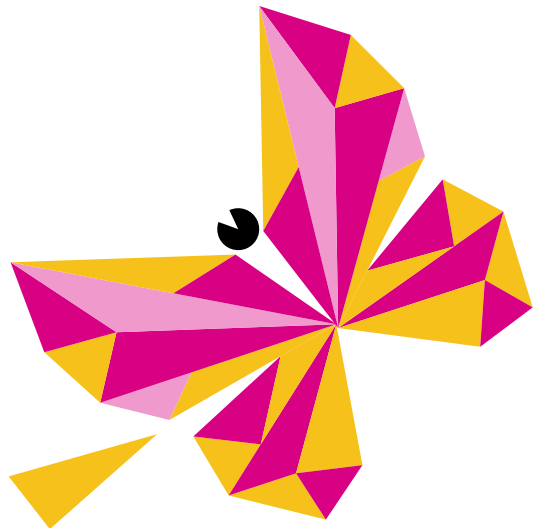


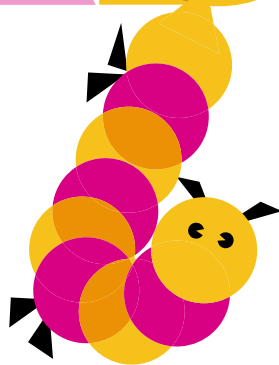


BRITISH
SCIENCE
WEEK

7-16 March 2025



CHANGE
& ADAPT
CHANGE & ADAPT



Delivered by



BRITISH
SCIENCE
ASSOCIATION

Supported by



UK Research
and Innovation

EARLY YEARS
ACTIVITY PACK

A range of activities to be run with
children aged 5 and under (approx.)

britishscienceweek.org



Welcome to the British Science Week 2025 Early Years pack!

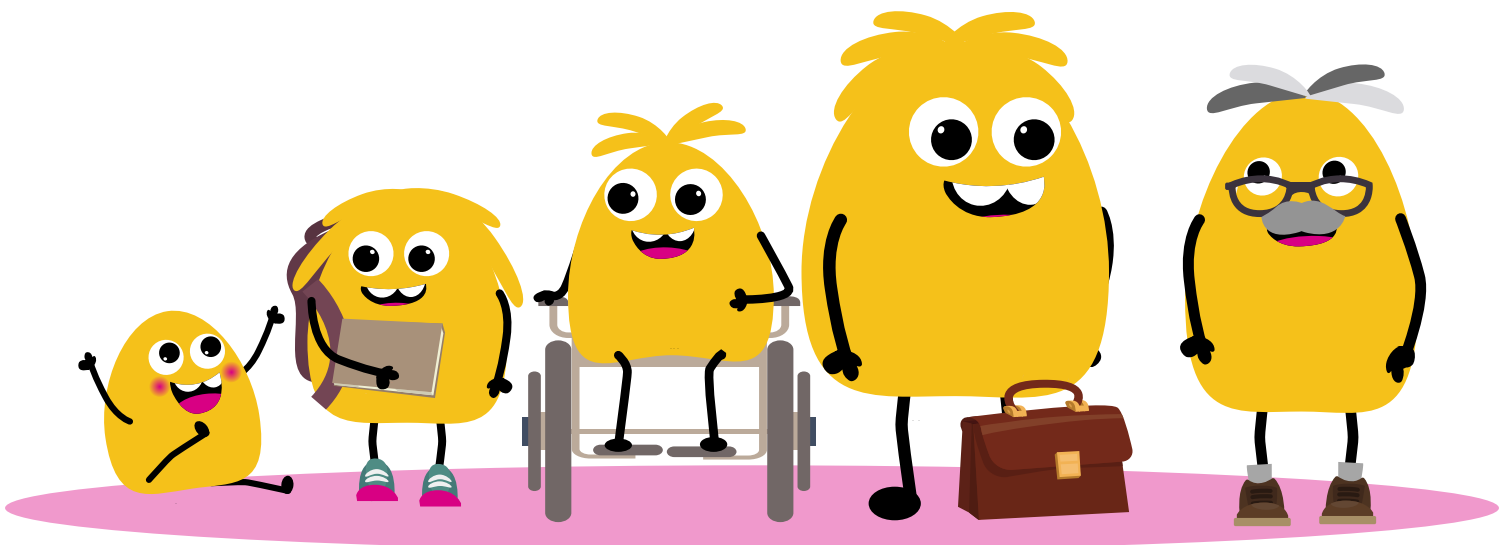
This activity pack is a one-stop shop to support you during British Science Week, and you can use it all year!

When developing this pack, we looked for activities which promote cross-curricular 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.

