

River Wildlife

Discovering the River Tweed and its Tributaries



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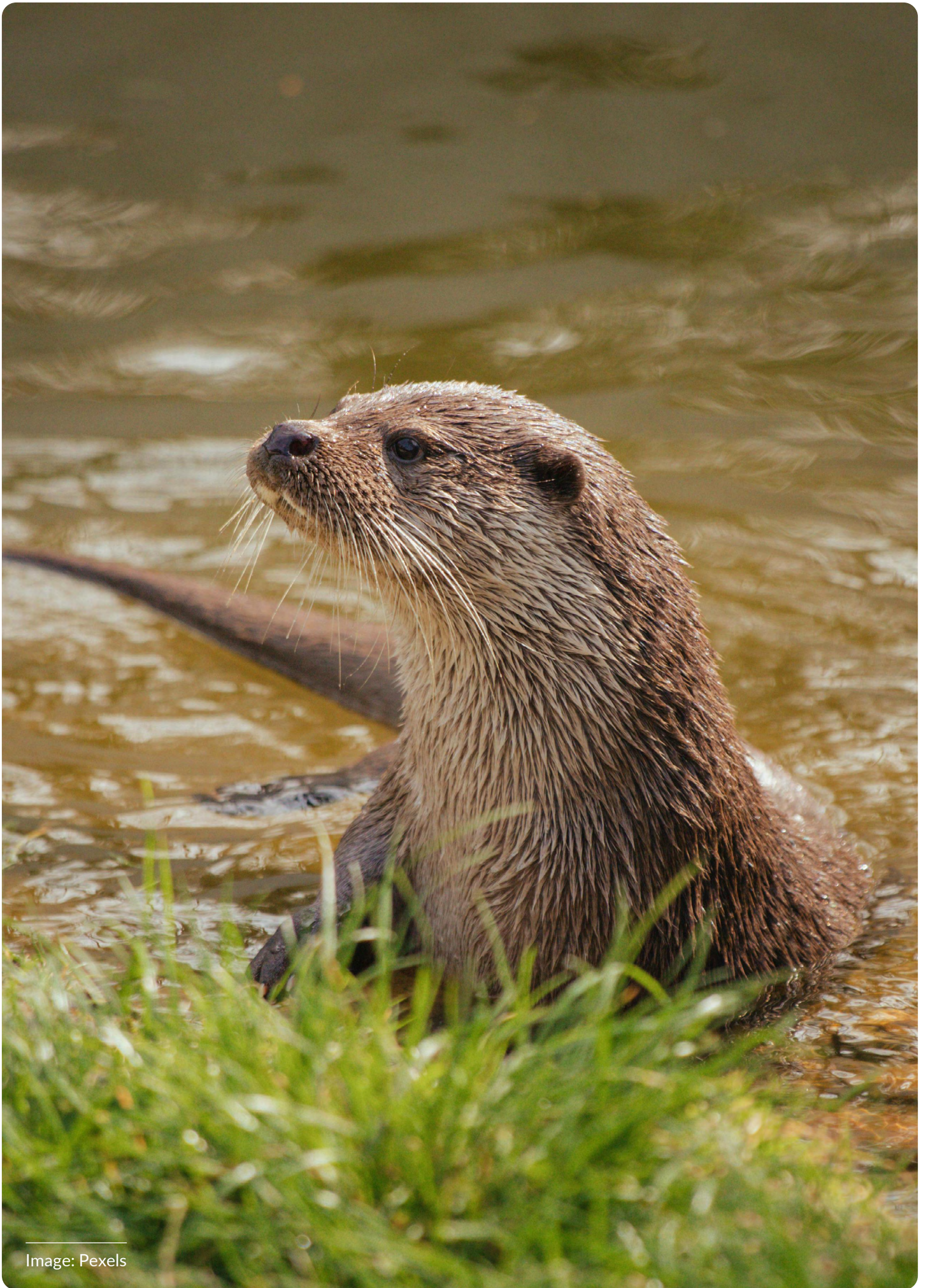


Image: Pexels

Introduction

River Wildlife: Grouping Animals of the River Ecosystem

The River Tweed catchment is a haven for a diverse range of wildlife, supported by its good water quality and varied range of habitats. It is home to iconic river species of invertebrates, birds, fish, and mammals that not only contribute to the river's intricate ecosystem but also provide food, income, and joy to the Tweed catchment's local communities. The activities in this section of the Education Pack explore the different animal species that live within the river ecosystem. They cover classification and the characteristics of some of the different animal groups whilst considering how some of these species adapt to thrive in this habitat.

By the end of this topic, learners will have gained an appreciation for the complexity and diversity of living things within a river ecosystem as well as their dependence on each other.

The lesson plans in this pack have been written with flexibility in mind. You can mix and match the activities relevant to your group or class, apply the techniques to any green or blue space you have access to, and carry out the activities in a timeframe that suits you. Check the top of a Lesson Plan for an icon that shows the ideal season for the activities. If there isn't one, it's suitable any time of year.

Introducing River Wildlife: Resource Signposting

Short Videos

A Shot of Wildlife:

What Wildlife Lives in UK Rivers?

(9m) A whistlestop tour of some of the common wildlife you might spot in and amongst the UK's lowland rivers. It features a range of animals, including fish like minnows and chubs, minibeasts like mayflies, birds such as little grebes, and mammals like otters and water voles.



Films

Our World: Stunning Wildlife in the Rivers of Wild Great Britain (46m)

This film is 1 of an 8-part series called Wild Great Britain. It showcases Britain's landscapes and wildlife, narrated by Hugh Bonneville. This episode celebrates our rivers and the amazing animals adapted to thrive in them. View the highlights in the list to the right, accompanied by the relevant video timestamps in brackets.



Picture Books

The Lost Words

by Robert Macfarlane & Jackie Morris

The Lost Words is a 'book of spells' inspired by the loss of everyday nature words from the Oxford Junior Dictionary. This book is full of acrostic poems that celebrate important nature words. Many are linked to iconic river plants and animals such as willow, otter, kingfisher, and heron.



- **Dippers: The diving songbird (2:50 & 22:00)**
- **Atlantic salmon: The epic journey (6:16)**
- **Kingfishers: The tiny jewelled bird (11:20)**
- **Mayfly nymphs: The great transformation (14:30)**
- **Otters: An elusive river favourite (27:46)**



Check out the **TweedWATCH Education Pack Resource Signposting Padlet** for links to all of the resources referenced.

The Dynamic River Ecosystem

Background Notes

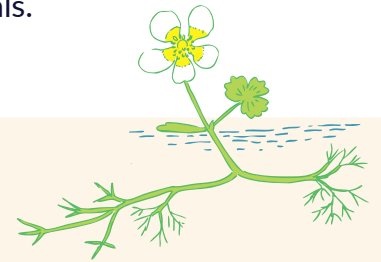
Ecosystems are like nature's communities, where plants, animals, and microorganisms interact with the non-living features of their physical environment, such as air, water, or weather.

In a healthy ecosystem, all of these things are interconnected, playing a role that supports harmony and balance within the system. Every role is important, from the smallest fungi recycling nutrients back into the soil to the apex predators regulating the population of prey animals.

A river is classed as a freshwater ecosystem, along with ponds, lakes, bogs and wetlands. These ecosystems are vital to the planet's biodiversity, covering less than 1% of the Earth's surface, whilst supporting 10% of the world's plant and animal species.

The dynamic and complex nature of a river system supports biodiversity in various ways:

- The river changes as it flows from source to sea, providing a range of different habitats and microhabitats along the way.
- It supports species that depend on running water, such as mayflies that require high levels of oxygen or salmon that need clean gravel to spawn in.
- The riparian zone, the area where land meets the water, provides food, nutrients and shelter. It supports the life cycles of many different species, providing a place to breed, alongside the water.
- It provides a source of drinking water for land animals.



The Habitats & Wildlife of the River Tweed

Upper River

The River Tweed begins as a fast-flowing and shallow upland stream. In this section of the river, mosses and liverworts are the most common plants, growing along the banks. The diversity of invertebrates here is low, with mayflies and stoneflies dominant.

Middle River

By the time it reaches Peebles, the river has slowed down and deepened. The diversity of vegetation along the riverbank increases, and aquatic plants like pondweeds and water crowfoot grow in the riverbed.

Lower River

Once the River Tweed passes Kelso, it merges with the River Teviot, becoming even deeper and slower. Mayflies and stoneflies are less dominant here as a wider variety of invertebrates, including snails, shrimps, and aquatic beetles become more common.

Throughout the River Tweed

Much of the River Tweed's wildlife is unaffected by the changes in river morphology and happily lives and thrives throughout the whole ecosystem. This includes the iconic Eurasian otter and many types of bird species such as mute swans, dippers, grey wagtails and mallards.

To read more details about the habitats throughout the River Tweed check out the Catchment Facts Species and Habitats page on the Tweed Forum website.

