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

hen developing this pack, we looked for activities which promote crosscurricular learning and break down the stereotypes surrounding science, technology, engineering and maths (STEM). We therefore encourage you to use British Science Week as an opportunity to link STEM to other curriculum subjects, and to your children's own backgrounds, lives and interests.

We have included activities for children to complete in any setting, whether that is their nursery, school, a club, an organisation, or at home with their families. 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 Twitter (@ScienceWeekUK 🔆) and using the hashtag #BSW23.

Find an activity near you

Last year, more than 100,000 people participated in activities around the UK. Help us make British Science Week 2023 even bigger and better! Visit sciencelive.net 🔆 to find science activities in your local area.

STEM



BRITISH SCIENCE WEEK 2023 EARLY YEARS



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INTRODUCING THE THEME

CONNECTIONS

The theme this year for British Science Week is 'Connections'! Introduce the theme to children in a fun, imaginative way to get them excited about the Week ahead. Here are some ideas you can try:

- Ask children to design a poster based on this year's theme and enter it into our poster competition for the chance to win some fabulous prizes! Some of the activities in this pack can provide inspiration, simply look out for the activities marked with the paintbrush symbol shown below! You can find more information about how to enter on page 18 % and at britishscienceweek.org/ plan-your-activities/postercompetition %.
- Try a game, give an audio-visual presentation, explore a mystery or special object, or create a popup display which communicates the theme of 'Connections'. These activities are great to use as fun warm ups, and are a fantastic way to start British Science Week.
- Engage children by discussing how connections are made between people, plants, animals, materials, countries and other things in their everyday lives. What are good examples of connections?
- Invite a special guest or someone from the school community to share with the children their own experience of connections (for example, how they have made connections with other scientists and learned from them), showing how connections between people can help the study of connections in science. See page 5% for information on how to get volunteers.

Here are some other ideas to include at the beginning of British Science Week:

- Tell children about the plan for the Week and give them a challenge related to the theme. If you are sending home a family experiment, maybe you could introduce or demonstrate it at your setting (nursery, school, community group, etc) first.
- Connections are all around us. Where has the topic of connections been in the news or your local area? What are examples of good and bad connections? Is there any way you can encourage conversations about this with your children?





MAKING THE MOST OF VOLUNTEERS

Face-to-face engagement is a great way to get children involved and excited about a volunteer speaker and their topic, but don't forget that there are still opportunities to get volunteers and presenters to engage with children online.

TEM 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 young people wherever they are.

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

You can also look for presenters and volunteers via Science Live (sciencelive.net %), or ask parents if they work in STEM-related jobs to describe what they do in more detail.

You could also try some of the following things:

- Schedule two or three different guests for careers talks during the Week, if possible, to get children anticipating who the next guest will be and what they do. These sorts of experiences can inspire children to think about what they want to be in the future. Remember, they are never too young to explore their career options!
- Where available, involve volunteers/Ambassadors who challenge stereotypes about scientists the children might have absorbed, and promote positive attitude towards science, for example, female engineers. Let the volunteers/Ambassadors

share how their job is making a difference in the world, or an anecdote of a science activity they loved to do as a child.

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 with them ahead of time.

Volunteers come from a range of careers and experiences, from engineers, designers and architects to scientists and technicians, so get children looking forward to inspirational career talks which broaden their choices and develop their job interests!

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



BRITISH SCIENCE WEEK AT HOME

Do you want to help children carry on participating in British Science Week at home? Here are our top tips for engaging parents and carers with the Week.

- Make the most of parent newsletters, the Parent-Teacher Association (PTA), chat group and text messaging services, if you have them. Let all the parents know at least a month in advance of the Week what you have planned, and how you'd like them to be involved. They might be able to collect or donate materials for use during the Week, and if you want them to get involved in any experiments at home, they may need time to plan and collect materials themselves. The PTA may be able to support you financially to run activities during the Week or help to drum up parent volunteers.
- Get parents thinking about how their own jobs might link to STEM subjects and encourage them to chat with their children about this. You could do this via a newsletter or send children home with activities they can do with their parents or carers, which may then lead onto further conversations.
- Encourage exploring outdoors, in the community or in local cultural spots. This could be anything from going on a nature walk around local parks, to spotting STEM in action on the streets around children's houses. You might want to check out the free resources available through CREST Awards. Many of the Star activities can be used with under 5s in an outdoor setting. Check out the CREST Star challenges collection: bsa.sc/primarylibrary-

