



Year 1 Science lessons pack

Where do we live and what makes it special?



Year 1

Science lessons pack

ENQUIRY QUESTION

Where do we live and what makes it special?

LINKED HARMONY PRINCIPLE

The principle of Adaptation

The six lesson plans in this pack can be used to deliver the science content for the Year 1 enquiry of learning *Where do we live and what makes it special?*, linked to the principle of Adaptation.

This science learning builds on children's understanding of animals, including humans, and the foundations of science learning, which will have been explored through the area of Understanding the World in the EYFS.

'We can make changes to improve the place we live for wildlife.'

Each lesson plan includes opportunities to refer to the children's prior learning, as well as questions to use to reflect on current learning and to assess the children's developing knowledge and understanding. In addition, lessons feature key elements that are distinctive to the Harmony approach to teaching and learning, for example: opportunities to **learn about Nature**, to **learn in Nature** and to **learn from Nature**.

A summary of each of these elements in relation to the six lesson plans in this pack is set out on the next pages.



01 - Learning about Nature

The statutory requirements of the National Curriculum set out what children need to learn about Nature – although, of course, their wider learning about Nature will extend beyond this.

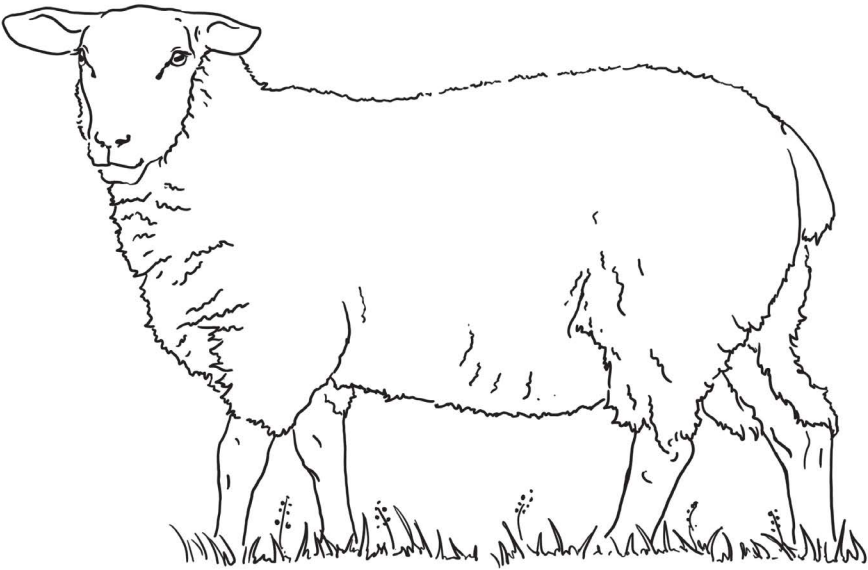
As children progress through their primary education, we can map the journey that their science learning about animals, including humans, takes. By understanding their prior learning about animals, including humans, in the EYFS, and by looking ahead to the path that their learning about animals, including humans, will take in Years 2 to 6, we are better able to plan for progression.

The table below shows where the science learning about animals, including humans, covered in the lesson plans in this pack sits within this journey.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ENQUIRY	Understanding the world Physical development	Where do we live and what makes it special?	What do I need to be healthy?	How did life change from the Stone Age to the Iron Age?	How did the Anglo-Saxons farm and how was this different from today?	What can we learn about how the Ancient Greeks lived?	How can we learn to live in peace?
SUMMARY OF LEARNING	Children will be guided to increase their knowledge and sense of the ecologically diverse world around them. Using their bodies and their senses they will explore the natural world. They will develop their understanding of how their body works and how to look after themselves as they grow	Children will identify and name a variety of common native animals including fish, amphibians, reptiles, birds and mammals and those that are carnivores, herbivores and omnivores. They will explore the similarities and differences between different animal groups	Children learn about and identify the basic needs of animals, including humans, for survival (water, food and air). They describe the importance for humans of exercise, hygiene and eating the right amounts of different types of food	Children will identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. They will identify that humans and some other animals have skeletons and muscles for support, protection and movement	Children will be able to describe the simple functions of the basic parts of the digestive system in humans and identify the different types of teeth in humans and their simple functions	Children will explore the changes that occur as humans grow and develop from childhood to old age	Children will identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. They will recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function and describe the ways in which nutrients and water are transported around the body
KEY VOCABULARY	Main parts of the body eg. head, neck, shoulders, arms, elbows, hands, fingers, legs, knees, toes, face, ears, eyes, hair, mouth, teeth, skeleton, backbone, (un)healthy	native, local, birds, mammals, reptiles, fish, amphibians, (in)vertebrates, structure, herbivore, carnivore, omnivore, hibernate, nocturnal	survive, alive, thrive, exercise, heartbeat, breathing, hygiene, diet, nutrients, vitamins, wellness, balance	skull, ribs, spine, joints, protein, minerals, fibre, carbohydrates, skeleton, bones, muscles, support, protect	digestion, saliva, oesophagus, stomach, intestine, incisor, canine, molar, herbivore, carnivore, omnivore	human, child, develop, puberty, adolescent, adult, elder, elderly, deteriorate	circulatory system, drugs, lifestyle, oxygen, carbon dioxide, pulse, rate, pumps, blood, blood vessels, transported, lungs

The table below sets out what the children’s learning about animals, including humans, looks like over the course of the six lessons.

Week 1	Week 2	Week 3
How many native birds can I identify and name?	How can we describe different native mammals?	What do we know about amphibians?
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
Week 4	Week 5	Week 6
Are reptiles the same as amphibians?	How can we identify and describe native fish?	How can we compare and classify our pets?
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)



02 – Learning in Nature

In addition to learning about Nature, a Harmony approach also provides suggestions for rich opportunities to learn in or alongside Nature, as the six science lessons in this pack demonstrate.

For example, the children will explore whether all animals, including humans, share common characteristics, they will spend time in Nature observing and learning about native birds and they will learn about the clues that they may see in Nature that will help them to understand more about native mammals.

As they learn in Nature, the children will also experience opportunities to develop their skills in working scientifically. Although these skills will be developed incrementally over time (as shown in Appendix A), the coverage of these skills within the sequence of these six lessons is set out below.