Protected Wildlife of the River Tweed

As well as its significance locally, the River Tweed has national and international importance and is designated both as a Special Area of Conservation (SAC) in Europe and as a Site of Special Scientific Interest (SSSI) in the UK. These classifications legally protect designated areas with vulnerable wildlife and habitats that represent our natural heritage. They are managed to conserve or even restore habitats to a healthy condition and to protect them from damage from development, pollution, global warming or unsustainable land management.

Special Area of Conservation (SAC)

An internationally significant site that protects important habitats and species.

- High proportion of the river accessible to Atlantic salmon.
- Home to lamprey species: brook, river & sea lamprey.
- Provides an extensive range of habitat for Eurasian otters.
- There are important aquatic plant species present, including different types of water crowfoot and pondweed.

Protects the River Tweed, its tributaries and many of its smaller watercourses

Site of Special Scientific Interest (SSSI)

The site protects nationally important areas for their wildlife, geology, or geomorphology, including:

- The presence of Atlantic salmon, river, brook and sea lamprey, and Eurasian otters.
- Nationally rare plants such as hairy stonecrop, maiden pink, and water figwort.
- A diverse range of invertebrates including half of all British mayfly species.

Protects the River Tweed and its larger tributaries



The Importance of the River Tweed's Protected Animals



Eurasian otter

As a top predator, the otter is vital in maintaining balance in the food web of a river ecosystem.



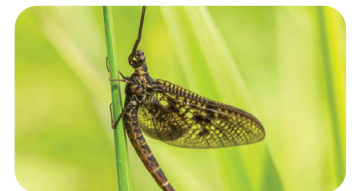
Atlantic salmon

The life cycle of this species takes it from river to sea and back again, transporting vital nutrients from the sea upstream.



Lamprey

All three UK lamprey species are found in the River Tweed; river, sea and brook lamprey. They are rare and protected.



Invertebrates

The River Tweed's diverse range of invertebrates are vital in their roles as decomposers, pollinators, and in keeping the soil healthy.

Learning Objectives

- Explore and identify invertebrates living on the riverbank.
- Classify a range of invertebrates into groups and explain their defining characteristics.
- Compare and explain a range of invertebrates found in different areas.
- Recognise the importance of invertebrates to the river and the world.

Equipment & Resources

- Bug pots & paintbrushes, white trays, white sheets, identification resources & notebook, clipboards & pencils

*Refer to specific activity instruction pages for more information on equipment needed.

Vocabulary:

Invertebrate, vertebrate, insect, arachnid, biodiversity, ecosystem, characteristics, micro-habitat, habitat, mollusc

Introduction

This lesson plan focuses on riverbanks but can be adapted to any wild space of your choosing.

What is an invertebrate?

The animal kingdom is divided into two groups: vertebrates, which have a backbone, and invertebrates, which do not. Invertebrates make up more than 90% of all animals on Earth. They are vital to all ecosystems, playing important roles in food chains, nutrient recycling and pollination.

Pair & share:

Ask your learners to name as many invertebrates as they can in two minutes, then share a couple of examples with the class. Explain that during the session, learners will be investigating the different invertebrates that live along the riverbank (or other green space) and exploring the types of habitats they live in. The more types of invertebrates they find, the higher the biodiversity. A higher level of biodiversity shows a strong and healthy ecosystem.



*Please see the [Classification Worksheets \(p.53-55\)](#) to support an introduction to this topic.

Activities

Minibeast by Number Game: (10m)

Spark enthusiasm and excitement about invertebrates with this active and high-energy game. Learners should work in small teams to create the shapes of different invertebrates using their bodies. See the **Minibeast Games Activity Instructions (p.10)** resource for more details on how to play.

Minibeast Survey: (45m)

Choose two different areas to carry out an invertebrate survey. There is a range of questions that can be investigated depending on the green or blue space you and your learners have access to. For example, a comparison between an urban and a rural riverbank, an eroded bank and a stable/plant-filled riverbank, or a look at the types of species found on the riverbank compared to in a woodland or the school grounds. If you're only able to survey one location, you could investigate how the types of invertebrates vary at different distances from the water, or compare the species found in different micro-habitats within that area. Check out our Activity Instructions: **Surveying Minibeasts Resource (p.12)** for more details on how to lead an invertebrate hunt in different micro-habitats. To record your results, use the **Minibeast Survey (p.16)** or keep a visual tally by adding pegs to pictures on a washing line and snapping a photo at the end. You may wish to keep a notebook or a camera handy for any surprise finds.

Reflection: (10m)

Make sure to ask your class to predict what they think they will find during their hunt for invertebrates before they get started. Also, ask them whether their predictions differ between the survey areas and explain their reasoning. Having completed the survey, do they feel they were right in their predictions? Can they explain their results? Are there any other factors that might have affected what they found today? For example, was the weather wet and rainy? Discuss with the group what might happen if any of these creatures no longer existed. Are there any ways we could help to protect these important animals? For example, how might we protect their habitat from pollution?

Get Creative

Minibeast Land Art: (20m)

Organise small groups of 4 or 5 learners. They should decide between them which invertebrate they will recreate using the natural materials around them. They have 5 minutes to gather their natural art materials and put together their picture. They should aim to collect things that have fallen to the ground already, to reduce any impact on the environment. Once the time is up, tour around each group's picture. See if the whole class can guess what creature they have made. The group members then describe their invertebrate's characteristics, the category their creature would belong to, and any adaptations it has that help it to survive in its habitat.

Back at School

Species Spotlight: (45m)

Using the **Mayfly Species Spotlight Resource (p.14)**, explore the mayfly whose life cycle loops between the river water and the riverbank. Learn more about its adaptations, diet and its importance to the river. Play the 'Rock, paper, scissors...grow' game detailed on our **Minibeast Games Resource (p.10)** to help bring it to life. Task your learners with a research challenge: create a species spotlight focusing on one of the minibeasts they found during their investigation using the **Species Spotlight Worksheet (p.50)**.

Staying Safe

Watch out for slips, trips and falls whilst playing these games. Choose areas to play in that are free of trip hazards, avoiding large tree roots, uneven ground and holes.

Photo credit: Tweed Forum

Minibeast by Number

When to Play

This game is fast-paced and high-energy. It will encourage your group to think about all of the different parts that make up a minibeast. It can be useful when discussing classification due to the number of legs, body parts, and other features that group different types of invertebrates. This is also a great teamwork game as learners have to work together to recreate the minibeasts.

How to Play

Start by asking for 4 volunteers who are happy to demonstrate how the game works. Ask them to stand in front of the group and to wander around a bit on their own. Then, announce that you would like them to get into a group of four; your volunteers should all come together. Now ask them to make the shape of a spider together. If they are struggling for ideas, hint that they should think about how many legs a spider has and how many legs they have in their group. Once they have made the shape, ask if they can move together as a spider would.

Define the boundaries of the area you will be playing in and ask the group to spread out and wander around, paying attention to you and awaiting instructions. Say 'get into a group of (insert required number, e.g. 4)' and then tell them the minibeast you'd like them to make.



If you'd like to up the challenge, and it's something you have covered with your class, you could ask them to become a particular group of invertebrates. For example, an insect, an arachnid or a type of mollusc. Try ending the game by asking them to get into one big group to make the shape of a centipede, and then start moving. They'll conga their way around the space, kicking their legs out to the side and giggling along the way!

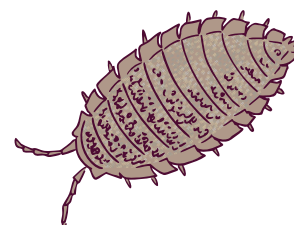
Tips

- Learners moving alone can make a good earthworm or a slug.
- Groups of 2 can construct a snail with its shell.
- Groups of 3 can make up the body parts of a bumblebee or an ant.

Rock, Paper, Scissors... Grow!

When to Play

This game is a crowd pleaser based on the classic 'Rock, paper, scissors' format. It can be used to reflect on the creatures you have found during a bug hunt. It can be played in two different ways, with either a focus on life cycles or on food chains.