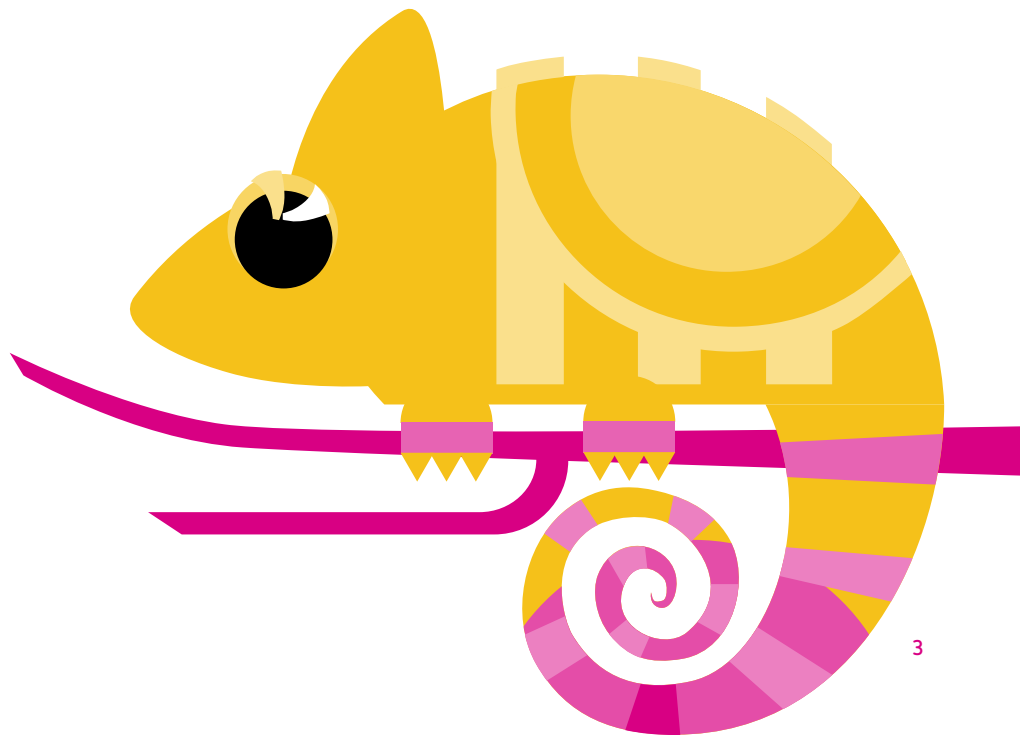
We have included activities for children to complete in any setting, whether that is their nursery, school, a club, an organisation, or at home with their families.

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](https://twitter.com/ScienceWeekUK)) and using the hashtag [#BSW25](https://twitter.com/BSW25) across all social media platforms.



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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 students in

a fun, imaginative way to get them excited about the Week:

- Design a poster based on this year's theme and enter it into our annual 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 above. You can find more information about the competition **on page 21** ✨ and how to enter here: britishscienceweek.org/poster-competition ✨.



- Talk about what change and adaptation mean. Can you think of ways that the world around you changes? What happens when day changes into night, or as one season turns into another? What season are we in now and what changes will we see as we move into the next one? How do we change and adapt what we wear in the different seasons and why? Do animals adapt to the different seasons too?
- If you work in a school or nursery, you could invite a special guest to come in and share their own experience of change and adaptation. Maybe a grandparent could come in and talk about the changes that they have seen or experienced during their lifetime. Or maybe a member of the community could visit and talk about ways in which the local area has changed over time.

CHANGE & ADAPT



CREST Awards

CREST Awards is a scheme run by the British Science Association that inspires young people to think and behave like scientists and engineers.

CREST projects are hands-on, student-led investigations that allow children and young people to develop STEM skills, communication and teamwork, and discover how STEM is relevant to their lives.

At early years and primary level, CREST projects typically take between 45 minutes and one hour to run. Children who complete six CREST activities can earn a Star Award, recognised with a certificate. CREST passports are also available to download from our online resource library, allowing you and your children to track their progress as they complete the projects. The

Award is given for participation and engagement with the activities and all children are encouraged to take part.

Look out for the CREST logo in this pack to see which activities can be put towards a CREST Award. You may like to adapt or scaffold the activities, depending on the needs of your children. You can find more CREST Star projects suitable for children in early years in our online resource library: primarylibrary.crestawards.org/#Star ✨

Find out more about how to run CREST Star Awards here: crestawards.org/crest-star ✨

What impact does CREST have?

We have found that there is around a 50/50 split of boys and girls completing CREST Awards, helping to smash the stereotype of science being 'for boys', and driving towards a more representative future STEM workforce.

Three in five schools who run CREST are in challenging circumstances; earning a CREST Award can be particularly beneficial for children from disadvantaged backgrounds.

Find out more in the [CREST Impact Report \(2021-22\)](#) ✨



UNLOCKING SKILLS

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.

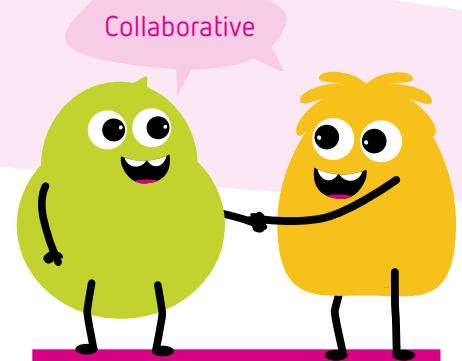
These skills will strengthen positive attitudes and reduce stereotypes of those working in the field.

You could, for example, use some of the activities from the 'Play, Be, C' units, developed by NUSTEM at Northumbria University:

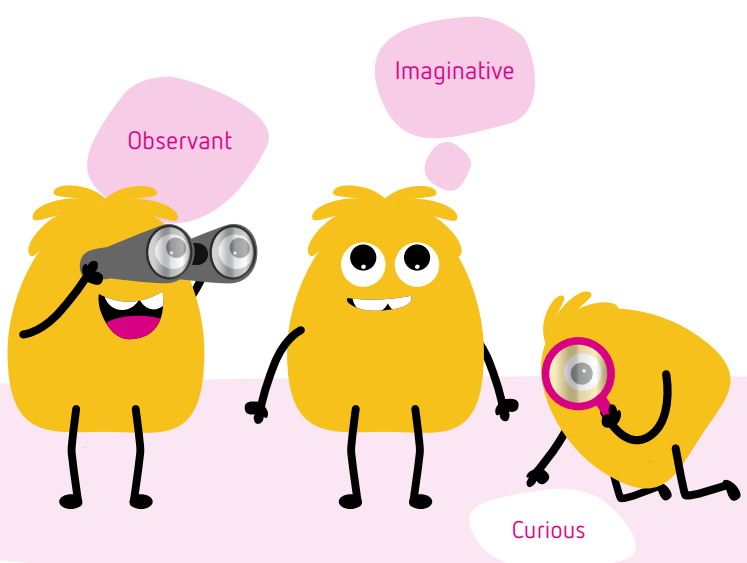
nustem.uk/eyfs ✨ These units aim to promote STEM careers and STEM attributes in EYFS. In early years, STEM attributes might include being observant, creative, patient, good at communication, or curious.

