

Nature is all around us, and there are many influential scientists who have studied nature in the North East throughout history. Here are a few who were important individuals in their fields.

1500s

William Turner was born in Morpeth around 1508 and is considered the father of English botany. He studied plants and their uses and was the first person to write a book about them in English.



Turners illustration of a mandrake

1800s

The Natural History Society of Northumbria has had many prominent members too. John Hancock, his brother Albany and his sister Mary all studied the natural world. They were instrumental in setting up what is now the Great North Museum in Newcastle in 1884 and John is considered the father of modern taxidermy.



Marie Lebour Image: MBA

1900s

Marie Victoire Lebour was a marine biologist, born in Northumberland in 1876. She studied in Newcastle in the early 1900s and her research began with land and freshwater molluscs. She later moved to Plymouth and studied microplankton, discovering 28 new species.

Innovating for the future

Nature has been inspiring people for thousands of years, not only with it's beauty but also with how well adapted living things (organisms) are to their where they live (their habitat).

Many of the things that we use in our everyday lives have been inspired by plants, animals and other living things. By carefully observing the features of an organism we might notice what it is that makes it so well adapted and this can be solving human problems. Scientists also look at the chemicals within organisms and consider their uses in our lives.

What can you discover in nature that might help us in the future...?

The Our Past, Your Future project aims to celebrate our science, technology, engineering and maths heritage and we'd love to hear your stories. You can share them with us by emailing: stem@museumsnorthumberland.org.uk

Top tips for families

Asking questions

Asking questions during the activity is a great way to see learning and develop an understanding of what is happening. Asking open ended questions will encourage discussion, here are some suggestions for starting your questioning:

- What problem do we need to overcome?
- How do you think we could...?
- What would happen if we change/ move/ add/ remove...?
- What happens if we use different materials? Do some work better than others?#
- Why is this more/ less successful than...?

Thinking like scientists and engineers

Keep encouraging your child to revise their design and try again. Engineers need to be resilient and persistent and keep trying when they are designing new things and these are excellent skills for life.

Engineers use a loop of:

assessing the problem - identifying a solution - implementing and testing the solution - evaluating the solution - refining the solution

It's all about experimenting and coming up with the best solution you can. By making a first attempt, modifying the design and testing again can you improve the design?

Scientists like to make predictions before they experiment and then test these predictions to see if they are right. *Can you predict what will happen before testing?*

Scientists then repeat their tests lots of times to see if they get the same results. To do this they make sure that their testing is fair and that they are only changing one thing at a time. By getting the same results more than once scientists can be confident in the conclusions of their experiments.

Careers to think about

If you have are interested the activities in this pack then you might want to consider the following careers:

Ecologist

Horticultural worker

Marine Biologist

Go to www.nustem.uk/primarycareers or www.nationalcareers.service.gov.uk/ for more information

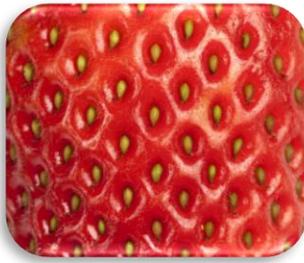
Seeds

Most plants produce seeds to reproduce which disperse (move away from their parent plant in different ways.

Some seeds spin around as they fall to the ground just like the blades of a helicopter this helps them to spread out from their parent plants.

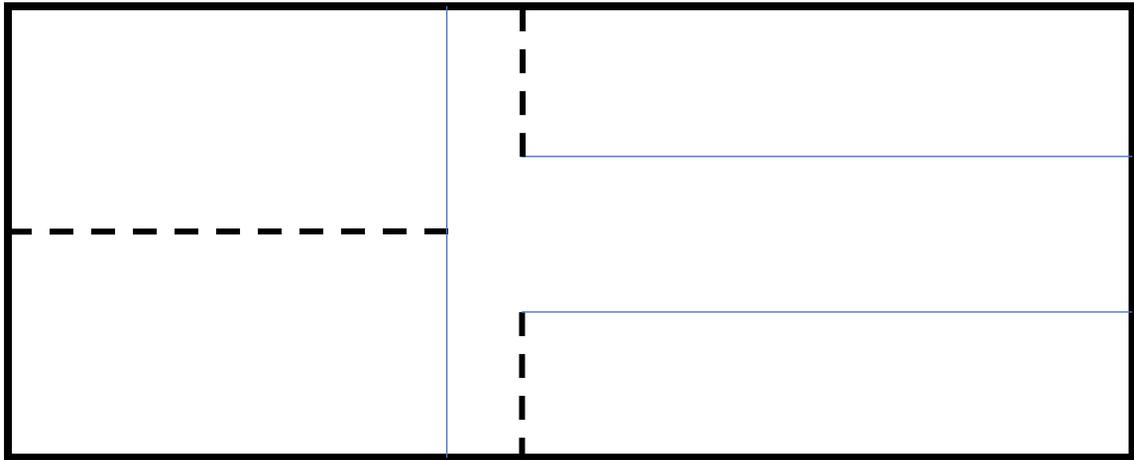
Have a look closely at plants next time you go out. Can you spot their seeds? How do you think they disperse? Why do you think seeds need to move away from their parent plants?

Can you name the plants these seeds come from?



Answers
Top row: coffee, strawberry, dandelion. Middle row: pea, sycamore tree, oak tree. Bottom row: wheat, sunflower, poppy

Making a spinning helicopter



Step 1. Cut out the helicopter template around the edges and along the dashed lines.

Step 2. Fold the two bottom edges inwards along the solid lines and secure in place with some Sellotape or glue.

Step 3. Fold the top flaps over so they become blades for your helicopter seeds.

Step 4. Attach a paperclip or other weight to the bottom of your helicopter.

Step 5. Throw your helicopter in the air and watch it spin to the ground.



Investigate!

You can turn this into an investigation by repeatedly testing your helicopter and recording the results. You should first choose what you are going to measure – will you choose how far from you the helicopter travels? Or possibly the speed it spins or falls?

Remember to only change one thing (variable) about your helicopter to change for each experiment to keep the test fair. Here are some variables you could test:

- Weight attached to the stem
- Length of the stem/ length of the wings
- Width of the stem / width of the wings
- Height of drop
- Trying different wind speeds
- Different shaped wings

Recommended age: Suitable for all ages

Note: Please use adult supervision when using sharp objects such as scissors

What can you spot around your area?

Next time you go out for a walk have a look and see if you can spot any of these things. Trees are often easily identified from their buds – see if you can spot any of them!

		
Sparrow	Ladybird	Pine cones
		
Earthworm	Lichen	Moss
		
Willow tree (buds)	Grey squirrel	Blue tit
		
Elder tree (buds)	Horse chestnut (buds)	Ducks

Get involved!

There are lots of places you can record your sightings that will help scientists monitor wildlife. Here are just a few:

- Environmental Records Information Centre North East <https://www.ericnortheast.org.uk/>
- Natural History Society of Northumbria <https://www.nhsn.org.uk/the-north-east-ladybird-spot/>
- Ispot is a free community helping to identify wildlife <https://www.ispotnature.org/>

What can you spot at the beach?

Next time you go to the beach have a look and see if you can spot any of these things:



Get involved!

To find out more about identifying living things near the coast check out these websites:

- Wildlife Trusts <https://www.wildlifetrusts.org/habitats/marine>
- Marlin <https://www.marlin.ac.uk/species>

You can report your wildlife sightings here:

- Marine Biological Association <https://www.mba.ac.uk/citizen-science>
- Marine Conservation Society <https://www.mcsuk.org/sightings>