Week 1	Week 2	Week 3
How many native birds can I identify and name?	How can we describe different native mammals?	What do we know about amphibians?
Using observations and ideas to suggest answers to questions	Using observations and ideas to suggest answers to questions	Asking simple questions and recognising that they can be answered in different ways
Scientific enquiry type: Pattern seeking	Scientific enquiry type: Pattern seeking	Scientific enquiry type: Research using secondary sources
Week 4	Week 5	Week 6
Are reptiles the same as amphibians?	How can we identify and describe native fish?	How can we compare and classify our pets?
Asking simple questions and recognising that they can be answered in different ways	Identifying and classifying	Identifying and classifying; asking simple questions and recognising that they can be answered in different ways
Scientific enquiry type: Identifying, classifying and grouping	Scientific enquiry type: Identifying, classifying and grouping	Scientific enquiry type: Identifying, classifying and grouping

Working scientifically vocabulary

- question
- answer
- observe
- compare
- classify



03 – Learning from Nature

The third key element of a Harmony approach to learning is learning from Nature, which is linked to progression in understanding of Harmony principles. This aspect of learning supports the development of children’s understanding of what it means to live sustainably.

The six lessons in this pack and the wider enquiry they are part of are underpinned by the principle of Adaptation; they build on children’s prior learning in the EYFS and prepare them for their learning in Years 2 to 6.

The children’s progression in their understanding of the principle of Adaptation, through enquiries of learning that help us to think and live more sustainably, is shown below.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ENQUIRY	Children are introduced to opportunities to explore and develop their initial knowledge and understanding about adaptation (observing animals using camouflage to stay safe, our local area, people who help us, noticing that aeroplanes are a similar shape to birds)	Where do we live and what makes it special?	Why should we change the way we travel?	How did the Romans adapt to life in Britain?	How did the power of monarchs change through the Tudor period?	Who were the Vikings and where did they go?	What would it have been like to live in WWII?
PROGRESSION: CONCEPT OF ADAPTATION		What do you like about where you live?	What are the advantages and disadvantages of different forms of transport?	What local materials did the Romans use to adapt to life in Britain?	What are your favourite sounds in Nature and how do they make you feel?	How did the Vikings travel without creating pollution?	How did people have to adapt during WWII?
THINKING SUSTAINABLY		How can we look after birds in wintertime?	What can we learn from Nature about brilliant ways to move and travel?	Were Roman structures more sustainable than ours?	What changes can we make to ensure the sounds of Nature are heard now and in the future?	How can we use our understanding of forces to design clean energy transport?	What is light pollution and how can we reduce it?
THINKING SUSTAINABLY VOCABULARY	place local family school community world change	belonging, native home past present future adapt improve thrive	changemaker adaptation effect consequences balance environment pollution	context connection community create contribute waste seasonal	heritage traditions culture wisdom impact	dynamic identity value engage agent of change	agency flux survive repair collaborate food security

Animals including humans

Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Working scientifically:

Using observations and ideas to suggest answers to questions

Scientific enquiry type:

Pattern seeking

Vocabulary relating to animals including humans, working scientifically and thinking sustainably is highlighted within the unit introduction.

Learning wall with headings for birds, reptiles, amphibians, mammals and fish, images of an example of each and of an example skeleton (see Resource 1A for skeleton images)

Copies of the [Garden Bird Detective](#) and [Crows and other black birds](#) sheets from The Wildlife Trusts (one per pair)

Clipboards

Optional: Copies of the [RSPB Big Schools' Birdwatch survey](#)

Copies of Resource 1C (one each)

Copies of Resource 1D (one per pair)

Copies of the RSPB's [Gulls](#) resource (enough for children requiring additional challenge)

Nature journals

Children requiring additional support can use Resource 1C as a scaffolded approach to the independent learning

Challenge children to describe the differences between birds that are often confused (e.g. blackbirds and crows; black-headed gulls and common gulls) using copies of the RSPB's [Birds that are Black](#) and [Gulls](#) resources.

CLIMATE ACTION PLAN:

Biodiversity and Nature

How many native birds can I identify and name?

What do we already know?

Begin the lesson by revisiting the children's prior **learning about Nature** through their exploration of the question *What lives outside our classroom?* in the EYFS. Invite them to recall as many animals native to the UK as they can and record these as a class list.

Draw the children's attention to the birds on the list and share with them the images of common garden birds on the [Garden Bird Detective](#) and [Crows and other black birds](#) sheets from The Wildlife Trusts.

With reference to the animal groups on the learning wall, ask: *What are these animals? What's the same and what's different about them?* Allow the children time to share their prior knowledge of birds e.g. where they have seen them, how they move, what they eat.

What are we learning today?

Move the children's **learning about Nature** on by explaining that, like all the other animal groups on the learning wall, birds are vertebrates (animals that have a backbone inside their bodies). Refer to the images of animal skeletons on Resource 1A, which should also be displayed on the learning wall, and use these to help children identify the backbones of these creatures. Invite them to feel their own backbones and how each bone is connected to the next one up their spine. You may wish to introduce the term invertebrates to describe animals that don't have a backbone.

Take the children outside to **learn in Nature** to a spot where they are most likely to see or hear birds. In pairs, they use the [Garden Bird Detective](#) sheet from The Wildlife Trusts to identify birds they spot. You could also use the [Merlin Bird ID](#) app to identify birds by their song either by capturing the birdsong you can hear or by playing birdsong to them.

TEACHER TIP:

As part of the learning in this lesson, or at another time, the children could collect data for the [RSPB Big Schools Birdwatch](#). The RSPB's [live webcams](#) showing feeding stations and nests at different UK locations can also be used to support this learning – you could leave one on continuously in a 'curiosity corner'. The organisation also provides advice about feeding birds in winter.

Back in the classroom, compare which birds the children saw or heard.

Share with the children the image of the blackbird on Resource 1B. Ask them: *How do we know this is a bird?* Discuss their ideas and record them around the image.

STEM SENTENCE:

I know that this animal is a bird because _____ .

As a class, watch the BBC Bitesize film clip [What are birds?](#) Using the information presented in the clip, revisit the class responses to the question *How do we know this is a bird?* and assess together which align with the key features of all birds. Elicit from the children any additional features of birds explored in the film clip to complete the list (e.g. feathers, two legs, two wings, uses a beak to feed, breathes with lungs, lays eggs). Add the list of features to the learning wall.

Taking into account the children's prior knowledge about what birds eat that they shared at the start of the lesson, discuss with the children the diet of some common garden birds. For example:

blackbirds eat earthworms, insects, snails and berries
robins eat earthworms, spiders, berries and seeds
sparrows mostly eat seeds but also small insects and caterpillars
blue tits eat caterpillars, insects, spiders, fruit and seeds
starlings eat spiders, insects, earthworms and fruit

Ask the children: *Do these birds eat plants, animals or both?* Establish that because they eat both animals and plants, they are omnivores.