Look out for the skills unlocked tags for each activity in this pack.

The table opposite has a complete list of attributes developed by NUSTEM to use as a talking point or to share with other teachers. As a little bit of motivation, why not award children with a certificate for each STEM characteristic they demonstrate well during the Week? You can download and print the certificates from britishscienceweek.org/plan-your-activities/marketing-materials ✨.



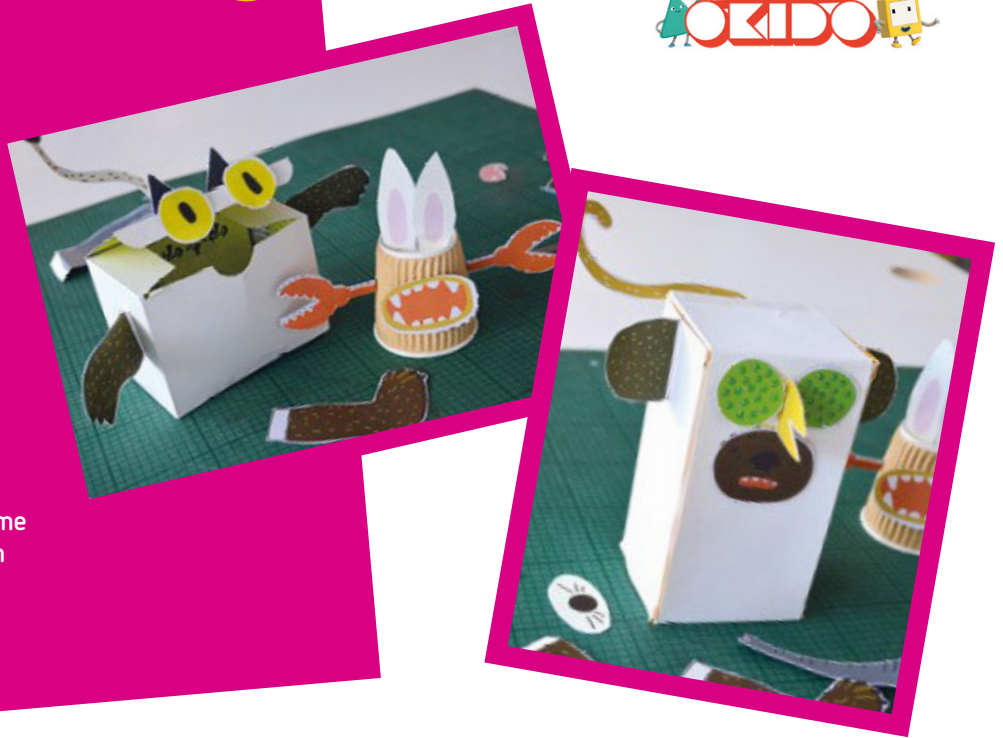
- Observant
- Open-minded
- Committed
- Curious
- Logical
- Creative
- Imaginative
- Patient
- Self-motivated
- Collaborative
- Resilient
- Clear communicator
- Passionate
- Hard-working
- Organised



LET'S CREATE AN ANIMAL!

In this activity, children will create a new type of animal, for example, an animal with a long beak, a tail and some googly eyes, or any other combination to adapt to a given environment.

🕒 10-20 mins



Kit list

Some empty boxes such as:

Juice carton, egg box, packaging, empty small box recycle!

Scissors

Glue

Tape

Cut outs of body parts and animal features from the two sheets following this page

Instructions

- 1 Discuss different environments such as the desert, forest, or Arctic with the children, what are these places like? Are they hot or cold? Wet or dry? What kind of plants and animals live there? Ask them to choose an environment for their creature.
- 2 Cut out the body parts provided on the following two pages for the children and spread them out on their tables.
- 3 Have the children choose an empty container from your recycling or you can provide any empty box. You might start by collecting a few before starting this activity.
- 4 Help the children glue or tape some body parts to their containers. Add some legs, nose/beak, wings, ears, eyes to help the animal survive in an environment the children have chosen.
- 5 Encourage the children to name their new animals.

Next steps

Look at animals in different habitats and discuss their special features. For example:

- Birds who live near the sea or a wetland may have long legs and beaks to help them wade through the water to find food.
- Animals who live in forests can be great climbers.
- Some animals who live in hot countries come out at night to avoid the heat of the day.
- Nocturnal animals may have large eyes to help them see in the dark.
- Many animals with exceptional hearing have big ears.

Skills unlocked

Imaginative, creative







CAMOUFLAGE CATERPILLARS

This activity will engage children with a demonstration of camouflage! They will collect 'caterpillars' made from different coloured strands of wool and hide them in grass, then challenge each other to think like hungry birds and find them. How does changing the colour of the wool affect how easy they are to find?

🕒 30 mins

Kit list

Different lengths and colours of wool, including green

A varied open space with greenery

Instructions

- 1 Split the children into two equal groups.
- 2 Give each child a handful of strands of wool of different colours – these are their 'caterpillars'.
- 3 Have the two groups hide their woollen strands in separate areas of the outdoor space.
- 4 When all the caterpillars are hidden, explain to all the children that they have now become hungry birds.
- 5 The two groups must swap areas and try to find as many of the other group's strands as possible in the time allowed.
- 6 Ask the children which strands were easier to find, and discuss why that might be.

Watch out

Children must wash their hands thoroughly after touching soil and plants.

