripes and Concealment can be useful to adults who are helping young learners with their camouflage moth activity. It's also simply an interesting read!

Watch out

Adult facilitators – please be sure to risk assess practical activities following the advice of your Health & Safety advisor.

Ensure everyone washes their hands after handling natural materials such as twigs and leaves.

Next steps

- This activity helps identify how animals are adapted to their environment in different ways – using camouflage.
- Download the following slides for further support with this activity - including key vocabulary, questions and cross-curricular links: **pstt.org.uk/download/2874/?tmstv=1677079872**.
- Introduce more cutting-edge science research projects to groups by visiting our 'Did you know' resource: **pstt.org.uk/resources/i-bet-you-didnt-know/**.

Career options

- Telma Laurentino is an evolutionary biologist who studies how different animals adapt to changes in the environment. Slides sharing more about Telma's job can be found here: **pstt.org.uk/download/1867/?tmstv=1676891329**.
- Discover more scientists in PSTT's 'A Scientist Just Like Me' resource: **pstt.org.uk/unique-resources/a-scientist-just-like-me/**.

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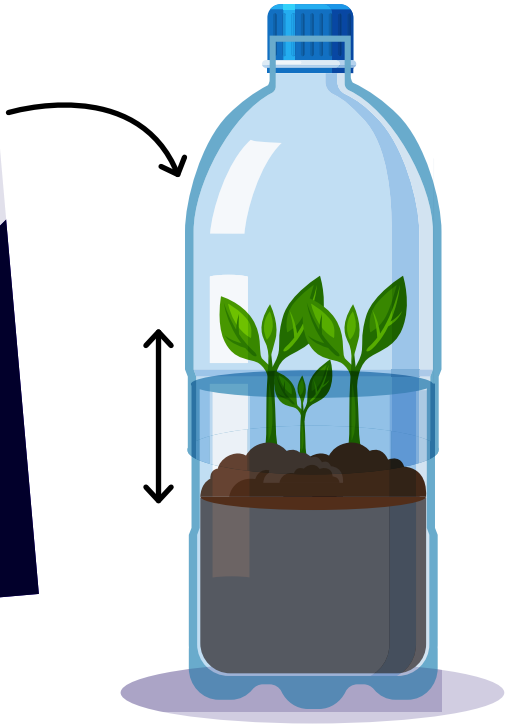


REUSED BOTTLE GARDEN

Don't throw your used plastic bottles into the bin - make them into bottle gardens instead!

10-15 mins

Kit list

Empty, used, washed out plastic bottles

Sharp scissors

Compost

Seeds
(of your choice - sunflowers and cress work well!)

Water

Instructions

1. Using a sharp pair of scissors, cut a used plastic bottle in half widthways. Then, make a couple of small holes in the bottom of the bottle (this is for water to drain through.)
2. Put some compost in the bottom half of your empty bottle.
3. Make several small holes in the compost with your finger and then drop a couple of seeds into each.
4. Put one more handful of compost over your seeds, lightly covering them.
5. Sprinkle on some water and put your bottle in a sunny position.
6. Slide the top of your bottle onto the bottom half and keep watering as your plant grows. You may have to take the top of the bottle off as your plant grows!

Watch out

Ensure everyone washes their hands after handling soil.

Next steps

You could create lots of different plants with multiple bottles - and you could even string them up to make a hanging bottle garden!

To find more science activities, visit the VICTA Science Fair: **www.victa.org.uk/victa-science-fair**.

Career options

Horticulture is the science of growing plants. Horticulturalists research different plant species, and often grow plants, fruits and vegetables for study. This role also has a focus on environmental sustainability, with some research focussing on plant conservation and preservation.

Get younger children involved

For younger children - ask an adult to help cut the bottles!

Get older children involved

Choose seeds for whichever plant you like. You could even grow things to eat!

BRITISH SCIENCE WEEK 2025

UWE Bristol | University of the West of England

YOUR PLANET NEEDS YOU!

'Green' skills are any skills that you apply to help reduce emissions, lower your carbon footprint or protect the environment. Find out more about your skills and apply them in Green Jobs to adapt how we live - and save the planet!