However, wood pigeons eat seeds, nuts, buds and berries. Ask the children: *Are these things from plants or from animals?* Establish that because wood pigeons eat plants, they are herbivores.

How are we learning today?

TIME TO EXPLAIN:

The children select one of the common garden birds they have seen, heard or learned about in this lesson to draw and label with the features of birds using the vocabulary provided on Resource 1C. This is a great opportunity to introduce the practice of Nature journalling to the children – instead of drawing on the sheet itself, they could draw and label their chosen bird in their Nature journals directly.

Challenge them to use the information about the diet of some common garden birds on Resource 1D to add information to their drawing about their bird's diet.

TEACHER TIP:

Nature journalling is the practice of drawing or writing in response to Nature and helps children to connect more closely with the natural world. They will have opportunities to add to their Nature journals throughout this learning sequence.

What have we learned today?

Bring the **learning about Nature** together by allowing the children time to share their entries in their Nature journals (or labelled bird drawings) with other children. Revisit the learning question for the lesson: *How many native birds can we identify and name?* Working in pairs, the children share three new things they have learned about native birds. At this point, the children who completed the extra challenge can also present their findings about birds that are often confused.

Ask them: *What was it like to sit quietly and watch the birds? How do birds make the place where we live special?*

Draw out the learning linked to the **principle of Adaptation** by discussing with the children how birds have changed their behaviour to live alongside us. Ask them, for example: *Why do robins often appear when people are gardening?* (They have learned that there will be worms where people have

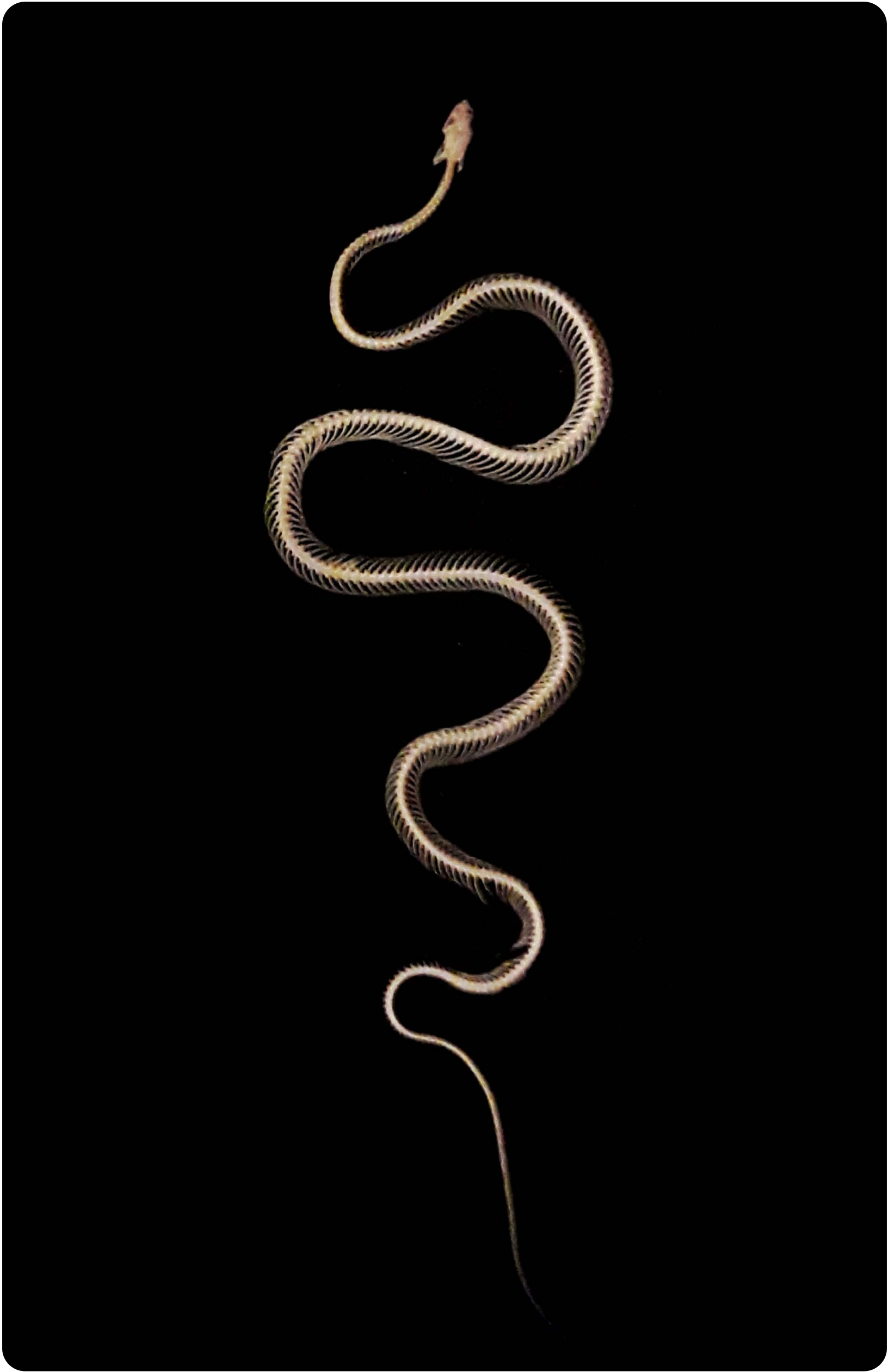
dug up the soil) *Why do you see so many gulls when you're eating fish and chips by the seaside?* (They have learned that this is an easy source of food) *Why do so many pigeons live in our towns and cities?* (They have learned that they will find food here)

Establish that these birds, and other living things, adapt in order to survive.