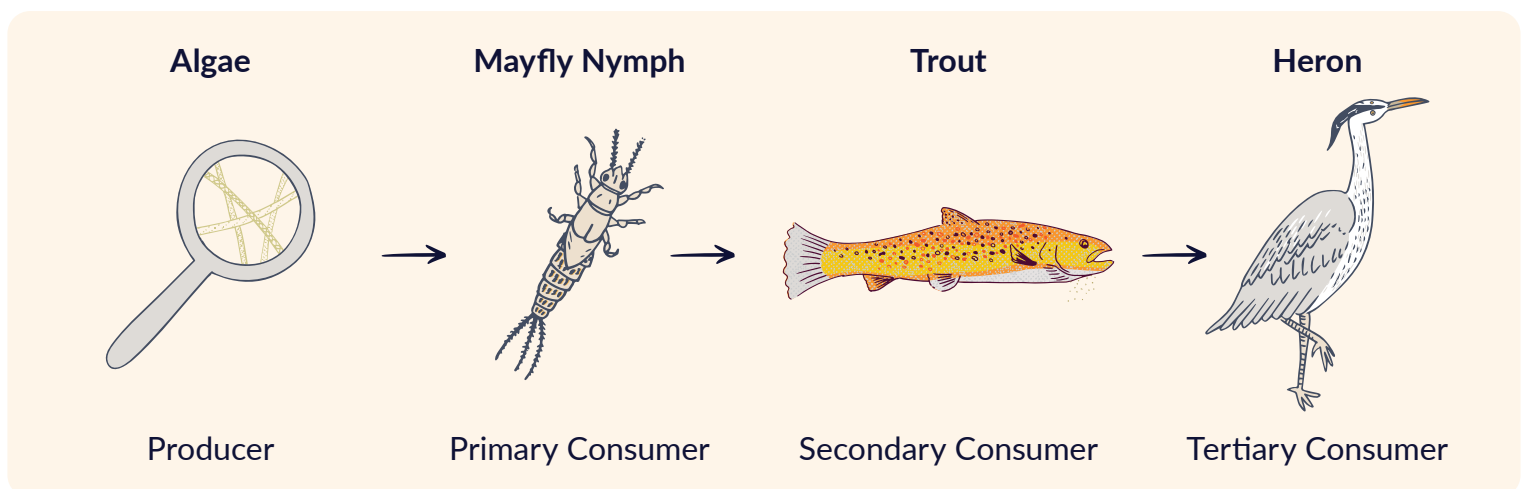
How to Play if focusing on life cycles:

- Choose a life cycle of one of the invertebrates found during your session.
- To use the mayfly as an example, learners should all start as an egg. They have been laid on the surface of the water before sinking to the bottom of the river. To represent this, they hold their arms above their head to form a circle. They need to find another egg to challenge in a rock, paper, scissors battle and win that battle before they can grow into their next life cycle stage. If they lose, they have to find another egg to battle.
- For the next stage, they become a nymph, living under the water, looking for algae and other food (they can live in this stage for months or even years!). To represent this, they should use their hands to show a scurrying/ swimming motion. They must find another nymph to battle. If they lose, they must go down a life stage. If they win, they can grow into a dun and emerge from the water.
- The dun has wings, but is not a fully grown adult yet. Learners should hold their arms along their backs like folded wings.
- The last stage is the fully grown adult called a spinner. They live for only a day (depending on the species) and die once they have reproduced. To represent this, have arms spread out and wings flapping.
- How many times can your learners make it from an egg to an adult? Give the group 5 minutes to play before reflecting on the results.

At the end of the game, ask if anyone made it to the adult stage and, if so, how many times. What do they think the battles represented? They showed the challenges these creatures face to survive and grow. This could include natural challenges like competition for food or predators, or human-caused challenges like water pollution or rising temperatures due to global warming.

If you'd like to focus on food chains:

- Choose a river habitat food chain involving some of the wildlife you have spotted during your session.
- Instead of life cycle stages, learners will move up the trophic levels of a food chain. They will begin the game as a producer, an aquatic plant.
- After winning a battle, the energy from the plant can change the player into a primary consumer/herbivore.
- The following level will have them play the part of a secondary consumer/omnivore/ carnivore, and then will end with the tertiary level consumer/carnivore/apex predator.



Surveying Invertebrates

Environmental Impact

To keep our environmental impact low while surveying minibeasts with young people, there are a few guidelines you can share with them when introducing a minibeast activity.

- Use a paintbrush or something equally soft to gently capture your minibeast.
- One bug per pot at a time. This is to prevent trapping a creature in with a predator when it has no chance of escape.
- Always return your creature to where you found it.
- Return any flipped-over stones or rocks to the way they were, to stop the soil from drying out.

Activity Instructions

Photo credit:
Tweed Forum



Woodland

Deadwood

This is a very important micro-habitat for a range of different species that like it dark and damp, like woodlice, millipedes, centipedes and slugs. Look out for fallen branches, log piles and rotten tree stumps as they are deceptively full of life. Children should ask for adult help when lifting any large pieces of wood. You don't need much equipment for this, just a paintbrush and a bug pot.

Leaf Litter

In broadleaf woodlands during autumn, the layer of fallen leaves can be brimming with life. Try putting a handful of these leaves into a colander or a sieve and shaking gently over a white tray to see what minibeasts you can find. Many of the creatures you'll see will be classed as decomposers and are essential for helping to recycle nutrients back into the soil.

Trees

You'll find different types of minibeasts living amongst the branches and leaves of a tree. When comparing these micro-habitats in a woodland, ask your learners to think about the differences in the way they move and in their colouring. To find them, you'll need a large white bed sheet (or a similar lightly coloured item). Ask a few of your learners to hold the sheet steady beneath the tree branches and ask them to close their eyes to protect them from flying debris.

Count to ten while shaking the branch over the sheet. Check the sheet quickly, as any winged invertebrates you've shaken out will be fast at escaping before you get a chance to look. Check the trunk of the tree too, as you'll likely find lots of minibeasts hiding in the holes and cracks of the bark.



Grassland/Meadow

Grass and Wildflower Meadow

During late spring and summer, you may have an opportunity to investigate a meadow for minibeasts. It is the perfect place to see a diverse array of pollinators flying among the flowers. Check out our **Pollinator resources (p.18-29)**, as they can support you in any lessons on this topic.

In addition to watching the flowers for visitors, we can get a closer look at a meadow's inhabitants by using a sweep net. Many children may identify this as a butterfly catcher, as they have been featured in cartoons as such, but in reality, we can use it in a much more efficient way to find all kinds of minibeasts.

To use a sweep net, you'll first need some dry weather, as the minibeasts can get harmed if the fabric of the net is wet. Gently brush the net over the tops of the plants in a figure 8 motion. This way, anything you catch in your net stays in the net. Be careful not to trample the plants as you do this, and keep an eye out for the prickly plants like thistle and nettle. After you've swept your net, empty it into a white tray to see what you've captured. Be quick, as many of the minibeasts have wings and will soon fly away.



Riverbank

Riparian Zone

A riparian zone is the area of land that runs alongside a river, also known as a riverbank. It's where the land meets the river water. If it's a healthy river, this zone will have a diverse range of plants, including trees and smaller shrubs that are brimming with invertebrate life. Many insects have a life cycle that begins in the water and moves on to land as they grow into adults, getting ready to reproduce. The riparian zone is a great place to see these creatures along with terrestrial (land) minibeasts that you'd normally find amongst the trees, the grasses and the smaller plants.

Any of the above sampling techniques for woodland and grassland can be utilised on the riverbank. Check under plant leaves for insect eggs and in any sheltered areas or nooks and crannies where spiders may have spun their webs.

Identification Resources

For a variety of links to organisations that offer free invertebrate identification resources, check out our **[TweedWATCH Education Pack Resource Signposting Padlet](#)**.



Species Spotlight: Animals

Species Name

Mayfly

Invertebrate Vertebrate

Habitat

You will find mayflies living in freshwater wetlands like rivers, lakes and ponds. They are very sensitive to water pollution and prefer to live in clean water with high levels of oxygen.

Diet

Adult mayflies do not feed; their only goal at this life stage is to breed and reproduce. The nymphs of most mayfly species are herbivores and feed on algae and aquatic plants whilst living under water. A few species are carnivores, feeding on other insects, fish eggs and even other mayflies.

Herbivore Omnivore Carnivore

Adaptations

Mayfly adaptations will depend on the micro-habitat they live in. Species whose nymphs live in the sand beneath the water have strong legs for burrowing. Those that feed among the stones and deadwood have special mouthparts for scraping off algae. Many have a light green/brown colouring so that they can hide from predators within the plants.



Interesting Facts

- There are 51 different species of mayfly in the UK.
- They are older than the dinosaurs, with some of their fossils dating back 300 million years!
- They are the only insects that have 2 winged adult stages.
- Despite their name, you can see the adults throughout the warmer months of the year.