30-60 mins

Kit list

Pen & paper

Timer

Internet access: skillsbuilder.org/universal-framework

Instructions

1 What are you good at? In groups of two or three, discuss each other's talents and abilities. Include academic subjects, but think broader – are they great at hilarious Instagram posts? Are they ace at your favourite video game or can they backflip? Create a bubble diagram around your name, pass to the person on your left to add to. Add skills to their bubble for 2 minutes, then swap, spending the final 2 minutes adding to your own diagram.

2 Match those ideas to an Essential Skill on this list: www.skillsbuilder.org/universal-framework.

3 CVs often have skills sections - pick your top skills and under each skill heading describe how you've demonstrated that skill. E.g. Creativity – "I'm skilled at designing original Instagram posts that utilise humour to gain followers".

4 Explore the Green jobs you could apply your skills in to save the planet: curiosityconnections.net/green-futures.

Next steps

Use the Skills Builder website to further examine your skills – the site will help you to identify areas to develop and what steps to take.

When applying for jobs, tailor your CV to the job description by putting the core skills they ask for closer to the top.

Get children involved

Being green is everyone's responsibility, in whatever job you're in or wherever you live. How could you make your life more sustainable for the planet?

BRITISH SCIENCE WEEK 2025

Mammal SOCIETY

MONITORING MAMMALS DESIGN YOUR OWN TRACKS AND SIGNS BINGO

In this activity, you will research different mammal tracks and signs, then design your own bingo sheets featuring these finds. Go outside to search for and mark the real tracks and signs on your custom bingo cards.

1 hour

Kit list

- Plain paper
- Crayons, markers, or coloured pencils
- Notebook and pen
- Access to a computer/printed resources
- Mammal Tracks and Signs guide (optional)
- Smart phone/tablet with Mammal Mapper app installed

Instructions

1. Research Mammal Tracks and Signs: Use a field guide or the Mammal Society website to learn about different mammal tracks and signs.
2. Create Bingo Sheets: On a piece of paper, draw a bingo grid and fill each square with pictures or names of the tracks and signs you researched.
3. Prepare to Explore: Take your bingo sheets, a notebook, and a smartphone or tablet with the Mammal Mapper app outside to a park or other natural outdoor space.
4. Play Bingo: Search for real animal tracks and signs. Mark the ones you find on your bingo sheet, photograph or draw any you don't recognise.
5. Record Sightings: Use the Mammal Mapper app to log the tracks and signs you find. Use the app to help you identify any you don't know.
6. Track Progress: Try to complete a line or full card on your bingo sheet.

Next steps

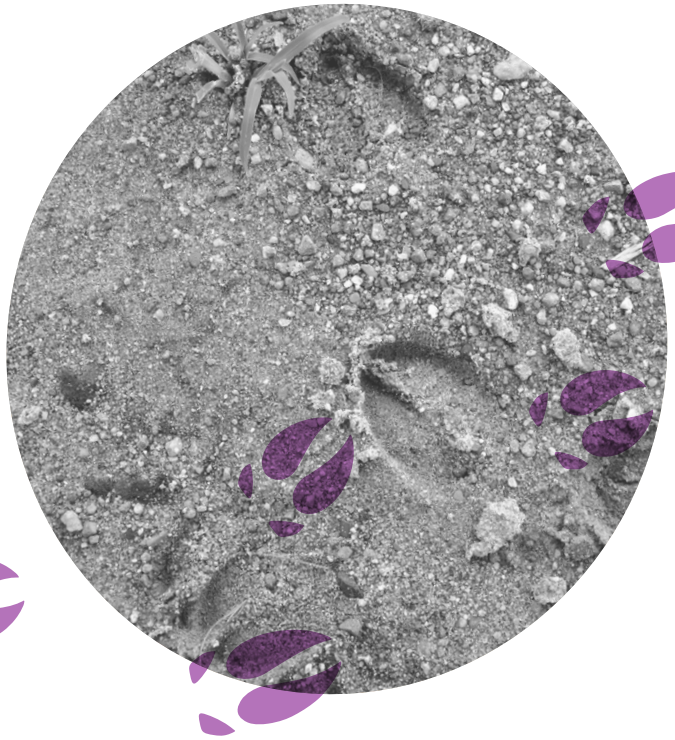
Explore other mammal monitoring methods like camera traps and footprint tunnels. Participate in the School's Mammal Challenge to continue monitoring mammals and contribute to local conservation efforts. Find more information here: **www.mammalsociety.org.uk/for-schools/schools-mammal-challenge**.