TEACHER TIP:

Throughout this half term, you may want to repeat the birdwatching activity with the children. An alternative approach to the one outlined in this lesson is to use 'Nature's TV' (a simple cardboard frame that children simply sit and look through, while observing a focus area in Nature.) On each visit, ask the children: *Are more birds visiting the feeding area? Can you name the birds we have seen today? Which birds haven't we seen before?*

Resource 1A



Adder skeleton

Resource 1A



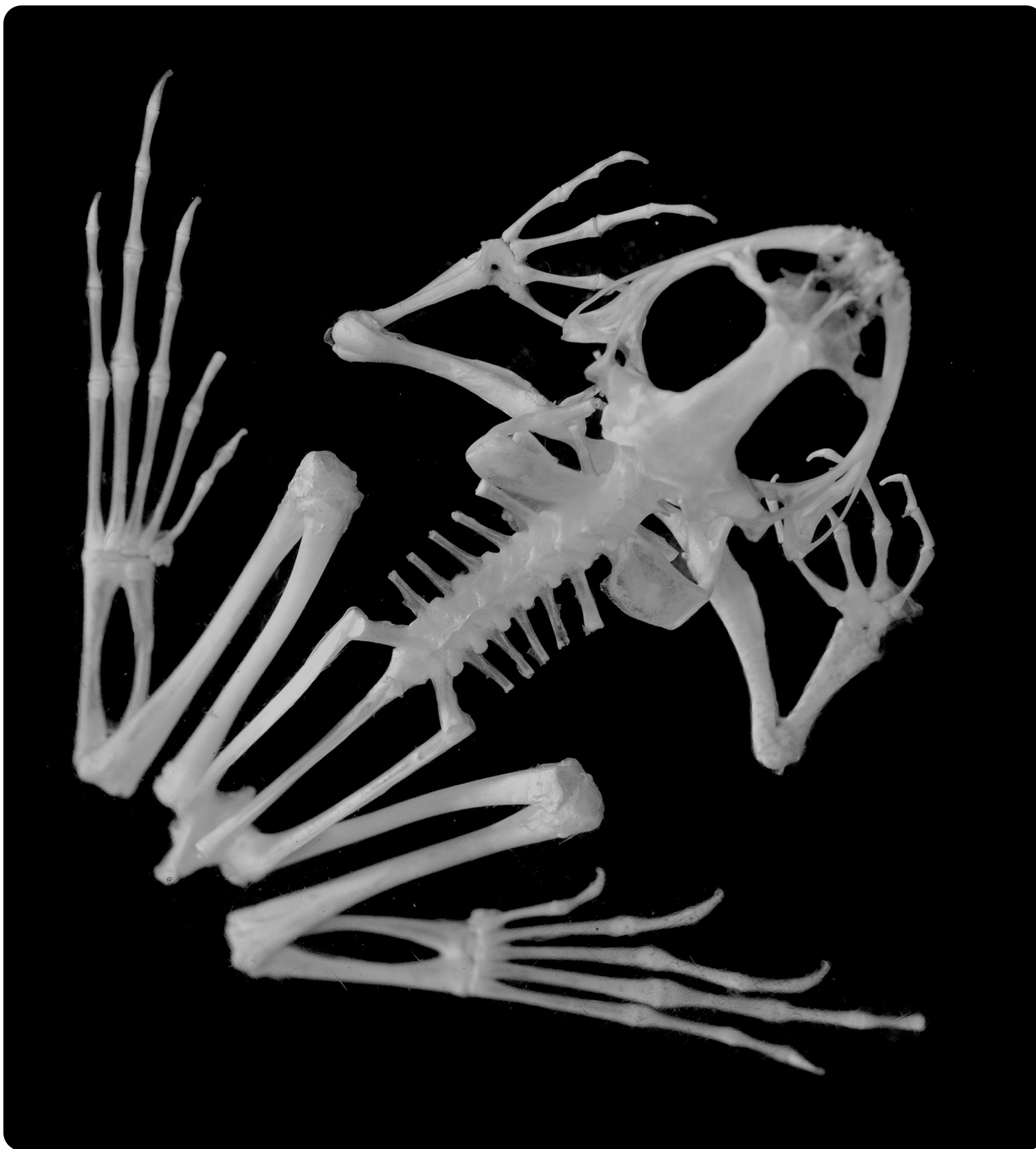
Pheasant skeleton

Resource 1A



Fish skeleton

Resource 1A



Frog skeleton

Resource 1A



Sheep skeleton

Resource 1B

How do we know this is a bird?



Resource 1C

This bird is a _____

beak

wings

feathers

two legs

eggs

eats

omnivore

herbivore

Resource 1D

What do I eat?



I am a blackbird.

I eat worms, insects, snails and berries.



I am a robin.

I eat worms, spiders, berries and seeds.



I am a sparrow.

I eat seeds, insects and caterpillars.



I am a blue tit.

I eat caterpillars, insects, spiders, fruit and seeds.



I am a starling.

I eat spiders, insects, worms and fruit.



I am a wood pigeon.

I eat seeds, nuts, buds and berries.

Animals including humans

Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; identify and name a variety of common animals that are carnivores, herbivores and omnivores; describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Seasonal changes

Observe changes across the four seasons; observe and describe weather associated with the seasons and how day length varies.

Working scientifically:

Using observations and ideas to suggest answers to questions

Scientific enquiry type:

Pattern seeking

Vocabulary relating to animals, including humans, working scientifically and thinking sustainably is highlighted within the unit introduction.

A copy of Resource 2A, enlarged to A3

Copies of the Woodland Trust Nature Detectives [Mammal ID](#) resource (one between two)

Clipboards

Nature journals

Copies of Resource 2C (either enough for one each or for children requiring additional support)

Optional: A copy of The Wild Wild Wood by Anna Kemp and Natelle Quek

Optional: Copies of the Woodland Trust Nature Detectives [Mammal Poo Spotter](#) resource (one between two)

Children requiring additional support can use Resource 2B for a scaffolded approach to the independent learning

Challenge children to write fuller labels or simple sentences about their chosen mammal.

CLIMATE ACTION PLAN:
Biodiversity and Nature

How can we describe different native mammals?

What do we already know?

Take the children outdoors to **learn in Nature** in a spot where they can sit quietly and look and listen for birds. Revisit their learning from the previous lesson with reference to native species by asking: *How many birds can you name that live where we live?*

Recap their understanding of how the features of animals allow us to assign them to a particular group (e.g. birds) by showing them the three images on Resource 2A of a penguin, a robin and a blackbird. In pairs,

the children identify which could be the odd one out, giving reasons for their thinking (e.g. the penguin because it has wings but can't fly, the robin because it has the most colourful feathers, the blackbird because its beak is the most brightly coloured). Discuss their ideas as a class, then ask: *What is similar about these animals? How do we know they are all birds? Would we see them where we live?* Use their responses to this last question to support their developing understanding of the concept of native species.

What are we learning today?

Back in the classroom, continue with the focus on **learning about Nature** by drawing the children's attention to the mammals section on the learning wall and reminding them that mammals are vertebrates just like birds. Explain that mammals will be the focus of this lesson.