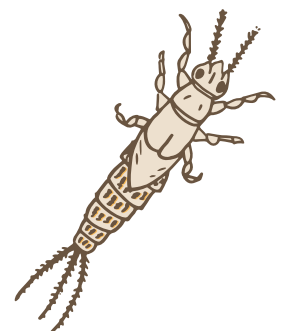
Identification Tips

Adults

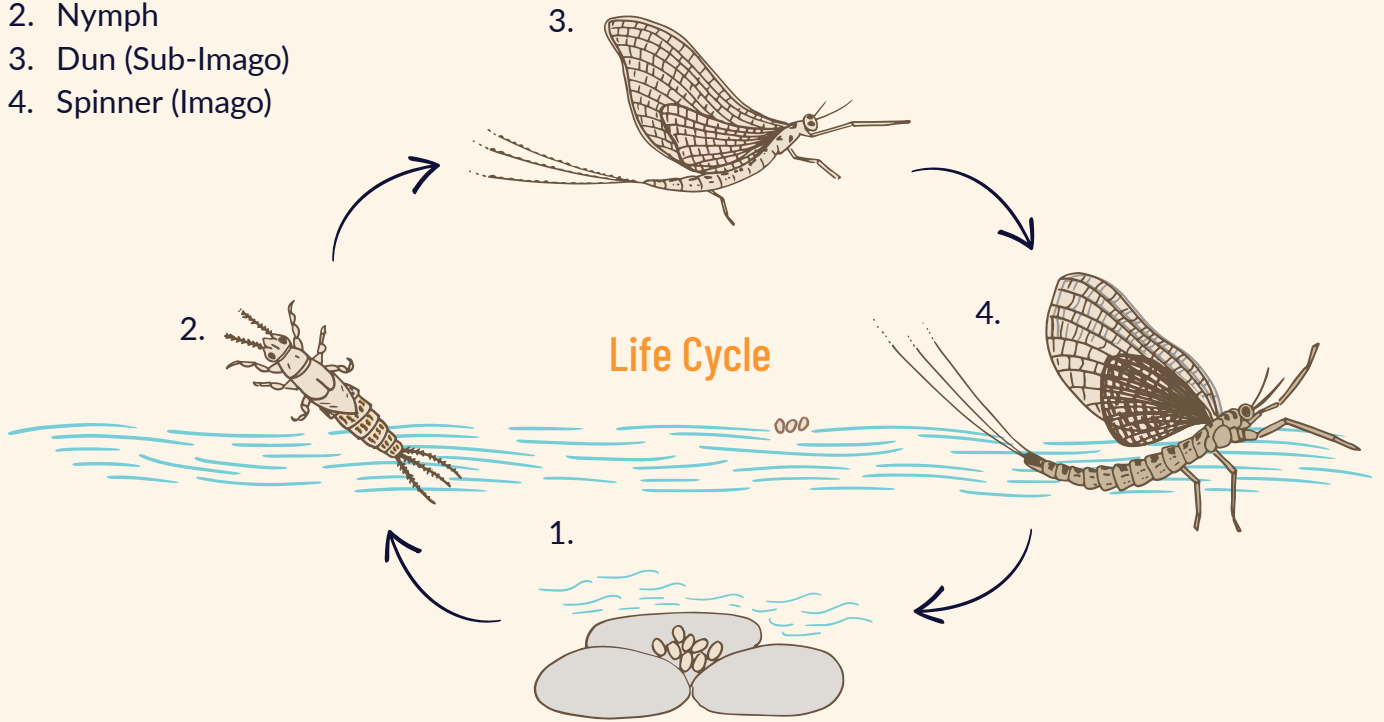
- Clear wings held upwards along their back.
- Three long, thin tails.
- Short antennae.

Nymph

- Gills along the abdomen.
- Three tails at the end of the body.

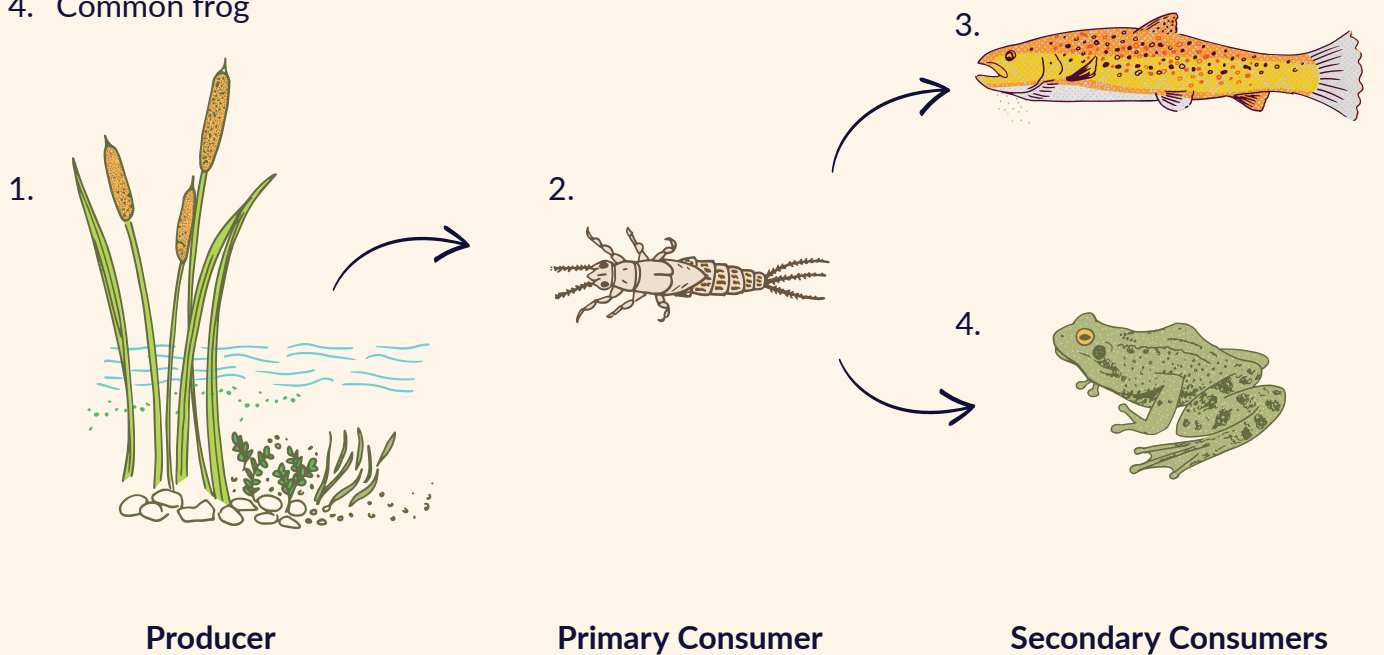


1. Eggs
2. Nymph
3. Dun (Sub-Imago)
4. Spinner (Imago)



1. Algae and aquatic plants
2. Mayfly nymph
3. Brown trout
4. Common frog

Food Chain



Location:

Team Name:

Weather:

Minibeast Survey

6 legs

Number found:



Ground beetle	
---------------	--



Earwig	
--------	--



Shield bug	
------------	--



Hoverfly	
----------	--



Moth	
------	--



Mayfly	
--------	--

Number found:



Ladybird	
----------	--



Grasshopper	
-------------	--



Crane fly	
-----------	--



Caterpillar	
-------------	--



Butterfly	
-----------	--



Dragonfly	
-----------	--

Number found:



Ant	
-----	--



Aphid	
-------	--



Froghopper	
------------	--



Wasp	
------	--



Bumblebee	
-----------	--



Damselfly	
-----------	--

Minibeast Survey

Location:

Team Name:

Weather:

Number found:

	Slug
--	-------------



	Spider
--	---------------



	Centipede
--	------------------



0 legs

Number found:

	Snail
--	--------------



8 legs

	Harvestman
--	-------------------



More than 8 legs

	Millipede
--	------------------



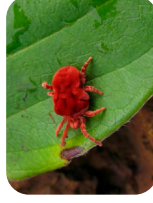
Unlisted Minibeasts

Number found:

	Earthworm
--	------------------



	Red mite
--	-----------------



	Woodlouse
--	------------------



Picture:		Name:		No. found:	
----------	--	-------	--	------------	--

Picture:		Name:		No. found:	
----------	--	-------	--	------------	--

Picture:		Name:		No. found:	
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Pollinator Friendly School Grounds

Lesson Plan



Learning Objectives

- Learn what pollinators are and why they are important.
- Learn that there are different types of pollinators.
- Investigate what creatures are living in the school grounds.
- Discuss what action we can take to protect pollinators and other wildlife.

Equipment & Resources

- Pencils & clipboards, washing line, pegs and something to hang the line from, minibeast hunting kit (bug pots, paintbrushes, & white trays).

Ideal for Spring/Summer  

*Refer to specific activity instruction pages for more information on equipment needed.

Vocabulary:

Pollination,
pollinator,
biodiversity,
habitat,
micro-habitat,
wildflower,
meadow



Introduction

Talk to your learners about what pollinators are and why they are important. They help many of our plants to grow seeds by moving pollen from flower to flower. Ask your learners to think about the types of animals that would be good at this and to pair and share with their partner. Ask each pair to share an answer and explain why they think their animal would make a good pollinator.

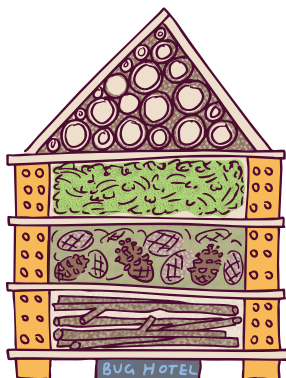


Photo credit: Tweed Forum

Activities

Pollinator or Not: (5m)

This game plays like 'Simon Says', except with this version you shout out the name of an animal. If your learners believe it is a pollinator, they act out how it moves and sounds. If it is not a pollinator, they must stand as still as a statue. Use the **Pollinator Spotter Resource (p.22-23)** to guide your answers.

Pollinator Friendly School Grounds Survey (20m)

Using the **Pollinator Friendly School Grounds Survey Sheet (p.28)**, learners should explore the school grounds in pairs/small groups. Learners will be looking for ways that the school grounds are supporting pollinators to survive and thrive. How many of the pictured features can they spot? Are there any that are missing that you could introduce? The second page of the survey allows your learners to add their thoughts and ideas. Encourage the class to think about the needs these creatures have and any challenges they might face that have been caused by humans.