At home

See what mammal tracks or signs you can find in your garden or local park. Record your sightings using the Mammal Mapper app.

Career options

Explore careers like wildlife biologist, environmental scientist, and park ranger. You can also help by raising awareness about nature, working on conservation projects, or sharing your findings with others. All these roles help protect and understand our natural world.



BRITISH SCIENCE WEEK 2025

University of Reading

see & eat

SEE & EAT GROWING VEGETABLES

In this activity, you will learn about the adaptations vegetables can make to their environment. You will discover the field to fork journey of a sweet potato, read one of the SEE & EAT eBooks and grow your own sweet potato from an unused vegetable rather than a seed.

25 mins + growing over several months

Kit list

- iPad or Tablet to read SEE & EAT eBook
- Cocktail sticks
- Plastic bottle, milk container or cup
- Sweet potato
- Craft knife or scissors
- Kitchen knife
- Soil
- Deep plant pot or other container with drainage holes

Instructions

1. Visit the SEE & EAT webpage (www.seeandeat.org), download the SEE & EAT sweet potato eBook and read it as a group.
2. Prepare to grow your own sweet potatoes. Using the craft knife or scissors cut the top from the plastic bottle or milk container and fill it with water.
3. Insert four cocktail sticks around the middle of a medium-sized sweet potato.
4. Balance the sweet potato on the top of the plastic container using the cocktail sticks. Half of the sweet potato should be submerged in water.
5. Watch the roots and stems grow. Each sweet potato may grow up to 10 roots and stems – these are called slips.
6. After four or more weeks the roots and stems will be long. It is then time to break the slips from the sweet potato and plant in soil in a deep pot.
7. Keep the plant sheltered and warm, watering regularly. In a few months sweet potatoes will have grown under the soil.
8. Harvest and cook.

Watch out

- Please follow your own organisation's guidelines when using electronic devices around children.
- Adult supervision is required if children are to be using knives.
- Ensure everyone washes their hands after handling vegetables and soil.

Next steps

Check out some more of our See & Eat vegetable eBooks and additional fun activities that can be downloaded from the SEE & EAT website. Or have a look at SEE & EAT paperback books.

At home

Visit an allotment to see how vegetables grow. Visit the supermarket and talk about vegetables growing on, below or above the ground. Cook and prepare simple vegetable recipes such as vegetable pizza or vegetable kebabs.

Skills unlocked

Observant, patient

BRITISH SCIENCE WEEK 2025

USE AMATEUR RADIO TO CONDUCT INTERNATIONAL CLIMATE CHANGE RESEARCH

Using amateur radio, find out how different countries are adapting to climate change. Ask people about their experiences with questions such as: "Has the climate in your country changed?"; "Is the weather hotter or wetter?"; "Are plants and animals coping?"; or "How is your country preparing for change?"

10 mins for each participant

Kit list

Assistance from a radio amateur. You can search for your local amateur radio club at: rsgb.org/club-finder

Access to a Digital Mobile Radio (DMR) repeater (the radio amateur can help with this)

Instructions

1. The radio amateur will connect you to a global network through a digital radio. You will send out a radio call to anyone who is listening.
2. Once you have established contact with someone, find out which country they live in. You can then ask them questions about climate change.
3. Pool your results with others. Which countries are being affected? What are they doing to prepare for climate change?
4. On a map of the world, summarise what is happening in each country.
5. Find out about DMR radio. Amateur radio enthusiasts used Morse code in the past to make contact with other countries. Today they also use digital techniques and make use of computing and the internet. They need to have studied the science of radio communications to obtain a call sign.