Use the spotlight tool on the interactive whiteboard to show a small section of the image on Resource 2B (a fox) at a time and encourage the children to try and guess what mystery mammal it is. Ask them: *What colours/shapes/textures can you see? What do you think the image is? What does it remind you of?* Once the fox has been revealed, remind the children that it is a mammal and ask: *How do we know that this animal isn't a bird?* (e.g. it doesn't have feathers, it has four legs not two, it doesn't have a beak or wings).

As a class, watch the BBC Bitesize film clip [What is a mammal?](#) Using the information presented in the clip, elicit from the children the features of mammals (e.g. have hair or fur, breathe using lungs, have four limbs, most give birth to live young, mothers feed their babies milk).

In pairs, the children choose one animal on the Woodland Trust Nature Detectives

[Mammal ID](#) resource to focus on at a time. They use the following checklist to determine whether or not they agree it is a mammal and why (they might not have an answer for every question but they should still be able to make an overall judgement):

What does its skin look like? (It's covered in hair or fur)
Does it have legs/limbs? How many? (Yes, four)
How does it breathe? (It has lungs)
How are its babies born? (It has live young)

Ask the children: *What similarities or differences are there between birds and mammals? Are we mammals?*

Add the checklist to the learning wall so the children can use it again in subsequent lessons.

TEACHER TIP:

This is a good time to address common misconceptions, such as the fact that bats are mammals, even though they fly like birds, and that whales, dolphins and porpoises are mammals, even though they live in the sea like fish and the sparse hair on their bodies isn't easily visible.

How are we learning today?

Take the children back outside to continue **learning in Nature**. The children should take the Woodland Trust Nature Detectives [Mammal ID](#) resource with them on a clipboard.

Take the children on a short Nature walk around the school grounds or in a local green space and discuss with them which mammals might be found in the different habitats they encounter, even if they can't

see them. Use the animals on the Mammal ID sheets to support this discussion. For example, a squirrel might be seen in a tree, hedgehogs might be hibernating in piles of dead leaves, foxes sometimes build their dens under sheds or piles of wood.

Linked to this learning, you may wish to discuss with the children the changes they might observe relating to mammals in these habitats through the seasons. For example,

hibernating animals are unlikely to be seen in the winter; fox cubs may be seen in spring and early summer. You might also introduce the term nocturnal to describe animals that aren't often seen during the day.

Encourage the children to link their thinking to their observations about the weather by asking: *What is the weather like today? What is the season? What might it feel like to be outside at other times of the year?* As a class, you could visit the class weather station, if you have one, to collect data about the weather and record this in a class weather journal.

TEACHER TIP:

A simple class weather station could include a thermometer, a DIY [rain gauge](#) made from a plastic drinks bottle and a weatherproof streamer or flag – or even a DIY [wind vane](#). Once this is set up, you can visit it as part of your regular outside learning practice so children can build up measurements and observations about the weather through the seasons. This data can be referred to in future learning in geography and in science.

Back in the classroom, the children choose to focus on either an otter, a hare, a fox, a badger or a hedgehog.

TIME TO EXPLAIN:

Using copies of the Woodland Trust's Mammal ID resource for support, they create a simple mammal factfile in their Nature journals. Or, using Resource 2C, they draw and label their mammal with words relating to its physical appearance and the applicable features of mammals.

Extend the children's **learning about Nature** by reminding them of their learning about herbivores and omnivores in the previous lesson and recap the meaning of these words, if necessary. Share with them the following facts about the diet of these animals:

hares eat grasses, twigs and buds
foxes eat mice, birds, insects, earthworms and fruit
badgers eat earthworms, mice, insects and fruit
hedgehogs eat insects, caterpillars, earthworms and fruit

What have we learned today?

In pairs or as a class, the children play a game of 'What am I?', giving clues about their mammal for their partner to guess. Encourage them to explain how they know the animal is a mammal.

STEM SENTENCE: I know that this animal is a mammal because _____.

Remind the children that we are mammals and that we are part of Nature.

Finish this lesson with a reflection on the **principle of Adaptation**. Think about the mammals that we share our local area with and make the area where we live special. Discuss how we sometimes have to adapt

our behaviours to give them a helping hand, for example, by leaving a pile of autumn leaves in the garden for hedgehogs to hibernate in or leaving water out when the weather is so cold that the puddles of rainwater they drink from have frozen.

TEACHER TIP:

Either in this lesson, or at another point in the school day, you could share with the children the book *The Wild Wild Wood* by Anna Kemp and Natelle Quek, which works well to support this learning. How many woodland mammals in the story can they identify and name?

Resource 2A



From top: a blackbird, a robin and a magellanic penguin

Resource 2B

What is this mammal?



Resource 2C

This mammal is a _____

babies

teeth

eats

breathes

milk

four legs

omnivore

lungs

fur

paws

herbivore

four limbs

hair

hooves

carnivore

Animals including humans
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals

Identify and name a variety of common animals that are carnivores, herbivores and omnivores

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Working scientifically: Asking simple questions and recognising that they can be answered in different ways

Scientific enquiry type:
Research using secondary sources

Vocabulary relating to animals including humans, working scientifically and thinking sustainably is highlighted within the unit introduction.

Resource 3C
(one per pair)

Nature journals

Resource 3D
(either enough for one each or for children requiring additional support)

Children requiring additional support may benefit from being in mixed-ability groupings for the information-gathering exercise to ensure that there is a strong reader in each group; they can use Resource 3D for a scaffolded approach to the independent learning

Challenge children to write fuller labels for their drawing or simple sentences about their chosen mammal.

CLIMATE ACTION PLAN:
Biodiversity and Nature;
Adaptation and resilience

What do we know about amphibians?

What do we already know?

Share with the children images of a bird and a mammal from the resources used in the previous two lessons.

Reveal the following statements to the children and give them the opportunity to decide if each statement is true or false (they could record T or F on their whiteboard to show their response).

Examples could include:
Mammals have feathers. (F)
Birds give birth to live young. (F)
Animals that eat plants and other animals are called omnivores. (T)
Mammals have wings (Most don't but bats do)

Encourage them to explain their thinking.

What are we learning today?

Begin the children's **learning about Nature** by drawing their attention to the learning wall and asking: *Which animal groups have we already learned about? Which groups are left?*

Share the images on Resource 3A and ask them to guess which group they will be exploring next in this lesson (amphibians). Discuss anything they may already know about these animals.