Seed Pebbles: Take Action for Pollinators (15m)

Have your learners make seed pebbles, so they can create a mini wildflower patch in a wild space of their choosing. See our **Seed Pebble Instructions Resource (p.20)** for step-by-step instructions.

Reflection

Talk to your group about what they learnt. What creatures were found and where? In what ways did the micro-habitats help them survive? What would happen to the plants if the pollinators disappeared? How would this affect other animals and people too?

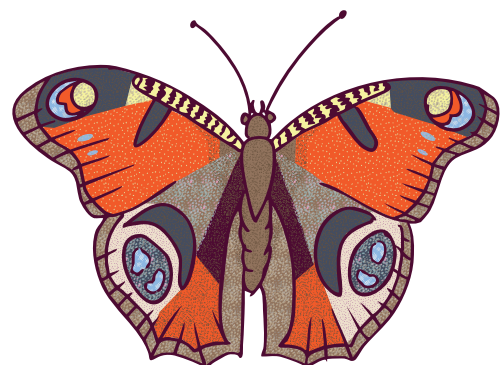
Types of Pollinators Investigation (30m)

What types of pollinators are living in your school grounds, and where can they be found? A micro-habitat is a small, specific area within a larger habitat that has special characteristics and where particular small creatures can find food and shelter. A log pile within a woodland or leaf litter in a garden are an example.

Explore the micro-habitats in your school grounds to see what types of pollinators you can find. Check out the **Surveying Minibeasts Instructions (p.12)** for advice on how to find pollinators in different micro-habitats and use our **Pollinators and Plants Spotter Sheet (p.22-23)** to help you identify your finds. To record your results, try hanging up a washing line to display the **Types of Pollinators Pictures (p.24-27)** and have your learners pop a peg on the corresponding picture whenever they find that creature. You could even colour code the pegs based on where the pollinators were found to compare at the end.

Pollinator Pledges: (10m)

Ask your class to think about the pollinators they have seen today and any ways that the school is already helping them to thrive. Is there anything else we can do to support them? How can we protect the habitat that is there, and how can we create more? Ask your learners to draw a picture to represent their pledge. It helps to foster a sense of environmental stewardship for learners.



Description

Combine creativity and conservation by crafting seed pebbles with your learners. These little biodiversity boosting balls contain everything seeds need to thrive in a green space of your choice. A great way to take action for our pollinators.

What you'll need

- Peat free compost.
- Air drying clay.
- Local wild flower seeds.
- Stamps to decorate (optional).
- Cardboard pieces.

Ideal for Autumn/Spring 

Setting up

If you have a large class/group, you could:

- Throw some tarps down on your school grounds and do this activity outdoors. This will allow your learners to spread out while keeping the classroom clean. Any stray seeds or compost will only add to the biodiversity of your grounds.
- Add your ingredients in small amounts to small containers and spread these out amongst your working area to keep things running smoothly when it comes to students gathering their pinch of composts and seeds.



Instructions

- Warm up the clay in your hands and then flatten it into a circle shape on your cardboard. Using the cardboard should help prevent the clay from sticking to any surfaces.
- Sprinkle a pinch of seed and a pinch of compost in the centre of the clay. Be careful not to add too much, as the clay will be unable to hold it all in.
- Fold the sides of the clay into the centre of the clay circle, covering the seeds and compost, until none of it is left visible.
- Gently mould and flatten the clay into a pebble shape.
- Use stamps to decorate the tops of your pebbles or a stick for learners to draw their own design (optional).
- To plant your seeds, leave the pebbles on top of the soil in your chosen spot. The rain will break down the clay, and in time, you'll see seedlings start to sprout. For the best success, aim to plant your seed pebbles in the autumn.

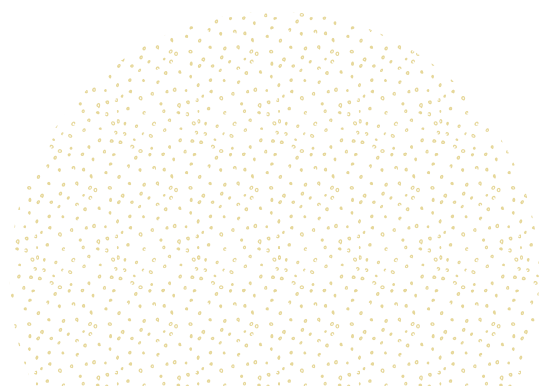




Image: Unsplash

Pollinator Spotter



Fuzzy body

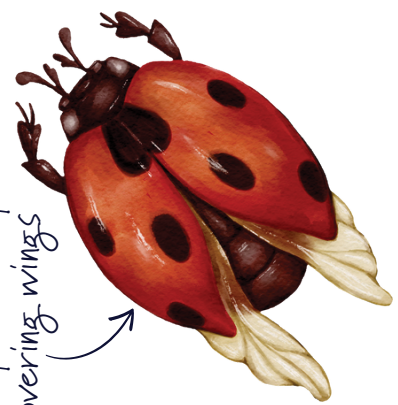
Loud buzz!

Bumblebee



Ginger bees with stripes on body

Honeybee



Shiny hard body covering wings

Beetle



Small, often furry bees

Solitary Bees



Antennae like feathers

Fly during the day and night!

Moth



Yellow and black stripes

A type of social wasp that lives in colonies

Wasp



Big eyes

Shiny body

Fly




Club-shaped antennae

Butterfly

Pollinator Friendly Plants

Large flowers with long white petals and yellow centres



Tall stems unlike Common Daisies found on short lawns

Oxeye Daisy

Big purple flower heads



Spiky leaves

Thistle

Small drooping flowers



Wavy edged leaves

Stinging Nettle

Pink pom-pom flowers



Red Clover

Sunny yellow flowers




Dandelion

Shiny yellow flowers like butter



Buttercup


Bright blue flowers



Yellow centre

Forget-me-not

Grows low to the ground



Flower spike

Plantain

Tall spikes of purple flowers



Watch out, this one is poisonous for humans!

Foxglove

Electric blue flowers



Cornflower

White or pinkish flower



White Clover

Grows low to ground



White petals with yellow centre

Common Daisy

Moth



Honeybee



Beetle



Butterfly



Fly



Wasp



Bumblebee



Solitary Bee



Pollinator Friendly School Grounds

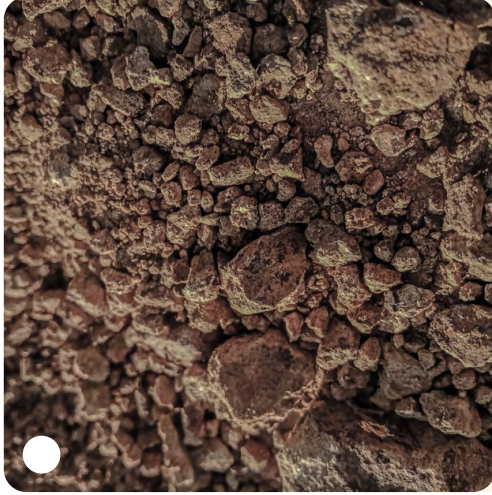
These features can help pollinators to thrive! How many do you have in your school grounds?



Flowers rich in nectar and pollen



Long grass for shelter and nesting



Bare ground for warming up and nesting



Log piles for egg-laying and nesting



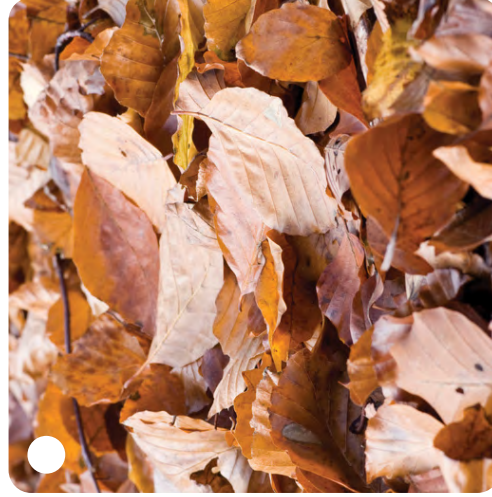
A pond for water and egg-laying



Grasses and nettles for caterpillars



Hotel to provide a home and for nesting



Leaf litter for shelter

Pollinator Friendly School Grounds



Did you find anything else that would help pollinators?

How could your school be even better for pollinators?



Learning Objectives

- Explore and identify birds living on the riverbank.
- Describe the physical characteristics that are shared by birds as a group.
- Learn about beak adaptations and explain how different shapes are suited to diet and habitat.

Equipment & Resources

- True & False signs or green & red items to represent these, pencils and clipboards.

*Refer to specific activity instruction pages for more information on equipment needed.