Next steps

Take a look at Learning through Landscapes' other ideas for taking learning outdoors - ltl.org.uk/free-resources ✨

At home

Take this activity into your garden, local park or any other outdoor space! Look out for real caterpillars and other insects, or spend some time watching the birds foraging for worms or caterpillars themselves.

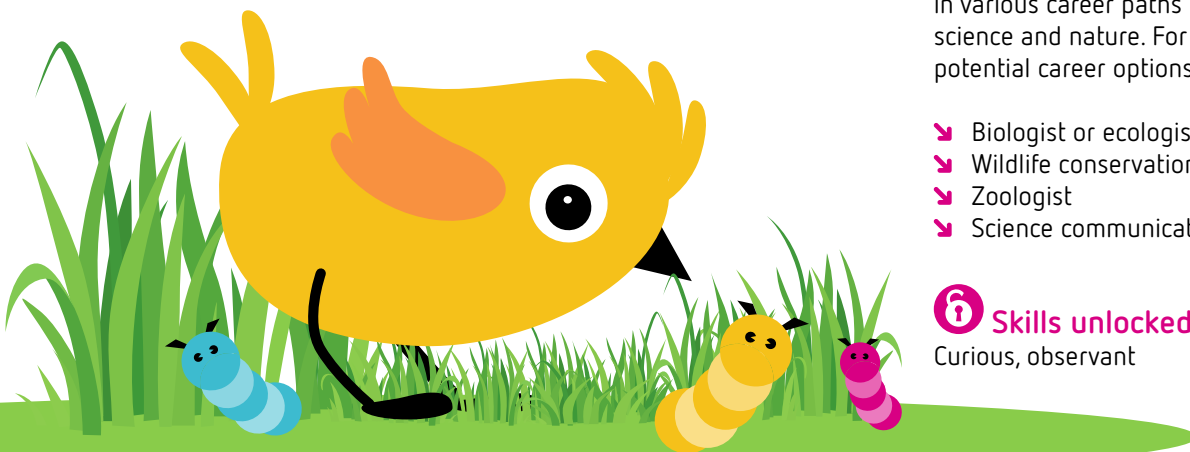
Career options

This activity can inspire interest in various career paths related to science and nature. For example, some potential career options could be:

- Biologist or ecologist
- Wildlife conservationist
- Zoologist
- Science communicator or writer

Skills unlocked

Curious, observant



LET'S MAKE A PAPER CHAIN CATERPILLAR

In this activity, children will make a fun caterpillar, then change it into a butterfly! By using different coloured paper, children will learn about metamorphosis and the colours of the rainbow.

🕒 30-60 mins

Kit list

Scissors

Glue sticks

Colouring pens

Coloured paper

Instructions

- 1 Cut the paper into strips. About 5cm x 21cm. Arrange colours in rainbow order.
- 2 Starting with the red strip, support the children to create a loop and glue it together. Help them to add the next colour, looping the orange through the red.
- 3 Continue looping the strips, following the order of the colours of the rainbow.
- 4 Once you've looped all the strips together, you will have a paper chain!
- 5 Make some wings by folding a piece of paper into a fan. Cut out eyes and antennae.
- 6 Glue the eyes and antennae onto the caterpillar. Add the wings to make it into a butterfly!
- 7 Have the children think about – have they ever seen a caterpillar? What do they eat? What is a grown caterpillar?
- 8 Ask the children to try and name all the insects they know and think about where they see them.

Next steps

Help children to draw the lifecycle of a caterpillar to a butterfly.

Have a look for free resources and more activities on www.okido.com ✨.

Watch metamorphosis episode and song on BBC iPlayer bbc.co.uk/cbeebies/shows/messy-goes-to-okido ✨.

At home

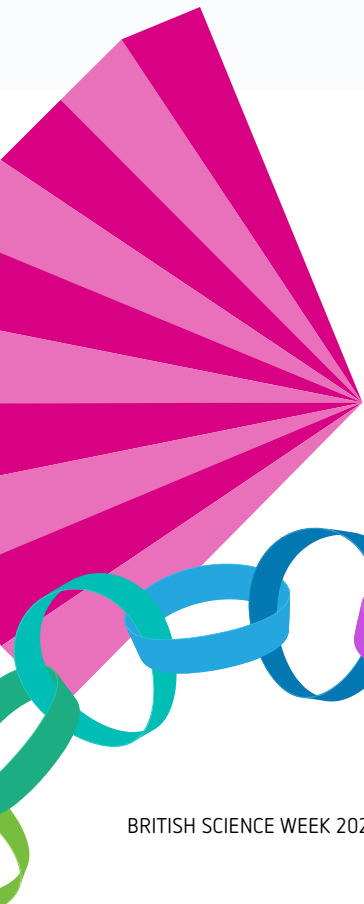
Children can observe insects in their garden or a local park. Families can make more paper chain caterpillars with different colours and shapes.

Career options

- Biologist
- Conservation biologist
- Zoologist
- Countryside work
- Horticulturalist
- Ecologist
- Environment work
- Sustainability work

Skills unlocked

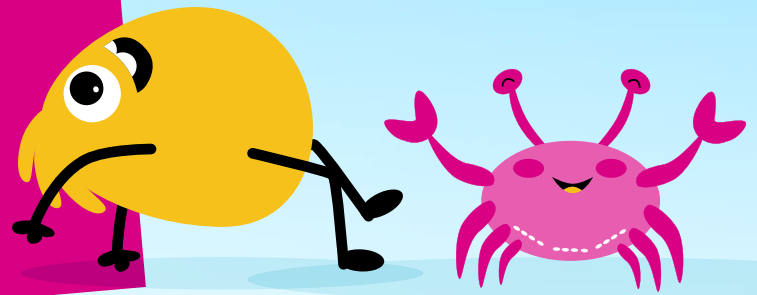
Creative, open-minded



DEEP SEA YOGA DISCOVERY

This activity will engage children in a fun and educational activity that combines physical movement with learning about marine life and their adaptations, promoting both physical wellness and environmental awareness.