Remind them that amphibians are vertebrates just like birds and mammals. With reference to the image of the amphibian skeleton on the learning wall, ask the children which part tells us it is a vertebrate (the spine).

How are we learning today?

Continue to develop the children's **learning about Nature** by sharing the image of the common frog on Resource 3B and allowing the children time to talk about what they can see.

Using the questions on the learning wall for support, the children work in pairs to describe the frog, identifying any questions they need to research further to answer. For example:

What does its skin look like? (smooth, moist)
Does it have legs/limbs? (yes, four as adults but they might not have any early in their life cycle e.g. tadpoles)
How does it breathe? We may need to find out more (young amphibians breathe using gills; the adults breathe using lungs)
How are their babies born? We may need to find out more (amphibians lay eggs in or near water)

Arrange the children into small groups of three or four and encourage them to find information that will help to answer the questions they couldn't fully answer using the factsheet on Resource 3C.

Encourage them to pose and answer other questions they would like to find out, too. For example:
Where do amphibians live?
Which amphibians live in the UK?

Discuss what they have found out as a class and establish that adult amphibians are carnivores, although they are omnivores at the start of their life cycle.

Watch the BBC Bitesize film clip [What are amphibians?](#) to consolidate this learning.

TIME TO EXPLAIN:
Using their learning from the lesson, the images on Resource 3B and the information on Resource 3C for support, the children choose one amphibian to draw in their Nature journals or using Resource 3D. They label their amphibian with words relating to its physical appearance, the applicable features of amphibians and any other facts about its diet or where it lives.

STEM SENTENCES:
Frogs, toads and newts are _____.
(omnivores when they're young and carnivores as adults)

TEACHER TIP:
If there is a pond in the school grounds or locally, this is an ideal opportunity to **learn in Nature** and to identify the places that the children might see spawn and amphibians in the coming weeks. They can note these locations in their Nature journals and draw the amphibian and its spawn that they hope to see on subsequent visits (ideally, try to visit the same spot every two weeks). If there is no pond in the school grounds, creating a simple container pond is a great way to support this learning and enhance biodiversity on the school site. You can find further guidance on creating simple ponds on the [National Education Nature Park's website](#).

What have we learned today?

Reflect on the children's **learning about Nature** and assess their understanding by asking them to share what they now know about amphibians, adding their favourite facts to the learning wall.

Amphibians help us to **learn from Nature** about the important role different species play within healthy natural systems. Amphibians are fantastic pest controllers and are loved by gardeners – they eat slugs, snails, beetles and flies, keeping numbers of these creatures under control.

However, they are threatened when ponds are filled in or when the water they live in becomes polluted. Roads can also be dangerous places for frogs and toads trying to move from one pond to the next. Link the discussion to the **principle of Adaptation** by focusing on how we can change our behaviours to benefit amphibians. Ask: *What might we do in our school grounds or in our homes to give them a helping hand?* (Add a space for water)

Resource 3A



common toad



common frog



palmate newt

Resource 3B

What can you see?



Frogs, newts and toads

Frogs, newts and toads are amphibians. They live in water and on land.

Amphibians have wet, smooth skin and four legs.

They lay eggs in water or next to water.

Baby frogs, newts and toads only live in water. They have gills to help them breathe.

Adult frogs, newts and toads use lungs to breathe.

Resource 3D

This amphibian is a _____

baby

eggs

skin

smooth

wet

four legs

gills

water

land

eats

omnivore

herbivore

carnivore

breathes

lungs

Animals including humans

Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Identify and name a variety of common animals that are carnivores, herbivores and omnivores.

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Working scientifically:
Asking simple questions and recognising that they can be answered in different ways

Scientific enquiry type:
Identifying, classifying and grouping

Vocabulary relating to animals, including humans, working scientifically and thinking sustainably is highlighted within the unit introduction.

Copies of Resource 4B, cut into cards (one set per group)

A copy of Resource 4C, enlarged to A4 and cut into cards

Resource 4D (one per child)

Nature journals

Children requiring additional support may benefit from working in mixed-ability pairs to create their Top Trumps cards

Challenge children to add additional facts on their Top Trumps cards

CLIMATE ACTION PLAN:
Biodiversity and Nature

Are reptiles the same as amphibians?

What do we already know?

Display the images of amphibians on Resource 3A on the interactive whiteboard.

Drawing on their knowledge from the previous lesson, from their Nature journal or labelled drawing, or from the information on the learning wall, the children take it in turns

to ‘Talk like an expert’ about amphibians for 15 seconds at a time so that each child adds to the information their partner has already shared.

What are we learning today?

Move the children’s **learning about Nature** on by sharing the images on Resource 4A and inviting them to guess which group of animals they will be exploring next (reptiles).

Discuss their observations and encourage them to share any current knowledge of reptiles they have. Establish that these six reptiles (grass snake, adder, smooth snake, slow worm, common lizard, sand lizard) are the only reptiles native to the UK. The RSPB’s [Six reptiles found in the UK](#) webpage has further images and information about them.

Explain to the children that people often confuse reptiles and amphibians, and that they will be learning the differences between them in this lesson.

In groups of three, the children read the simple statements on the cards on Resource 4B and sort them into related pairs e.g. Amphibians have wet skin. Reptiles have dry skin.

Using the class checklist and drawing on what they have learned from the statement sorting activity, ask the children to contribute to a list of characteristics of reptiles.

What does its skin look like? Dry and scaly
Does it have legs/limbs? Some have no limbs, others have four
How does it breathe? Using lungs
How are their babies born? Most lay eggs but some, including adders, smooth snakes and slow worms, give birth to live young

Ask the children: **What is the same about amphibians and reptiles? What is different?**
Encourage them to draw on the information about the amphibian they added to their Nature journal for support in making comparisons.

Then ask: **What do you think reptiles eat?**
Discuss their ideas and reveal that:

grass snakes eat amphibians, small mammals and birds, and fish
adders eat amphibians, small mammals and birds, and lizards
smooth snakes’ diet largely consists of lizards, slow worms and small mammals
slow worms eat slugs, snails, earthworms, insects, caterpillars and spiders
common lizards eat insects, spiders, worms and slugs

Establish that this means that these UK reptiles are carnivores.

However, sand lizards eat insects, spiders, slugs, fruit and flowers. Ask the children: **What kind of diet does a sand lizard have?**
Establish that they are omnivores.

STEM SENTENCE:
A sand lizard is an _____. (omnivore)

Watch the short BBC Bitesize film [What are reptiles?](#) about reptiles to consolidate this learning.