Vocabulary

Characteristics, vertebrate, warm blooded, adaptation, beak, feather, animal kingdom, classification, bird

Introduction

Bird True or False: (15m)

Gauge your group's knowledge of birds using a True or False quiz. Use a green item to represent true and a red item to represent false, and set them far enough apart that the group can run between the two items. Gather the group together in the middle, ask a question from the **Bird True or False Resource (p.48)** and ask the learners to run to the answer (green or red item) that they think is right. If they don't know, encourage them to pick a side. After you have revealed the answer, ask someone from the winning side to explain why it is right. Then ask the group to think about the characteristics that all birds share as a group of animals. What makes a bird a bird? They can pair and share with a partner to talk through their ideas and then provide feedback to the group. Use the **Animal Kingdom Poster Resource (p.50)** to highlight the specific features you are looking for and to compare them against the characteristics of other types of animals.

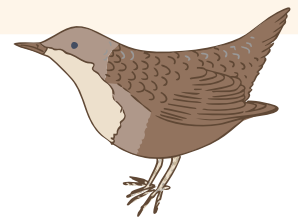
Activities

Bird Call Game: (5m)

We can learn a lot about birds if we pay attention and listen to the sounds around us. Many birds will stay hidden amongst the trees, but noticing their calls and songs can tell us what is there. If we think about the types of noises they are making, we can even work out what they are trying to say. Play the **Bird Call Game (p.38)** to introduce the idea of different bird species having different sounds. See the **River Bird Games Resource (p.32)** for more detailed instructions on how to play.

Sound Counting: (10m)

Now that the group know a little more about some of the sounds different species of birds make, ask them to close their eyes and listen to the sounds around them. If there are several different bird sounds, ask them to put up a finger every time they hear one that is different. If there isn't much bird activity, learners can put up a finger every time they hear any new sounds. They should still pay particular attention to any bird calls. After a few minutes, ask the group to provide feedback on their thoughts and findings. Can your learners repeat any of the calls they heard? Did they hear alarm calls or singing? What were the birds trying to communicate?



Activities

Exploring the Local Birds: (30m)

Walk along the river to see what birds you can find along the way. Use the **River Bird Survey Resource (p.40)** to record your findings.

Stop now and then so your group has time to watch the birds' behaviour and to record anything they find interesting. Are they preening their feathers, feeding, or interacting with other birds? The group can also make notes on what micro-habitats the birds are using; for example, they could be in the tree canopy or diving into the water to find food.

Interpreting Results: (1h)

If you'd like to look at the biodiversity of the birds along the river, recording the number of species you find will give a simple measure of this. You can then use this number to compare different stretches of the river or even different habitats. If you also count the number of individual birds of each species, this will give you more information about the proportions of each species. This can be represented using bar charts or converted into percentages to create pie charts. The more evenly distributed the numbers are for each species, the stronger the biodiversity. This can also be helpful information for finding out if there is a dominant species or not. For more guidance on this, check out the Hula Hoop Survey Resources in the Riverbank Plants topic of the education pack.

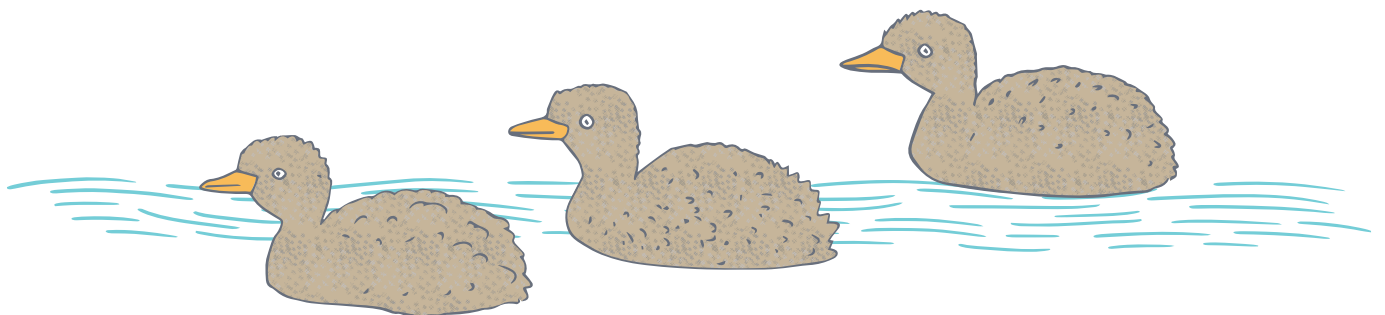
Bird Beak Challenge: (30m)

Chat to your group about the birds you saw at the river. Can they describe the things they had in common as well as their differences? Ask them to think about how these things help the birds to survive and thrive in their habitat. For example, the colour of their feathers serves as camouflage, and the shape of their feet allows them to perch on branches. This activity will focus on beaks and how they are adapted to finding and eating food for different species based on their habitat. See the **Bird Beak Challenge Activity Instructions (p.34)** for details on how to set up and deliver this game.

Back at School

Species Spotlight: (1hr)

Using the **Kingfisher Species Spotlight Resource (p.36)**, ask your learners to explore the kingfisher and how it is adapted to thrive while living on the riverbank. They will learn more about its adaptations, diet, and its importance to the river. Task your learners with a research challenge; to use the **Species Spotlight Worksheet (p.50)** to create a Species Spotlight focusing on one of the birds they found during their river walk.



Staying Safe

Watch out for slips, trips and falls whilst playing these games. Choose areas to play that are free of trip hazards, avoiding large tree roots, uneven ground and holes.

Bird Call Game

When to play

Use this quick and simple game to introduce the importance of listening whilst exploring birds. We usually see the birds that are most comfortable around humans, but there are many more we don't see that are hidden. We can discover these birds through listening, and we can learn about how they communicate by noticing when they are singing or making alarm calls.

How to play

Print/copy the **Bird Call Game Cards (p.38)** included in the education pack. You'll need to make sure each learner has a card and someone with the same card to match with. There are 16 species on the cards, which will be suitable for a group of 32. You can print additional cards for a larger group.

Hand out the cards, one to each learner and ask them not to show anyone else what they have on it. It will have a picture of a bird and a word that represents its song or call. Ask everyone to spread out and on the count of three to start 'singing' the word on their card. While doing this, their challenge is to find anyone else who matches their bird call.

Flocking Game

When to play

This game helps to demonstrate the benefits of flocking as a behavioural adaptation for birds. When flying as a large group, predators find it much harder to single out an individual bird to catch and can get confused by the flocking movement.

Equipment & Resources

- A set of small throwing beanbags.

How to play

Most of the group should stand in a circle facing in. They will represent trees in the environment. Choose one or two of the group to act out the role of a predator bird like a sparrowhawk. The 'sparrowhawks' will stand in the centre of the circle.

Begin by handing out one beanbag to one of the 'trees'. They are to throw it to another tree on the opposite side of the circle, who in turn will throw it again to a different tree. The beanbag represents a starling or other flocking bird. The sparrowhawk's job is to intercept the bag. Slowly add in more starlings (beanbags), and this job will become increasingly more challenging. Repeat this a few times with different learners playing the sparrowhawks and discuss what happened with the group at the end.

Bird walk Simon Says...

When to play

This game can be a fun way to introduce a session on birds, whilst getting your learners moving and thinking about the different ways that birds move. When the group begins to observe birds later on in the session, they will be more likely to notice the differences in the movements of different types of birds. This can also be played at the end of the session as a way of reflecting on the birds you have spotted.

How to play

This game is played like the classic game of 'Simon Says'. Call out the name of a bird and the action of how it moves. If your sentence begins with 'Birdy Says,' the group should emulate the move, too. If not, they should stand still. See below for a list of examples of birds and actions to call out. You could also try asking your learners to give their own examples.

- **Strut like a pigeon:**
Hands behind your back, little steps forward, whilst bobbing your head in and out.
- **Hop-Hop-Step like a blackbird:**
Hands behind your back, hop on one leg twice and then end with a 2-leg jump (repeat).
- **Stand like a peg-legged heron:**
Balance on one leg (birds do this to save heat and energy).
- **Waddle like a duck:**
Take very small steps whilst moving your shoulders and upper body side to side.
- **Bob like a dipper:**
Scurry to one spot and then bob your whole body up and down (repeat).
- **Dive like a kingfisher:**
Flap arms a couple of times and then hold them stretched out along your back as you swoop and pretend to catch a fish.
- **Probe the mud like an oystercatcher:**
Hold your arm outstretched and along your face like a very long beak. Bob your arm up and down near the ground as you search for cockles or worms.

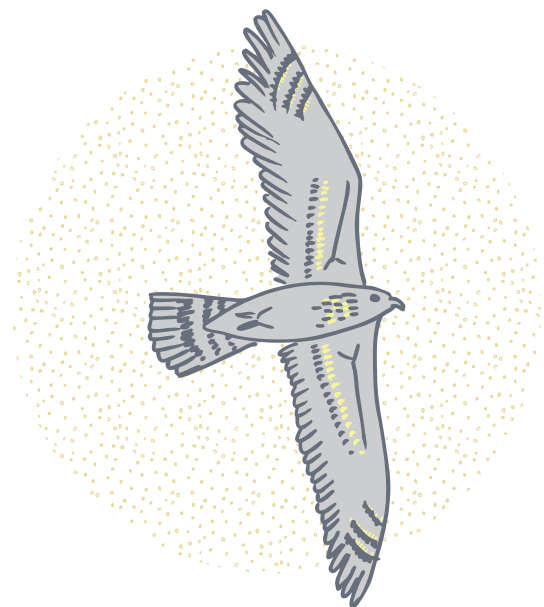
Sparrowhawk

When to play

This game can be played with small groups of up to 15 learners; any more can be much harder work for the person playing 'Hawk'. This game can be used as an activity while moving between outdoor areas. It demonstrates the predator-prey relationship, a food chain and highlights behavioural adaptations to survive predation.