🕒 30-60 mins



Kit list

Relaxing music or ocean sounds

Yoga mats or gym mats

Large space

Pose descriptions (on the following pages)

Instructions

- 1 Lead a gentle warm-up to get the children ready for yoga. This can include simple stretches (reach for the sky, touch your toes and reach for the seabed) and deep breathing exercises (imagine you're a big, slow-moving whale).
- 2 Introduce each yoga pose with a brief explanation of the corresponding marine animal and its adaptation.
- 3 Demonstrate the pose and then guide the children in trying it themselves. Hold each pose for up to 1 minute, ensuring the children understand the connection between the pose and the animal's adaptation.
- 4 Set the scene with calm, ocean-themed or whale song background music.

Next steps

Find out more about ocean science, art and careers at www.rmg.co.uk/stories/our-ocean-our-planet ✨.

The National Maritime Museum is the world's largest maritime museum, filled with inspirational stories of exploration and endeavour at sea and packed to the gunwales with intriguing objects and fascinating galleries. www.rmg.co.uk/national-maritime-museum ✨.

At home

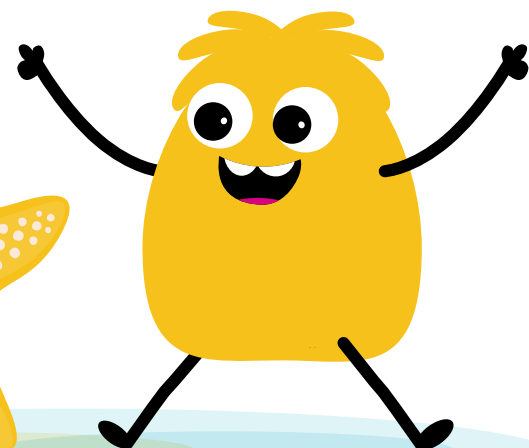
Can you think of any other ocean animals? What yoga poses would suit this animal?

Career options

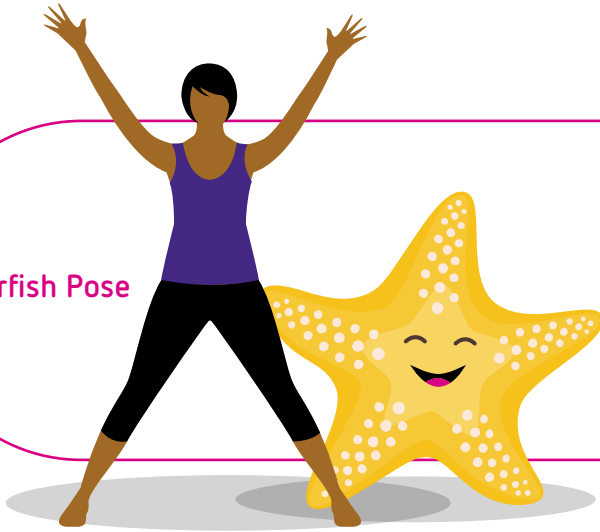
- Marine biologist
- Evolutionary biologist

Skills unlocked

Self-motivated, passionate



Starfish Pose



Teacher explanation: Starfish can regenerate lost limbs.

Pose: Standing in a star shape, reach legs and arms wide as if reaching for something in the air.

Activity: Talk about how starfish can grow back limbs if they lose them.

Teacher explanation: Crabs have hard shells for protection.

Pose: Sit with feet flat on the ground, hands behind you, and lift your body into a tabletop position, walking sideways like a crab.

Activity: Discuss how crabs use their shells to stay safe.

Crab Pose

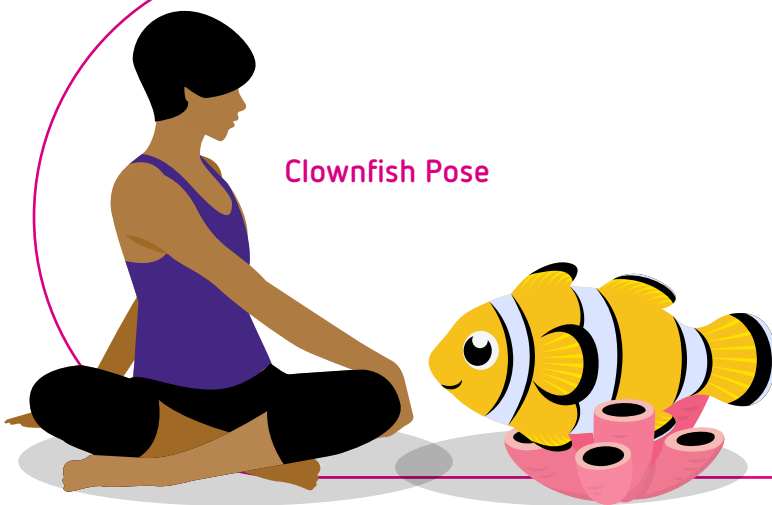


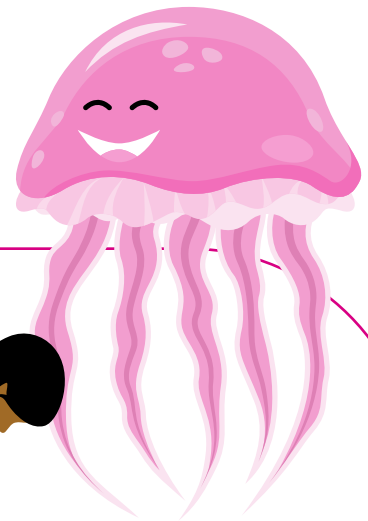
Teacher explanation: Clownfish receive a safe space to live and in return they help rid the anemones of harmful parasites.