TEACHER TIP:
If there is an opportunity to plan in an enrichment activity for this half term, a visit from a specialist reptile handler would support this learning well.

How are we learning today?

As a class, play a game of lucky dip by placing all the images on Resource 4C into a bag or hat. Explain to the children that the reptiles and amphibians are all mixed up and you will need their help to sort them. Ask a willing child to take an image out of the bag.

Model how to refer to the learning wall to decide whether the images selected are of a native reptile (*snakes, lizards*) or a native amphibian (*frogs, toads and newts*).

Repeat for several more animals, giving the children time to talk to a partner to identify it as either a reptile or an amphibian before sharing their ideas with the class. Repeat until the children are confidently identifying a variety of native reptiles and amphibians.

TIME TO EXPLAIN:

Using the templates on Resource 4D, the children create a Top Trumps-style card for a reptile and an amphibian of their choice, drawing on their knowledge of their key

features. These can be used to create a class Top Trumps pack that they can play with at another time or they could be stuck in their Nature journals.

They present their reptile and amphibian Top Trumps cards to a partner, using the stem sentences below to support their description of it.

STEM SENTENCES:

My _____ (reptile/amphibian) is a _____.

It has _____ legs.

It can be found _____.

It has _____ skin.

It breathes using _____.

It eats _____.

It is a _____ (herbivore, omnivore, carnivore)

What have we learned today?

Reflect on the children's **learning about Nature** and assess their understanding by asking them to share with a partner one similarity between reptiles and amphibians and one difference before sharing their ideas as a class.

Link this learning to the **principle of Adaptation** by sharing the image of the sand lizard on Resource 4C and asking the

children: **Why does the sand lizard have these spots and stripes?** Draw out in the discussion the fact that many animals have changed the way they look so that they can blend in with their surroundings. This is called camouflage and it helps to protect the animal from predators.

Resource 4A



adder



common grass snake



common lizard



female sand lizard



slow worm



smooth snake

Resource 4B

Amphibians have wet skin.	Reptiles have lungs.
Amphibians have four legs.	Amphibians have smooth skin.
Amphibians have lungs.	Most reptiles lay eggs.
Reptiles have scaly skin.	Reptiles have dry skin.
Amphibians lay eggs.	Some reptiles have four legs. Some reptiles have no legs.

Resource 4C

	common frog		adder		smooth newt
	grass snake		natterjack toad		smooth snake
	common lizard		slow worm		common toad
	pool frog		great crested newt		sand lizard

Name:

Can be found:

Skin:

Legs/limbs:

Breathes using:

Eats:

Likeability: ★★★★★

My favourite amphibian

Name:

Can be found:

Skin:

Legs/limbs:

Breathes using:

Eats:

Likeability: ★★★★★

Animals including humans
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Identify and name a variety of common animals that are carnivores, herbivores and omnivores

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Working scientifically:
Identifying and classifying

Scientific enquiry type:
Identifying, classifying and grouping

Vocabulary relating to animals including humans, working scientifically and thinking sustainably is highlighted within the unit introduction.

Play-Doh or modelling clay

Nature journals

Resource 5B
(either enough for one each or for children requiring additional support)

Optional: A copy of Any Trout About? by Andy Hussey and Rosie Venner

Children requiring additional support can use Resource 5B for a more structured approach to the independent learning

Challenge children to draw a salt- and a freshwater fish and to label both.

CLIMATE ACTION PLAN:
Biodiversity and Nature

How can we identify and describe native fish?

What do we already know?

Display the first question from the class checklist that the children have been working with throughout this learning sequence: *What does its skin look like?* Using the learning wall or their Nature journals for support, the children work in pairs to answer the question for birds, mammals, amphibians and reptiles.

Discuss their ideas as a class and address any misconceptions.

Repeat this for each of the other questions on the class checklist: *Does it have legs/limbs? How does it breathe? How are their babies born?*

What are we learning today?

Display the image on Resource 5A (brown trout) on the interactive whiteboard and use the spotlight tool to reveal one part of it as a time. Ask the children: *What do you think the image is? Can you describe the colours? Shapes? Textures? Can you think of an animal group that we haven't learned about yet?*

Reveal the image fully and explain that they will be **learning about Nature** during the lesson by exploring the main features of fish.

Provide each child with a ball of Play-Doh and ask them to create a simple model of a fish that shows their initial ideas about what fish look like.

Ask the children the first two questions from the class checklist and give them time to discuss how they would respond to them with a partner.
What does its skin look like?
Does it have legs or limbs?

Take feedback and record their ideas around the image of the brown trout.

Share with the children the remaining questions from the class checklist. Discuss and record their initial ideas in response to these questions:
How does it breathe?
How are its babies born?

Ask the children: *Are we sure of the answers or do we need to find out more?*

Watch the BBC Bitesize film clip [How to identify a fish](#), pausing to use the information to assess the children's initial responses to the five questions on the checklist and to amend or improve them, or to add more detail and specific vocabulary (e.g. gills, scales, fins), as needed.

Give the children time to add more detail to their fish sculptures, taking account of their new knowledge (e.g. a scaly texture, fins, gills).

STEM SENTENCES:
Fish live in ____ (water) and lay ____ (eggs).
Fish have ____ skin. (scaly)
Fish have ____ legs. (no)
Fish breathe with _____. (gills)

How are we learning today?

Extend the children's **learning about Nature** by asking them: *Where do fish live?* Explain that some fish live in saltwater in our seas and oceans. Choose three saltwater fish found in the seas and oceans around the UK from the [Wildlife Explorer](#) section of The Wildlife Trust's website (e.g. plaice, red gurnard and mackerel) and share the images with the children. Compare their sizes, shapes and colours, asking the children: *What's the same? What's different?*

Explain that in the UK, we also have ponds, streams and lakes. As they have fresh water in them, different types of fish prefer living here. Choose three fresh water fish found in the UK from the [Wildlife Explorer](#) section of The Wildlife Trust's website (e.g. stickleback,

pike and perch) and share the images with the children. Compare the sizes, shapes and colours and ask: *Would we find any fish in our school grounds or where we live? Why or why not?*

TEACHER TIP:
At this point in the lesson, to bring the relative size of these different fish species to life for the children, the children could try drawing chalk lines on the playground representing the lengths of the fish that have been the focus of the discussion (e.g. a stickleback is just 4-7cm long whereas a pike can grow up to 1.5m long).