crestawards-allstarchallenges 🔆

Send an experiment idea home during the Week to perhaps spark mealtime discussions around science. Try to make it as lowresource as possible. It can help if it's something the children have tried or seen at school first so that they feel like the 'experts' when they do it at home with family or carers, allowing them to lead the learning. Some of the activities in this pack have been adapted to be easily run at home, so they are a great place to start! There are also a range of sciencebased home activities requiring few resources in the CREST Home learning collection: bsa.sc/collectionslibrary-

crestawards-low-resource 🔆



GATHERING RESOURCES FOR THE CLASSROOM OR HOME

f you can, try to collect materials throughout the year for use during British Science Week. Alternatively, check to see whether there is a scrap shop/store/club open in your local area. These places are often membership-based and can be a brilliant, inexpensive or free resource for card, fabric and other bits of material. Salvaged materials can be turned into spaceships, trees, sea creatures and more; you name it - the kids will think of it! Look at childrensscrapstore.co.uk 💃 to find a UK directory of scrap stores.

Take photographs when out and about and share these with the children to foster discussion and raise their level of understanding about the connections happening all around us, in plants, building structures and so on. The more colourful, the better! The photos can be a reference point for future activities, for example a version of the guessing game 'I spy', where you can describe your observation of a connection and the children can attempt to guess it.

Collect story books and reference books around the theme of 'Connections' to create a themed library. You can even organise a read-aloud session of a story book for circle or carpet time.



BEYOND THE WEEK



Exploration and curiosity don't have to end once British Science Week is over!

Some of the following ideas could help you to expand the learning beyond the Week:

Have children take part in a CREST Award. CREST is a scheme that encourages young people to think and act like scientists and engineers. Children can complete eight activities to achieve a Star Award, which will see them receive a certificate and badge. Look out for the CREST logo to see which activities can be put towards a CREST Award. Older children could also work towards a higher-level CREST Award. Take a look at the different CREST Star challenges here:

bsa.sc/primarylibrary-crestawardsallstarchallenges **%**. If you have the opportunity, consider running a STEM club or curiosity lab. You can find supporting resources at stem.org.uk/stem-clubs 🔆.

Look out for the 'Inspired? Find out more about CREST' logo, shown below, on some of the activities in this pack. This logo indicates that this activity is a perfect jumping off point for designing your own CREST Awards project!'











A fantastic way to encourage children 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, engage children in this STEM Person of the Week activity from NUSTEM at Northumbria University. Ask children to identify what attributes people working in STEM need. These might include being observant, creative, patient, good at communication or curious. Look out for the skill(s) unlocked tags for each activity in this pack.

See the table below for the complete list of skills developed by NUSTEM to use as a talking point or to share with other teachers.

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

Collaborative



This activity is designed to get children thinking about the connections between weights and ramps, and investigating these. Check out our video demonstration here:

💿 bsa.sc/YouTube-CREST-Confusing-cans-demonstration 💥

30 minutes

Skills unlocked: Curious, Observant

Through this activity you will support children to:

- think about how to find out what is inside a can without opening it
- 🔰 conduct an experiment
- > record and present their results.

lnstructions

- Set up the equipment as shown in the video demonstration \.
- 2 Introduce the activity to the children including the 'think and talk about' questions. Explain that they will be exploring how to find out what is inside the cans without opening them.
- 3 Encourage children to discuss their ideas and how to carry out their investigations. How might they roll the cans? Support children to conduct their investigation and record their results. Let them explore the unlabelled cans first. Then roll the labelled cans to make a comparison.
- 4 Ask them to use their observations to predict the contents of each unlabelled can. Talk about the distance each can rolled and what is inside it. Can they see a pattern?
- 5 Ask the children to present their findings to the rest of the group, they can be as creative in their presentation as they want.

Phink and talk about

Think about how to support the children to measure distance. You might use markers to show where each can rolled to, or cut pieces of string to show the length each can travelled. String lengths can then be compared side by side.

🛆 Watch out

- Remind children not to leave cans lying on the floor for people to trip over.
- Use a safety can opener. Keep sharp can edges away from little fingers, and push the can lid down inside used cans before disposing of safely after use. Opening cans and heating food should be done by adults. Check your organisation's policy.

📎 Next steps

This activity is one of the CREST Star challenges. Why not try some of the other activities with your children? You can find out more and download all the resources you need here: crestawards.org/crest-star 🔆.

For more ideas on how to get started with the CREST Awards visit: crestawards.org 🔆.