Pose: Sit cross-legged, then twist your torso gently to one side, imitating the way clownfish dart in and out of anemone tentacles.

Activity: Discuss how clownfish and anemones help each other survive. Clownfish receive a safe space to live and in return, clownfish provide fish to the anemone to help rid it of harmful parasites.

Clownfish Pose





Teacher explanation: Jellyfish use their tentacles to capture prey and their bodies to float effortlessly with ocean currents.

Pose: Stand tall, then bend forward, letting your arms dangle like tentacles. Slowly sway from side to side.

Activity: Discuss how jellyfish move with the ocean currents and how they catch their food with their tentacles.



Jellyfish Pose



Seahorse Pose



Teacher explanation: Seahorses have a unique way of swimming upright and use their tails to anchor themselves to plants.

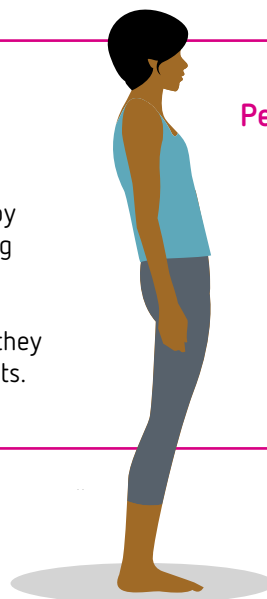
Pose: Kneel on the floor, sit back on your heels, and bring your hands to your chest with palms together. Lift your head and chest high, imitating an upright seahorse.

Activity: Explain how seahorses anchor themselves and blend into their surroundings to avoid predators.

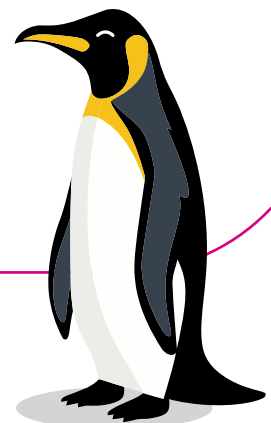
Teacher explanation: Penguins are excellent swimmers and can withstand cold temperatures.

Pose: Stand upright with feet together and arms by your sides. Waddle around like a penguin and bring the group together and huddle like penguins.

Activity: Talk about how penguins swim and how they huddle together to keep warm in cold environments.



Penguin Pose



BE SEEN BE SAFE

This activity is designed to get children thinking about reflection and light. They'll test different materials to see how reflective they are, and decide which ones would be best to change into to keep you seen and safe in the dark!

For children aged 5 and under, but also works well for children up to 7 or those working at this level.

🕒 45 minutes



Kit list

A selection of materials e.g. different coloured fabrics, foil, black paper, shiny paper, reflective armbands if you have them

Torches

A place that you can partially blackout

Instructions

- 1 Create a dark space by drawing curtains or working in a dimly lit area. If you have a large piece of dark material, you could create a den.
- 2 Have the children look at the different materials. Can they see them easily in the dark?
- 3 Let the children shine torches on the materials in turn and ask if they notice how some materials behave differently in the light.
- 4 Ask the children why it might be important to adapt our clothing when we're outside in the dark.
- 5 Ask which materials they think would be best to wear for an evening walk.
- 6 The children could present their findings by ordering or sorting the materials into good and bad reflectors. Could they design a piece of clothing to be worn at night? Older children could create a poster explaining how to be safe outside in the dark.



Watch out

- Make sure that children are not wandering around in the dark with sharp objects.
- Make sure that the area is cleared of obstacles and dangerous substances.
- Make sure the children don't shine torches in their own or others' eyes.

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: primarylibrary.crestawards.org ✨

Complete six activities to get an Award!

If you are an adult wanting to run CREST Awards, visit the website for advice on how to get started: www.crestawards.org ✨

At home

Children can experiment with torches at home, shining them on their clothes and other household materials to find which ones are reflective.

Career options

- People who design safety gear use reflective materials to help keep us safe.
- Wildlife biologists study animals to understand why some creatures have reflective eyes that seem to glow in the dark!

Skills unlocked

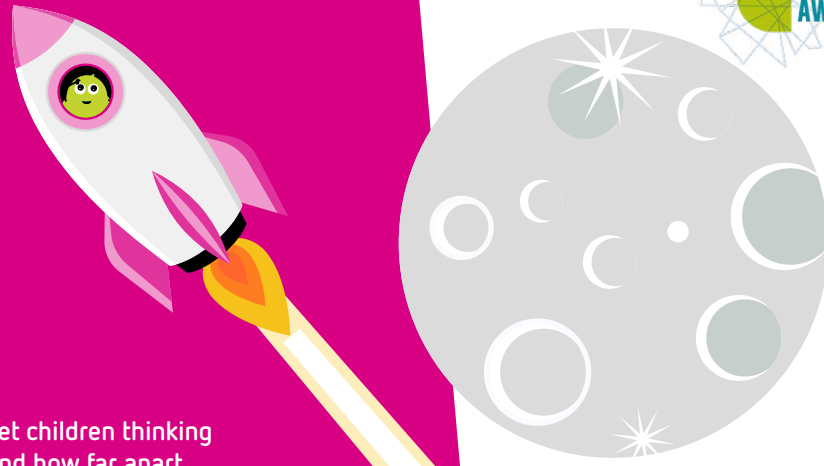
Observant, logical

ROCKET REACH

This activity is designed to get children thinking about Earth and the Moon, and how far apart they are. They'll design and build paper rockets to fly between scale models of the two, changing and adapting their rockets as they go!

For children aged 5 and under, but also works well for children up to 7 or those working at this level.

🕒 45 minutes



⚠ Watch out

- Always use child safe scissors.
- Launch the pointy-nose rockets from a line then have the children all collect their rockets at the same time.