TIME TO EXPLAIN:
Using their fish models from the start of the lesson for support, and with reference to

the class notes in response to the questions on the checklist, the children choose one fish to draw in their Nature journals or using Resource 5B. They label their fish with words relating to its physical appearance and the applicable features of fish.

Ask the children: *What do you think fish eat?* Explain that fish diets can vary widely depending on the type of fish and where they live.

Most fish are omnivores and eat aquatic plants, algae, smaller fish, insects, and crustaceans such as crabs. Some fish are herbivores that eat plants. These fish are

usually found in shallow waters. Larger fish, such as sharks, are carnivores and eat mammals like seals.

Invite the children to add any further information about diet to their labelled drawings.

Allow the children time in pairs to share their sketches and labels. Ask them to compare each other's sketches and labels, identifying if they have missed anything.

What have we learned today?

Using their fish models and drawings for support, the children share one standout fact they now know about fish with a partner before sharing with the class.

Using their Play-Doh fish models, encourage the children to think about what they would need to change to turn their model into a model of a mammal or a bird. Discuss their thinking as a class, drawing out the children's understanding of the similarities and differences between the structure and appearance of these animals.

Recap what the children have already learned from Nature linked to the principle of Adaptation by asking them: *Do we always see fish in our local rivers?*

Support the children's understanding of the link between the number of fish we see in our rivers and how healthy our rivers are.

TEACHER TIP:

Either in this lesson, or at another point in the school day, you could share with the children the book *Any Trout About?* by Andy Hussey and Rosie Venner, which works well to support this learning. You could ask the children to identify and classify the animals that appear in the story and give reasons for their thinking.

Resource 5A

What can you see?



Resource 5B

This fish is a _____

babies

fins

scales

eggs

four legs

gills

eats

omnivore

herbivore

carnivore

breathes

lungs

Animals including humans
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Identify and name a variety of common animals that are carnivores, herbivores and omnivores

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Working scientifically:
Identifying and classifying

Asking simple questions and recognising that they can be answered in different ways

Scientific enquiry type:
Identifying, classifying and grouping

Vocabulary relating to animals, including humans, working scientifically and thinking sustainably is highlighted within the unit introduction.

Play-Doh or modelling clay

Post-it Notes

Copies of Resource 6A (one per pair)

Whiteboards and pens

Optional: A copy of *Pick A Pet* by Lucy Beech and Anna Chernyshova

Children requiring additional support may benefit from the characteristics checklist on the learning wall to classify each animal

Challenge children to play their own game of ‘What am I?’ in pairs e.g. *‘I have black and white fur, I love eating worms and fruit, I burrow underground with my big paws and long nails – what am I?’*

CLIMATE ACTION PLAN:
Biodiversity and Nature;
Climate education and green skills

How can we compare and classify our pets?

What do we already know?

Remind the children of the Play-Doh modelling activity in the previous lesson. Assign different pairs of children a different animal group so each animal group is equally represented across the class. Working in their pairs, the children create a model of an animal in that animal group, drawing on the information on the learning wall for support.

Choose pairs to present their model to the class and describe some of the features of the animal. Challenge the rest of the class to work out from the model and information given which animal group it belongs to and what the animal is, giving reasons for their thinking.

What are we learning today?

Ask the children to think about their pet or a pet they would like to have, then to draw it or write the name of the animal (e.g. dog or cat) on a Post-it Note. Ask them: *Which animal group does it belong to?*

Model how to sort the animals by moving each Post-it Note to the correct category, thinking out loud while doing so to demonstrate how you are reaching your decision e.g. *‘Ah, I know that a dog belongs to the mammal group because dogs have fur.’*

You may wish to model a few misconceptions or make errors so that the children are able to correct you e.g. *‘I’m going to put your budgie in the mammal group because budgies have scales’*, before

then asking the children to explain where they think each pet belongs.

In pairs, the children discuss which animal group they will add their Post-it Note to and why before placing it in that group.

As a class, review the children’s sorting and address any misconceptions.

TEACHER TIP:
Either in this lesson or at another point in the day, you could share with the children the book *Pick A Pet* by Lucy Beech and Anna Chernyshova, which works well to support this learning. Ask the children to identify and classify the animals that appear in the story and give reasons for their thinking.

How are we learning today?

Explain to the children that they are going to be given images of pets to sort into the correct animal groups. Provide pairs of children with copies of Resource 6A and allow them time to cut out the animals.

TIME TO EXPLAIN:
In pairs, the children categorise the animals, discussing their reasoning as they go. Encourage them to compare and contrast animals from different groups. Ask: *How are mammals and birds different?* (e.g. They are different because mammals have fur and birds have feathers) Ask the children: *Is there another difference?* (e.g. Mammals give birth to live young, whereas birds lay eggs)

Review their categorisation as a class and address any misconceptions. Ask them to share which pet they found the easiest and most challenging to place and why.

STEM SENTENCES:
_____ are _____ (birds, reptiles, amphibians, mammals, fish). I know this because _____ .

What have we learned today?

Encourage the children to reflect on their **learning about Nature** by asking them: *Where do we live and what other animals live here?* How do they make where we live special? Encourage them to discuss their thinking in small groups or pairs before sharing their ideas with the class.

Take the children outside to **learn in Nature**. Write the name of each of the animal groups the children have learned about in this learning sequence (e.g. birds, reptiles, amphibians, mammals, fish) on a separate whiteboard and spread these out in the outdoor area.

Call out the names of some of the animals the children have learned about over the course of the six lessons and ask them to go and stand next to the corresponding whiteboard. For example: blackbird, robin, blue tit (birds), badger, squirrel, fox (mammal), common frog, natterjack toad, newt (amphibians), grass snake, adder, sand lizard (reptiles), stickleback, pike, red gurnard (fish).

For each animal, ask the children to explain why they think it belongs in that group (e.g. *I know that a blackbird is a bird because it has wings and a beak*).

Link this learning to the **principle of Adaptation** by discussing with the children how we can change our behaviours to help our local wildlife. Ask: *How can we make our local area an even better place for us to live in and for other animals to live in?*

TEACHER TIP:

The Primary Science Teaching Trust's [A scientist just like me](#) resources raise awareness of a wide range of science-based careers using case studies of scientists working today. The resource showcasing the work of the veterinary surgeon Daniella Dos Santos aligns well with the learning in this lesson.

Resource 6A



tree frog



dog



guinea pig



budgie



catfish



neon tetra



axolotl



cat



tortoise



corn snake



goldfish



bearded dragon

Additional image credits

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Resource 4C

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Resource 6A

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