How to play

You first need to nominate a sparrowhawk; this can be yourself, or you can choose one of the learners. Everybody else will walk in a line as you move along the path to your next destination. The group will be little songbirds; they can hop along or stretch their wings and fly along. They must be vigilant for predators, though. Whenever they see that the sparrowhawk has stretched out their wings, they must freeze so as not to be seen. The sparrowhawk will fly along the line. If they spot anyone moving, they will be gobbled up (and move to the back of the line). You might want to switch or add more sparrowhawks as you progress, to up the challenge. You can use any bird predator for this game, switching a sparrowhawk for a kingfisher or an osprey hunting fish would complement a river study workshop.



Bird Beak Challenge

Activity Instructions



Description

The shape of a bird's beak is an adaptation that helps it find and eat the food it needs to survive. This characteristic is a striking and easy-to-spot feature for learners to observe. The diverse range of beak shapes can give us clues about the diet of that species.

For example, the sharp, hooked beak of an osprey is perfect for catching fish, the long, flat beak of a mallard duck can filter food from the water, and the thin, tweezers-like beak of a dipper helps it to catch insects beneath the water.

What you'll need

Lengths of wool approx. 30cm long in a range of colours: bright, brown, & green, pegs or tweezers, spoons, buckets or tubs.

Setting up

This activity requires a small amount of setting up beforehand and can be delivered in school grounds, gardens, woodlands or any type of enclosed area. Hide and hang up lengths of wool of a variety of colours around your activity area, dangling them on tree branches, along tree bark, on top of soil and anywhere else that learners can reach. Hide at least 5 pieces per child.

Instructions

1. Learners can work individually or in pairs if you have a large group.
2. Hand each pair a bucket and a spoon. Their task will be to find and catch as many woolly worms as possible using only their spoons (no hands allowed!) and transfer them to the bucket in a time frame of 5 minutes. Partners can take turns using the spoon.
3. Gather the group back in and ask for feedback about how their task went. Was it difficult/easy? How many worms did they catch? Is there a better way of catching worms?
4. For the second round, replace the spoon with a peg and repeat step 2.
5. Gather the group back in and compare the number of worms caught. Discuss which beak they preferred and why.
6. You can also discuss which colour worms were found the most, linking to camouflage as an adaptation against predation.
7. You can try a range of different household items as tools. Try to find some that match the shape of a real bird's beak.



Image: Pexels



Image: Pexels

Species Spotlight: Animals

Species Name

Kingfisher

Invertebrate Vertebrate

Habitat

You can find kingfishers living within riparian (riverbank) woodland next to slow-flowing rivers and streams. To thrive, they need access to fish and freshwater invertebrates to eat, trees and plants for shelter and a riverbank they can tunnel into as a place to rear their young.



Kingfisher

Diet

As its name suggests, the kingfisher's main source of food is fish. It hunts a diverse range of fish, including stickleback and minnow. It will also eat invertebrates living both in the water and on land, including dragonfly nymphs, crustaceans, worms and beetles. It will even eat frogs and their tadpoles if it can find them.

Herbivore Omnivore Carnivore

Adaptations

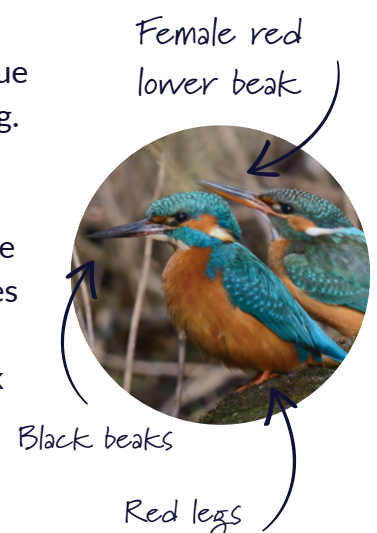
A range of adaptations help make a kingfisher a master predator. Using its strong eyesight to locate its prey, it will then bob its head to judge the distance it needs to dive. The kingfisher's waterproof feathers keep it dry and buoyant once in the water, whilst its dagger-like beak is perfect for catching fish.

Interesting Facts

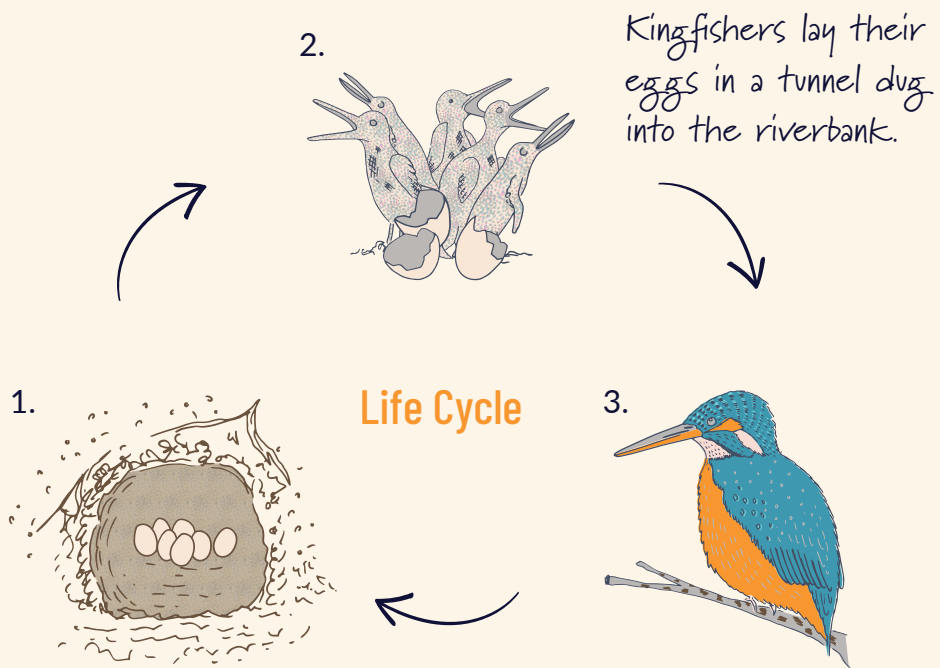
- Kingfishers will eat up to 60% of their body weight every day.
- Kingfishers are not classed as a threatened species, but are sensitive to habitat loss and pollution.
- Kingfishers eat their prey whole, including anything indigestible like shells, bones or fur. To get rid of the indigestible bits, they will regurgitate little pellets, just like owls do.

Identification Tips

- Distinctive bright blue and orange colouring.
- Long, black beak.
- Short, red legs.
- The lower part of the beak is red in females and black in males. Otherwise they look very similar.

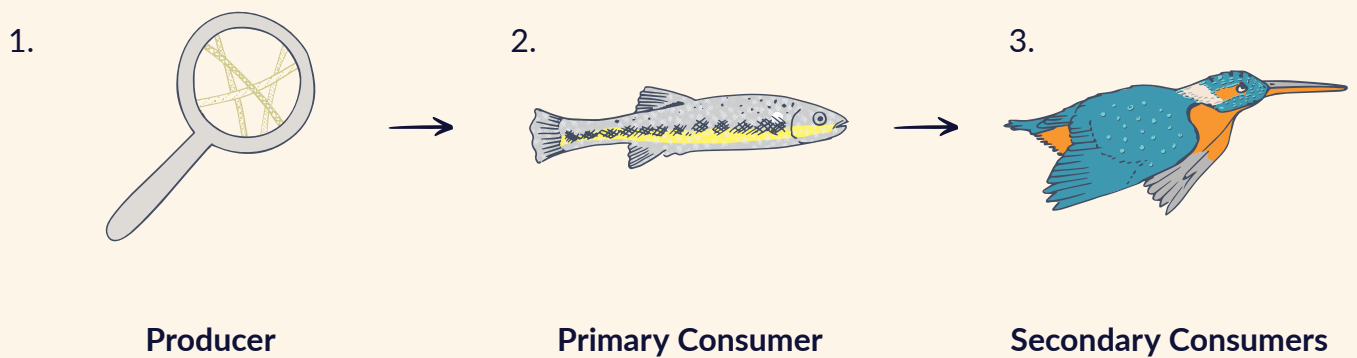


1. Eggs
2. Chicks
3. Adult



1. Algae
2. Baggie / Minnow
3. Kingfisher

Food Chain



Bird Call Game

Great Tit

'Teacher,
Teacher'