🛆 At home

Children can fill containers (coffee tins or jars with lids) with different things e.g. sand (different amounts), syrup or cotton wool and see what happens.



合 Kit list

baked beans and cat food for each group, labels removed and marked with different numbers/ colours

A set of cans with labels for comparison

Boards/trays to make the ramp plus blocks/books to support it

Tape measures/ other distance markers







HAPPY SMELLS

This activity focuses on our sense of smell and can be run in groups or with the whole class.

We can identify thousands of smells. They can warn us of danger, for example, smoke from a fire. It can also make us happy when we smell something we like.

🏷 30 minutes

Skills unlocked: Observant, Curious, Communicator

🔁 Kit list

Scented flowers

Items with different smells like vinegar, lemon, coffee, mint, shower gel, orange, chocolate and garlic

Small pots

Elastic bands

Old, opaque plastic bags

Paper and pen to record results

Pictures of your different scented items

Instructions

- Show the children a scented flower and let them smell it. Ask "Have you ever smelt something that made you happy?". Have the children discuss in pairs or within the group.
- 2 In advance, fill small pots with objects that have different smells. Encourage the children to describe them and decide which is their favourite. You could make a class pictogram.
- 3 To make it more fun, cover the pots with old opaque plastic bags secured with an elastic band. Poke a few holes in the top so that the children can smell but not see the objects. Can they match the smell to a picture of the different objects?
- 4 You could also take them near the school or nursery kitchen to guess what's for lunch. They could compare the smells of herbs or flowers around school.

O Think and talk about

- Where were you when you smelt something that made you happy?
- Was the smell nearby or far away?
- Do you have a favourite smell in your home – for example, when you smell something cooking?

🛆 Watch out

- Ensure children do not get any of the scented substances in their eyes or mouth. Rinse immediately if this happens.
- Be aware of children with allergies and those who suffer from hay fever when smelling flowers.
- Children must not touch or taste the contents of the smell bottles.
- Teach children to smell by holding the bottle a few centimetres away from their nose, not touching their nose.
- Children must not open bottles.
- For strong smelling items such as vinegar, have the children waft the smell towards their nose from a distance.

📎 Next steps

This activity is based upon the primary science capital approach, which uses children's experiences to enhance their learning and enables them to become the experts. Further information can be found on the Explorify website: explorify.uk 🔆.

🗅 At home

Ask family, carers or friends what their favourite and least favourite smells are. Then ask why.







GROWING UP

Children are encouraged to talk about people of different ages and think about how we all change as we grow up. Through role-play, they are encouraged to make connections between people's ages and what they can do at different times of life.

🔆 20 minutes

Skills unlocked: Observant, Creative, Communicator

🔁 Kit list

Baby toys

Blanket

Dressing up clothes i.e. walking stick, glasses

Photos of people of different ages (could be people the children know)

Photos of the children as babies (optional)

Instructions

- Put pictures of people of different ages in the role-play area. You could use photos of people children know or themselves as babies. Provide a range of dressing-up clothes and accessories that would be used by babies, children and adults.
- 2 With the whole class, or a small group, ask children about the people they live with. Who is the youngest - what can they do? Who is the oldest - what can they do?
- 3 Take a small group of children to the role-play area. Look at the photos and talk about how the people are similar and different.
- 4 Say "Let's pretend to be different people". Encourage the children to use clothes and objects.
- 5 During the activity ask the children to tell you why they have chosen their clothes and objects, and what they think their person could do.

Phink and talk about

- > What can you do now?
- How have you changed since you were a baby or a toddler?
- What will you look like when you grow up?
- What will you be able to do when you are older that you can't do now?

🛆 Watch out

- Be mindful that some children may be missing someone who is special to them.
- When selecting objects for role-play, avoid long straps on adult clothing or bags, and ensure any mobile phones/electronic devices are turned off and remove batteries from mobile phones.

📎 Next steps

More activities to help children develop their knowledge of themselves are suggested on PSTT's 'Ourselves' Provision Map. Click on the camera icons to see children carrying out some of the activities:

pstt.org.uk/application/ files/4116/3222/0167/EYFS_provision_ map_topics_04_ourselves.pdf 🔆

More Provision Maps linked to topics and story books are available here: pstt.org.uk/resources/curriculummaterials/eyfs-science 🔆.



Children could look at a baby photo of someone they know and talk about how they have changed as they have grown older.