Next steps

Would you like to learn more about amateur radio? This web page tells you how you can gain your Foundation licence and get your own amateur radio call sign: **rsgb.org/foundation**.

At home

How would you reply if you were asked about climate change where you live? Have your parents noticed a change in the weather?

Career options

Radio Communications are an important tool to track changes in the climate. Satellites relay information back to Earth. Having an amateur radio licence would help you in a wide range of STEM careers and activities such as being a climatologist, a space weather scientist or studying propagation.

BRITISH SCIENCE WEEK 2025

CREST AWARDS

THE PERFECT CUP OF TEA

In this activity you'll discover the science behind the perfect cuppa! It might not seem like a scientific experiment at first, but there are all sorts of variables in the making of a cup of tea that can be changed to create your ideal drink.

1 hour

Kit list

- Kettle
- Thermometer
- Stopwatch
- Mugs
- Tea bags
- Different types of milk, full fat, semi-skimmed, oat milk etc.
- Sugar
- Teaspoons
- Optional: additional ingredients, lemon juice, honey etc.

Instructions

1. Decide which variables of a cup of tea you want to test. For example, you could use water at different temperatures, leave the teabag in for different lengths of time, change the order you add the ingredients, use different milks etc.
2. Conduct lots of experiments, changing the variable each time and keeping the rest the same.
3. For example, set out three mugs, add boiling water then drop a tea bag in each and leave them in for different lengths of time. Once all the tea bags have come out, add equal amounts of milk and sugar, stir, make sure they're cool enough to drink, then taste.
4. Mark down your preference then use that information in your next experiment.
5. Get creative! Does changing the temperature of the milk improve the drink? Does stirring for longer or shorter amounts of time help sugar to dissolve?

Get young children involved

Children can experiment with iced tea, to avoid using boiling water. Adults should prepare the tea base with boiling water ahead of time and allow it to cool. Children could experiment with adding flavours like lemon juice and honey.

Next steps

Think about other things you often make in the kitchen, and how you could use the scientific method to make them even yummier!

This activity was based on a Bronze CREST project. Find the full project here: **secondarylibrary.crestawards.org/the-perfect-cup-of-tea/62134669**.

Career options

- Food product developer
- Chef

Competition: Create a British Science Week poster

If you're working with young people aged 3 to 11, why not challenge them to get creative and enter British Science Week's annual, UK-wide poster competition? Make a poster about any angle on 'Change and adapt' that you like and be in with the chance of winning an array of prizes. Each group or organisation can enter their five best posters.

Kit list

Paper (A4 or A3)

Creative materials such as:
pens, pencils, scissors, glue, watercolours, paint, crayons, pipe cleaners, felt, thread, wool, foil, clay, string, beads, stamps, foam, pompoms

Instructions

Encourage children to think about change and adaptation – what it means to them and how it relates to science they've learnt about – to come up with ideas to include in their poster. Here are some points and questions to get you going:

- Get children to think about ways that they might have changed or adapted to new experiences and places as they've grown.
- What about change and adaptation in the world, and beyond? How do plants and animals adapt to a changing environment? Do the stars and planets in space change?
- Technology changes all the time, how is it changing our lives? Is it always for the better?

Make your poster

Once they've done the thinking, it's time to get creative! Posters must be A4 or A3 in size and you'll need to be able to take a photograph of each one so it can be sent to us online for judging. You can use pop-up pictures, pull out tabs or use materials such as pencils, paints, crayons and paper to create your posters.

Submitting the poster

Posters will be judged on creativity, how well they fit the theme, how well they have been made or drawn, and how engaging they are. Once a poster is complete, take a photo of it and complete the online form to submit it as an entry.

Next steps

Celebrate! For more details, along with the full set of poster competition rules and tips, check out our website: **britishscienceweek.org/plan-your-activities/poster-competition**.

Look out for the activities in the pack marked with a paintbrush symbol, they can be a source of inspiration!