➤ Next steps

This activity is one of the CREST Star for early years 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: primarylibrary.crestawards.org/#tab_8gj07kXQVsxtMrfh ✨

Complete six activities to get an Award!

If you are an adult wanting to run CREST Awards, visit the website for advice on how to get started: www.crestawards.org ✨.

🏠 At home

Children can design and build rockets or other flying objects at home, and adapt them to be able to fly as far as possible.

↔ Career options

- Aerospace engineers design real-life rockets to fly into space!
- Aeronautical engineers design aeroplanes which can fly us all around the world.

🔒 Skills unlocked

Resilient, creative

This activity was developed in partnership with The Ogden Trust.

🛠 Kit list

Flexible straws

Card and paper

Rocket templates
(on the next page, optional)

Colouring pencils
and felt tips

Scissors

Glue

Sellotape

String

Inflatable ball or
globe around the
size of a beach
ball (this will
represent Earth)

Tennis ball (this will
represent the Moon
– you could wrap
it in foil to make it
more Moon-like!)

📖 Instructions

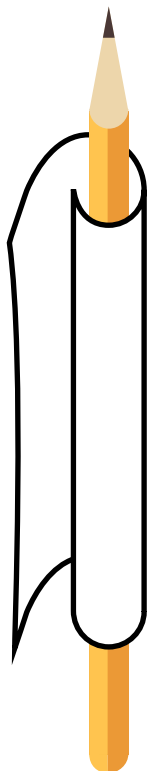
Before the activity you might want to show the children the inflatable ball and the tennis ball and explain that they represent Earth and the Moon. Ask the children to guess how far apart Earth and the Moon are, then wrap the string around the inflatable ball ten times. Stretch out the string, demonstrating the distance between Earth and the Moon.

- 1 Give children rocket templates in paper and card and help them to roll and stick them around a pencil to make cylinders. The children will need to give their rockets 'nose cones' by twisting or sealing one end.
- 2 Children could add fins and decorations to their rockets.
- 3 Place the rockets over straws and ask children to blow to 'launch' them.
- 4 Can they make changes to their rockets so they go further?
- 5 Older or more confident children could think about why some rocket designs are more effective than others.



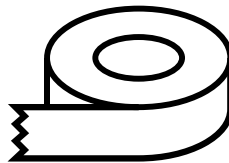
1

Roll template
around pencil.



2

Use Sellotape to
seal into a rocket
cylinder.

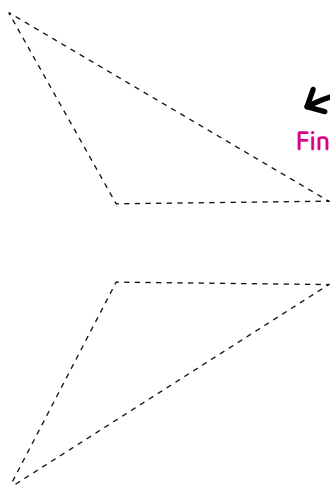


3

Then give the rocket a
'nose cone' by twisting
or sealing one end.

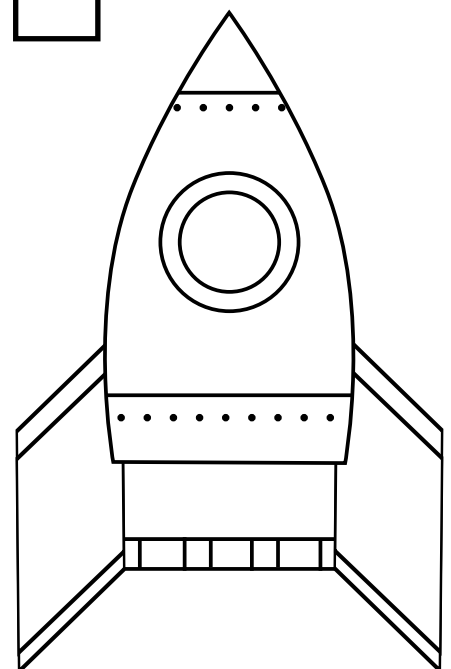


Template



Fin template

Children could
add fins and
decorations to
their rockets.





WEEDS THAT GROW EVERYWHERE

In early spring, dandelions are vital for insects because their nectar is one of the only food sources around. Later, their feathery seeds provide food for birds. This activity gets children looking closely at dandelions, observing how they change and understanding their importance to other animals.

🕒 40 mins with observations over the following two months



📋 Kit list

A local dandelion patch

Dandelion seedheads

Compost

Pots

Watering cans

📖 Instructions

- 1 Take the children to an area where dandelions are growing (March to May is the peak time).
- 2 Get the children to count how many dandelions they can see.
- 3 Can the children see any insects visiting the flowers? Do they know their names?
- 4 Can the children point to the different parts of the plant?
- 5 Can they see dandelions at different stages of growth? The bud? Yellow flower head? Seedhead? Explain that the dandelion changes as it grows.
- 6 Encourage the children to blow the seeds in the air and watch what happens. Explain this is how we get new dandelion plants.
- 7 Take some seed heads back to your setting and show the children how to plant the seeds. Place in a sunny spot and water regularly. The seeds usually take about eight weeks to grow and develop flowers.

⚠️ Watch out

Children must wash their hands after touching soil and plants.

➡️ Next steps

Observe dandelions developing with Explorify's *What Just Happened?* - Yellow weeds activity explorify.uk/en/activities/what-just-happened/yellow-weeds 🌱.

Read:

Dandelions: Stars in the Grass youtube.com/watch?v=VU0oS0u3M4Q 🌱 by Mia Posada

or

Christopher Nibble youtube.com/watch?v=GQj3Dbie8dM 🌱 by Charlotte Middleton to learn more about dandelions.