WILDLIFE FACES

Children will develop their observational skills, and knowledge of the names and features of living things typically found in parks, gardens, fields, and hedgerows in the UK. Not only will children connect wildlife images, but they will also be making connections between different types of animals, noticing similarities and differences.

🔆 20 minutes

Skills unlocked: Observant, Curious, Communicator

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🔁 Kit list

Instructions

Scissors

Images of animal faces cut in half along their line of symmetry. You could use your own photos or images freely available from PSTT's EYFS resources: Download at: bsa.sc/Britishwildlife-faces-forearly-years

- Prepare the Wildlife Faces cards in advance:
- Print about 12 large images of animal faces.
- Cut the large images in half (along the line of symmetry). You might want to write the names of the animals on the back of the images.
- 2 Mix the cards and show them to the children.
- 3 Ask children to match the halves of the faces and to identify the animals.
- 4 Encourage children to look closely at the features of the animals, e.g. the shape of the head, the colour of the eyes, feathers and fur.

O Think and talk about

- Y Can you tell me about this animal?
- > Which body parts can you name?
- How are these animals similar?
- How are these animals different?

📎 Next steps

More Early Years wildlife resources can be freely downloaded from the PSTT's Play, Observe & Ask webpage: pstt.org.uk/resources/curriculummaterials/eyfs-science 🔆.

On the same webpage, you will also find Science Provision Maps. These suggest science-based activities linked to topics and storybooks commonly used with young children.

At home

Children could make pictures of animals using natural materials found outside (e.g. sticks or leaves) and describe their features to friends or family members.



nsead

MAKE A COMMUNITY CONNECTIONS MAP

We are all connected to other people. Some people we know well, some people we see in places we go to, and some people we have never thought of! In this activity children will talk about their connections and make a map showing the different people and places where they connect.

 \bigodot 30 minutes (you can divide this activity into the 'talk' activity and 'recording', or record as you talk)

Skills unlocked: Observant, Creative, Communicator

Instructions

Long strips of plain
paper – the plain
side of a roll of
wallpaper or lining
paper is good1Start
that t
day-t2On lo
draw

Coloured pens and markers

合 Kit list

- Start by making a list of all the people that the children see and meet in their day-to-day life.
- 2 On long strips of paper let the children draw a 'map' of their journey to school or a club. Children who live near each other could do this together in small groups. Help them to plot and draw all the landmarks that they see on their way.
- 3 When they have completed their map, ask them to mark all the places where they see different people each day, e.g. the person who helps them to cross the road into school.
- 4 Mark against each person the ways they interacted, e.g. they might have helped the child cross the road.
- 5 Discuss the people and places they have 'mapped' and how they connect to each other. The children can keep adding details to the map whenever they think of something new.



Think and talk about

- > Who do you see during your day?
- > How are you connected to these people?
- > How do you communicate with the people that you see during your day?
- > Who do they communicate with?
- What technology helps us to communicate?
- For further safety guidance on working outside, refer to: CLEAPSS Guide -Working safely outdoors 34.

🛆 Watch out

Use water-based pens that are washable and non-toxic.

Next steps

Art, craft and design activities and advice for teachers available here: www.nsead.org/resources/ primary-education

🙆 At home

Children could think about who else they connect with and see how many people they list. They can also think about how they communicate, and the technology that keeps us connected.



NATURE DETECTIVES

We have some amazing nature in the UK and some of it is right on our doorstep! This activity encourages children to connect with local nature and become nature detectives exploring their surroundings, identifying different wildlife and using reasoning skills to determine what wildlife needs to survive.

🔆 30 minutes

Skills unlocked: Observant

🔁 Kit list

Simple wildlife spotting guide bsa.sc/WWFwildlife-spotter 🔆

Magnifying glass

Insect pooter (optional)



Instructions

- Explain to children that they are going to go outside and search for wildlife. Ask them where they think different creatures might live and where they think they might be able to see them.
- 2 Take children outside either in the school/ nursery grounds or in a local green space.
- 3 Next, get the children into small groups with an adult. Look in different habitats to see what you can find.
- 4 Use the simple wildlife spotting guide, magnifying glasses and insect pooters to help them identify what they have found.
- 5 Write down a list of all the different wildlife the children find. Choose a few animals from the list and discuss with the children where they found them, what they think their homes would be and what they might need to survive.

🔎 Think and talk about

- > What different parts of nature can you explore with your senses?
- > What do you think 'wildlife' means?
- > What do plants need to make a good home?
- What do different animals need to make a good home?
- What would happen to these animals if their homes were disturbed by people?