Senior winner of 2024 poster competition created by Nina from the Holy Cross School

UCL

FUNDED BY NIHR | National Institute for Health and Care Research

UEA University of East Anglia

NHS East and North Hertfordshire NHS Trust

IOM

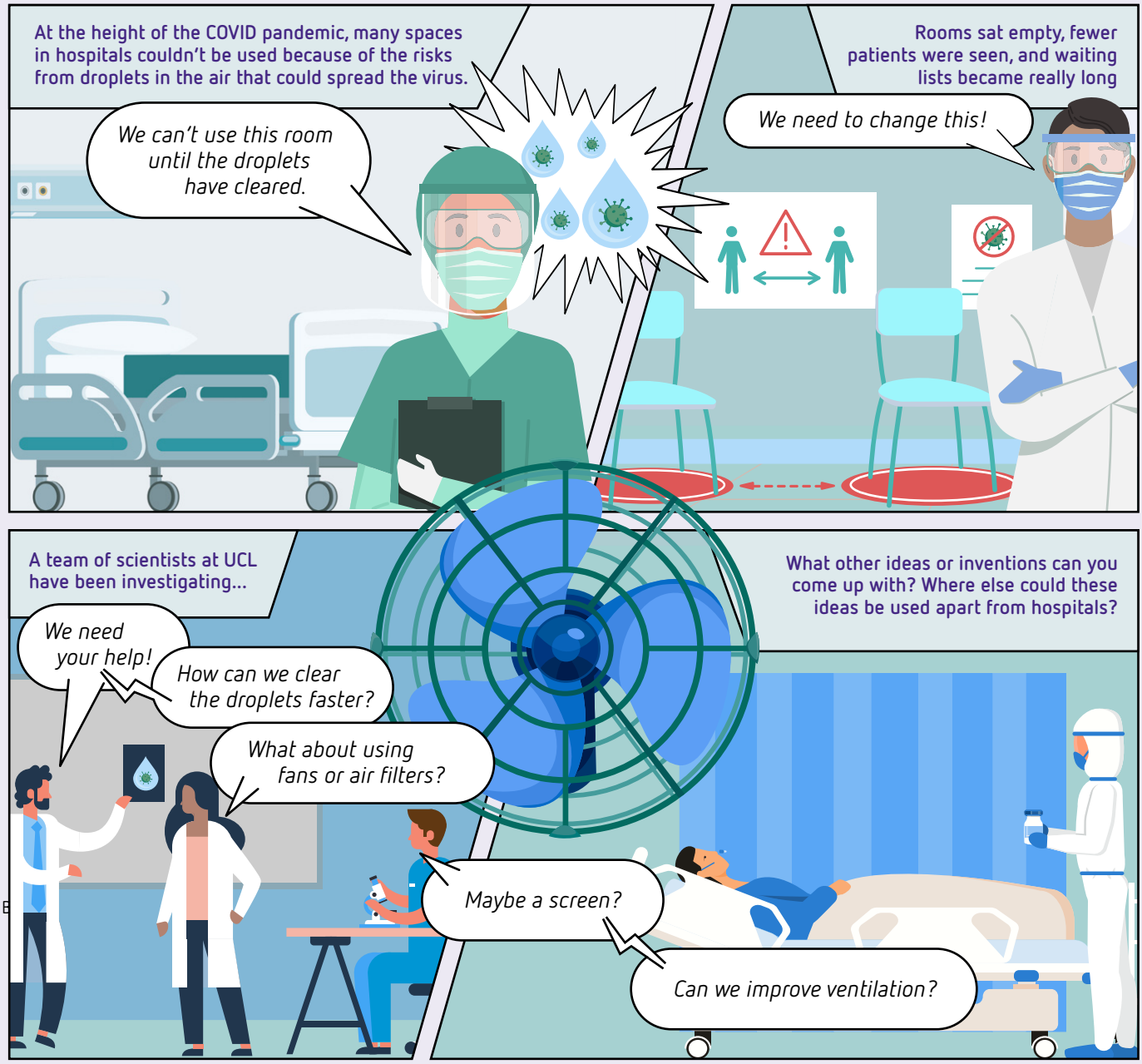
NHS University College London Hospitals NHS Foundation Trust

BRITISH SCIENCE WEEK 2025

Competition:

The scientists from UCL need your help!