Learn about the job of a plant scientist with Explorify's *Who is* - Bethan Stagg? activity explorify.uk/en/activities/who-is/bethan-stagg 🌱

↔️ Career options

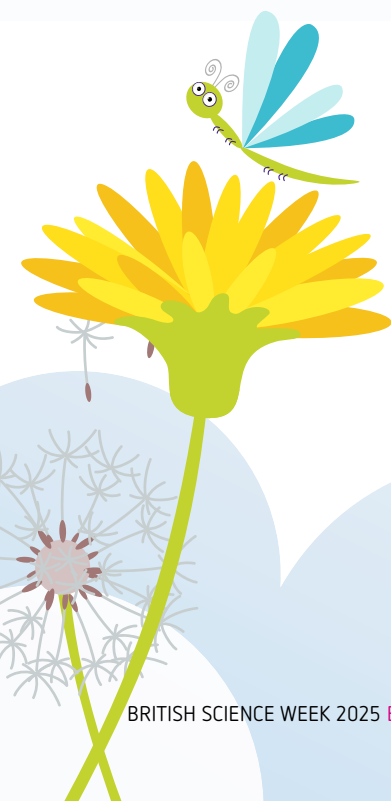
Understanding how plants grow is important for gardeners and farmers. Ecologists and environmental scientists also study plants.

🏠 At home

Encourage families to look out for dandelions on their way home and count how many they see. Dandelions can even grow in pavement cracks.

🔍 Skills unlocked

Observant, logical





SEE & EAT SPROUTING VEGETABLES

In this activity children will learn about the adaptations vegetables can make to their environment. By reading the SEE & EAT eBook, children will discover the 'field to fork' journey of carrot, beetroot and lettuce. They will then learn how left-over parts of vegetables can be used to sprout edible leaves.

🕒 30 mins + changing water and monitoring every 2 days

Kit list

Internet-connected tablet or smartphone to access the SEE & EAT webpage: seeandeat.org ✨

Saucers or shallow pots

Jug of water

Carrots, lettuce and beetroot

Knife

Paper/card and colouring pens

Instructions

- 1 Using your device, visit the eBook page on the SEE & EAT webpage and follow the instructions to download the carrot, lettuce and/or beetroot eBooks.
- 2 Read the SEE & EAT eBooks with the children, highlighting how carrots, beetroot and lettuce grow.
- 3 Explain to the children that once vegetables have been used, the left-over parts can grow leaves again, which we can eat.
- 4 Using the knife, cut the top from the carrot or beetroot and the base from the lettuce, showing the children as you do so.
- 5 Pour a small amount of water into the saucers and pots and place the carrot or beetroot top and lettuce base in the water.
- 6 Have the children monitor the plants' progress, helping them to change the water every two days.
- 7 Using the paper/card and pens, children can design a label for each of the vegetables.



- 8 Talk to the children about how you might prepare and eat carrots, beetroot and lettuce, and why it's important to eat vegetables.

Watch out

- Please supervise children when using kitchen knives to chop vegetables.
- Please follow your own organisation's guidelines when using electronic devices around children.

Next steps

Did you enjoy watching the vegetables sprout? Try with other vegetables – celery works well! Why not check out some more of our SEE & EAT vegetable books or activities on our webpage www.seeandeat.org ✨ or have a look at our **SEE & EAT paperback books** ✨.

At home

Help children become more familiar with vegetables with a visit to a farm, or shopping trip to the vegetable aisle of a supermarket to see vegetables of all shapes and sizes!

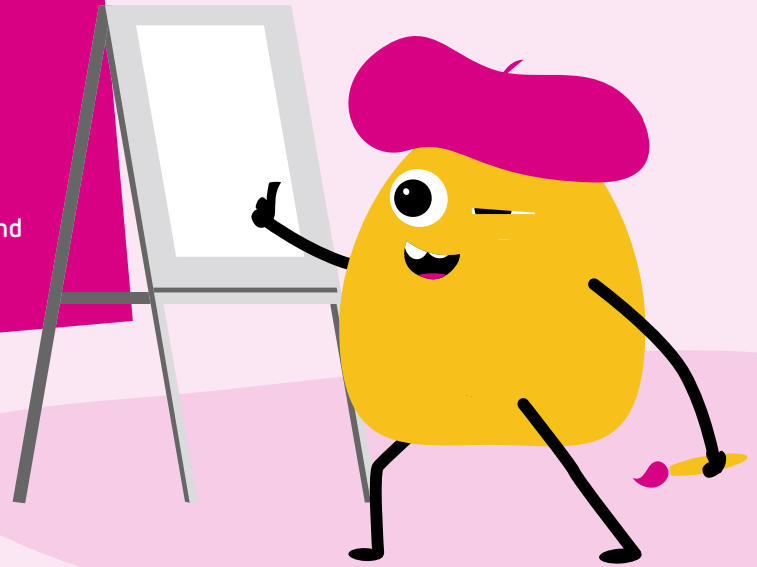
Skills unlocked

Observant, curious

POSTER COMPETITION

Children aged 3-11 can get creative and enter the British Science Week annual, UK-wide poster competition! To enter, they simply need to create a poster which fits in with the theme of 'Change and adapt'.

Schools then select the five best creations and submit them for a chance of winning an array of prizes. The activities found in this pack marked with a paintbrush symbol could all be used as a source of inspiration to get children started!



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

Support children to think about change and adaptation 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 does our weather change during the different seasons? What does this mean for plants, trees and animals? What happens as day changes into night and how do we adapt to this? Does our view of the moon change when we look up at the night sky at different times during the month?
- Technology is changing all the time. What things do we have today that weren't around when grown-ups were children?

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: www.britishscienceweek.org/plan-your-activities/poster-competition.



britishscienceweek.org