🛆 Watch out

- Follow your organisation's guidelines for outdoor learning and/or school trips.
- Children must not put anything in their mouths.
- Make sure children wash their hands after the activity.
- Remember if you do move any creatures make sure to put them back where you found them.
- For further safety guidance on working outside, refer to CLEAPSS Guide Working safely outdoors \$\cong t.

📎 Next steps

You can help out local nature around your school and nursery grounds. Build a bug hotel for your local minibeasts or an apple bird feeder to feed your local birds.

www.wwf.org.uk/sites/default/files/2019-03/ WWF_Apple_Feeder_Activity_Sheet_0.pdf 🔆

www.wwf.org.uk/sites/default/files/2019-03/ WWF_Bug_Hotel_Activity_Sheet.pdf 🔆

For more early years activities based around nature and climate change visit: www.wwf. org.uk/learn/love-nature/get-making

🗅 At home

What wildlife can you spot around your home/local area? Are they the same or different to the ones you saw around nursery or school?





Co-funded by the **European Union**





SEE & EAT VEGETABL FSI

This activity introduces children to the field to fork journey of one vegetable – broccoli – highlighting the key stages of growing, harvesting, shopping, preparing, cooking and eating. Children will learn about the connection between how foods grow and how they end up on their dinner plate.

(30+ minutes

Skills unlocked: Observant, Creative, Curious

合 Kit list

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Pencils or paint

Scissors

Glue

Hole punch & thread

Activity template

Optional: computer, iPad or tablet to look at See & Eat resources

Instructions

Show children the field to fork journey of broccoli using the printed activity template, highlighting the six stages (growing, harvesting, shopping, preparing, cooking and eating).

Optional:

Visit the See and Eat website to see broccoli's field to fork journey in pictures (www.seeandeat.org 🔆), and share this using your interactive whiteboard.

- Ask children to create their own storybook 2 about broccoli. They could draw or paint the story or cut the activity template into sections and stick these on pieces of card. Encourage children to create one page for each stage of the journey.
- 3 Punch holes in the pages and tie them together with thread to make a book about the broccoli's story.

Think and talk about

Where does broccoli grow, in the ground or on a tree?

see

& eat

- > How do you prepare broccoli to be eaten? Do you need to wash it? Cut it? Peel it?
- Why is it important to eat vegetables?

△ Watch out

- Please follow your organisation's guidelines around using electronic devices with children.
- > Be careful when using scissors to cut out shapes.
- Adult supervision is required if using glue.

>> Next steps

Did children enjoy learning about how broccoli gets from the field to their fork? Visit the See & Eat website (www.seeandeat.org 💥) for more activities to familiarise children with vegetables and for instructions on how to download See & Eat vegetable ebooks to your iPad, tablet or smartphone.

At home

Have you thought about taking children to the supermarket to show them the different shapes, sizes and colours that vegetables can be?





Co-funded by the Y

see & eat



SEE & EAT VEGETABLES BROCCOLI FIELD TO FORK

Please go to the end of this pack for an A3 version with cutting guide.





POSTER COMPETITION

Children can get creative and enter British Science Week's annual, UK-wide poster competition! They can make a poster about any 'Connections' that appear in the world of science they like, and be in with the chance of winning an array of prizes. Each school can enter the 5 best posters!



Paper (A4 or A3)

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

Instructions

Encourage children to think about different types of 'Connections' so they can come up with ideas to include in their poster. Here are some points and questions to get you going:

- Get children to think about their personal experience of connections – have they connected with their classmates, teachers, family members or other role models in a way that has helped them learn more about science?
- How do children think the world is built on connections? You could help them to consider evolution and the ancient family tree that connects all animals, how atoms connect or bond to make up our surroundings, connections in construction or even how all our body parts are connected. What are examples of good connections?
- Can children think of scientists who connected with other people to make world-changing innovations? Perhaps they could create a portrait of them to show this?

From the learning of new skills to the development of places and ideas that enable us to do things more efficiently in our everyday lives, connections are everywhere!

Make your poster

Once they've done their thinking, it's time for children 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. Children can use pop-up pictures, pull out tabs or use materials such as pencils, paints, crayons and paper to create their posters.

Send us your 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 child's 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 this pack marked with a paintbrush symbol, they can be a source of inspiration for the children!



We want to hear from you! Tell us what you think of the activities using our survey...



Visit bsa.sc/activitypacksurvey 🔆

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