Older primary children (aged 8-11), secondary students and young people up to age 19 may like to enter our special competition category this year and share their ideas with a team of top scientists at University College London (UCL)! Can they help by coming up with a new invention to improve the health of the air in our buildings? Organisations can select five of the best entries and submit them for a chance of winning an array of prizes! See the next page for instructions.



UCL

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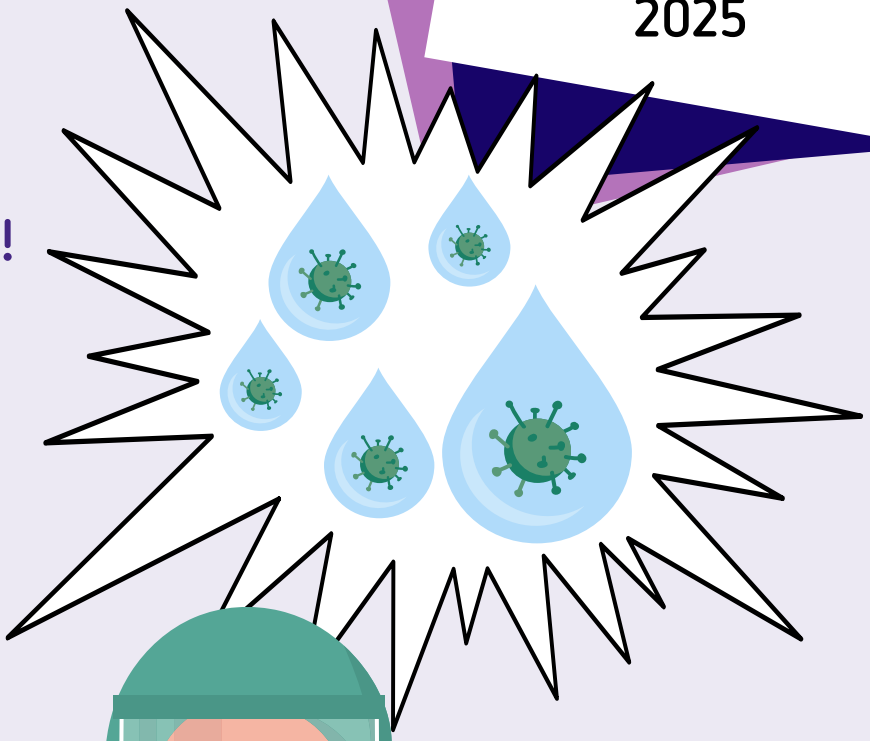
BRITISH SCIENCE WEEK 2025

Competition:

The scientists from UCL need your help!



Instructions

Choose an indoor public space where you often spend time – this could be an area where you learn, or a place you visit regularly like a library, café or cinema. Do you think the air in this space is healthy and clean? Why? Come up with an idea or invention to change the air in your chosen space, making it healthier to breathe. How will it work? Could it be used in other public places too?

You might have a brand-new idea, or you might come up with something that already exists but re-imagined in a unique or creative way. The researchers at UCL have considered lots of different ideas for improving air quality and preventing the spread of viruses in hospitals. For example, you could think about face masks, curtains and screens, ventilation, fans or air filters.

You should carry out some research first, to inform your thinking. Make sure your sources are trustworthy! Your entry should show some scientific understanding in line with your level of learning. Think about what you have learned in your science lessons and how this can be applied to the topic. How do the different states of matter behave? How do viruses affect our bodies? How could your design be physically built?

Then think carefully about how you will lay out and present your idea. You should consider how best to communicate your research so that it is clear and logical. You could create a set of instructions, a detailed diagram or you might like to develop an eye-catching poster. Will you include photos, graphs or other images to illustrate your thinking?

Entries must be A4 or A3 in size and you'll need to be able to take a photograph of your work so it can be sent to us online for judging.

Send us your entry

Once entries are complete, take a photo of them and complete the online form to submit the top 5!

For more details, along with the full set of poster competition rules and tips, check out our website: **britishscienceweek.org/plan-your-activities/poster-competition**

BRITISH SCIENCE WEEK

britishscienceweek.org