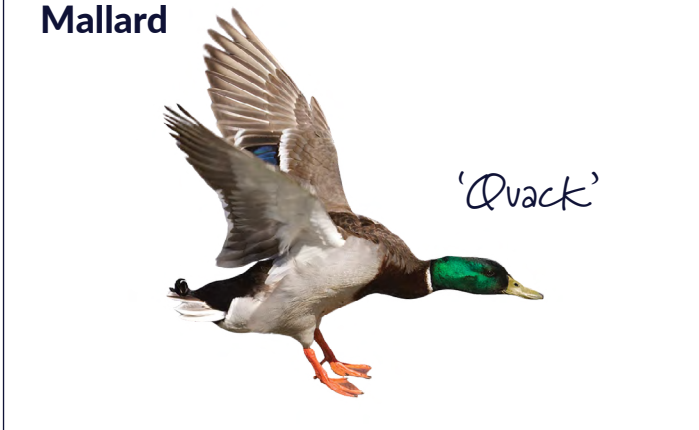
Magpie

'Ker-
Chock'



Mallard

'Quack'



Chiffchaff

'Chiff-
Chaff'



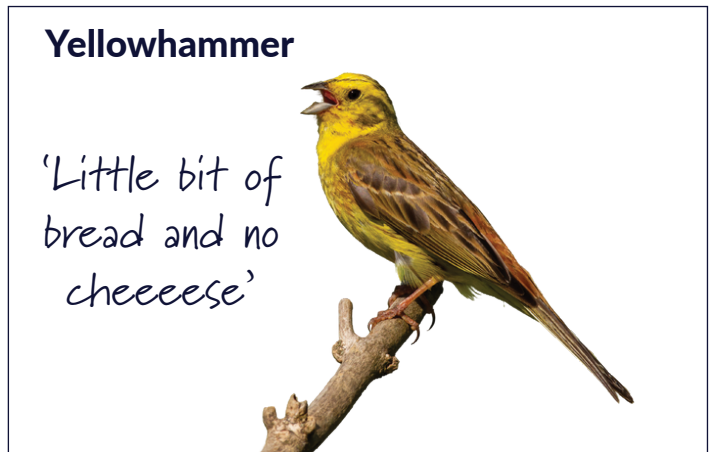
Nuthatch

'Twit-twit-
twit-twit'



Yellowhammer

'Little bit of
bread and no
cheese'



Wood pigeon

'Du Doo Du,
Du Du'



Cuckoo

'Cuck-oo'



Jackdaw

'Jack,
Jack'



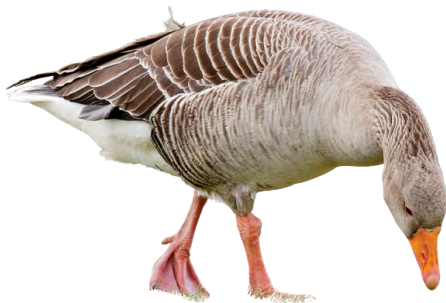
Mute Swan

'Hissssss'



Greylag Goose

'Honk'



Oyster Catcher

'Peep'



Lapwing

'Pee-
Wit'



Tawny Owl

'Twit-
Twoo'



Moorhen

'Krek-
Krek-
Krek'



Kingfisher

'Chee-
Chee'



River Bird Survey

Location:

Team Name:

Weather:



Behaviour
Observations

Number

Species

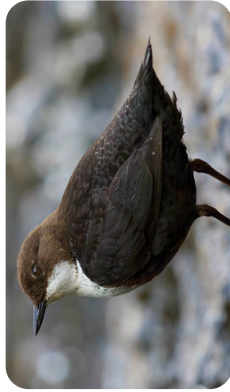
Behaviour
Observations

Number

Species



**Mallard
duck**



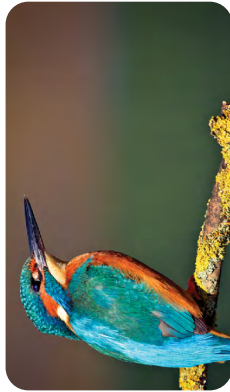
Dipper



**Grey
heron**



**Mute
swan**



Kingfisher



**Black
headed gull**



Coot



**Grey
wagtail**

River Bird Survey

Location:

Team Name:

Weather:



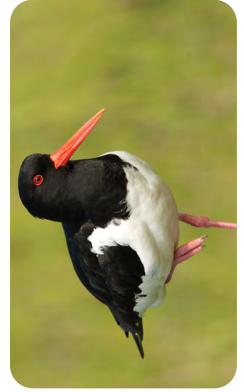
Goosander



Moorhen



Common sandpiper



Oyster catcher

Species	Number	Behaviour	Picture/Description	Species	Number	Behaviour	Observations
Goosander							
Moorhen							
Common sandpiper							
Oyster catcher							

Learning Objectives

- Explore and identify tracks and signs of mammals living on the riverbank.
- Describe the physical characteristics that mammals share.
- Explore a mammal adaptation and learn how it can help them survive and thrive.

Equipment & Resources

- True & False signs or green & red items, hole punch and string, pencils and clipboards.

*Refer to specific activity instruction pages for more information on equipment needed.

Introduction

Mammal True or False (15m)

Use the **Mammal True or False Quiz (p.49)** to test the group's mammal knowledge. Place a green marker for 'True' and a red marker for 'False' far enough apart for learners to run between. Gather everyone in the middle, read a question and ask your learners to run to their chosen answer and invite someone from the winning side to explain why. Next, ask learners what all mammals have in common. They can discuss in pairs, then share back. Show the **Animal Kingdom Worksheet (p.52)** to highlight key features and compare mammals with other groups such as fish or birds. Finish by asking your learners to name mammals that live in or visit the river.



Activities

Mammal Tracks & Signs Scavenger Hunt (30m)

Wild mammals can be tricky to find, though you might be lucky enough to spot one. Encourage learners to pause and look closely for clues that mammals have been nearby.

Use the **Mammal Tracks and Signs Scavenger Hunt (p.47)** to search for tracks and signs along the riverbank, in mud or even snow. If real clues are scarce, hide the **Cut-Out Track Cards (p.46)** along your route: print on card, cut out, attach to string and hang them for learners to find and match to their sheet. Remember to collect the cards at the end.

Otter Communication Game: (20m)

Many mammals live in groups to help them survive. The Eurasian otter, an iconic River Tweed mammal, is mostly solitary but will sometimes form social, family groups. Good communication helps them share food locations and warn of danger. Play the 'Otter Communication Game' (**See Mammal Games Activity Instructions p.43**) to explore how otters communicate.

Back at School

Species Spotlight (1hr)

Using the **Otter Species Spotlight Resource (p.44)**, learners explore how otters are adapted to life in a river, looking at their adaptations, diet and role in the ecosystem. Then set a research challenge; with the **Species Spotlight Worksheet (p.50)** learners create their own spotlight on a mammal they have seen or would love to see.

Staying Safe

Watch out for slips, trips and falls whilst playing these games. Choose areas to play that are free of trip hazards, avoiding large tree roots, uneven ground and holes.

Otter Communication Game

When to play

This game will demonstrate how otter family groups use different types of vocalisations to communicate with each other. This is a behavioural adaptation that helps otters work as a team to hunt or defend their territory. This game has the bonus of supporting the development of your learner's own teamwork and listening skills.

Equipment & resources

- Items that represent a food source: (this could be as simple as shapes cut out of card).

How to play

Working as a team, the game aims to lead your group members to a hidden source of 'food'. Groups of 4 should start by creating their own language code, using otter-like sounds to represent words they would use when giving directions. Then the group will divide into 2, one half hiding the food source and the other hiding their eyes whilst this happens. The challenge will be for the hidiers to guide the seekers using only their otter sound directions. Otter calls can include whistles, chirps, growls, squeaks and barks.

Bat & Moth

When to play

This classic game demonstrates how bats use echolocation to find their prey.

Equipment and resources needed

- A blindfold/length of cloth.

How to play

Select 3 learners from the group, 1 to play the bat and 2 to play moths. The rest of the group will form a circle around the 3 volunteers and will represent the trees in the forest (whilst protecting the volunteers from getting lost or hurt). The trees must stay as quiet as possible for the game to work.

Blindfold the bat and challenge them to locate and catch one of the moths using their voice. Whenever they say 'bat', the moths must reply 'moth'. They will hopefully discover that the quicker they repeat the word bat, the easier it is to pinpoint the location of a moth. If the bat catches a moth, they win the game.



Species Spotlight: Animals

Species Name

Eurasian otter

Invertebrate Vertebrate

Habitat

Otters are semi-aquatic, meaning they live on land and in the water. They can be found in clean rivers, streams, lakes or on the shore. It's important that they live somewhere with plants and trees for shelter and protection, and access to fish and other food.



Eurasian otter

Diet

As a carnivore, the Eurasian otter is one of the top predators in the river ecosystem. It will eat fish like trout, eels, carp and salmon whilst also hunting for small water birds like moorhen and coot, amphibians and crustaceans.

Herbivore Omnivore Carnivore

Adaptations

Whilst in the water, otters can close their ears and nose, slow down their heart rate and hold their breath for up to 4 minutes. Their webbed feet reduce water resistance whilst swimming, and their dense fur keeps them insulated and warm. Whilst hunting, their sharp teeth and claws help them to catch and eat their slippery prey.

Interesting Facts

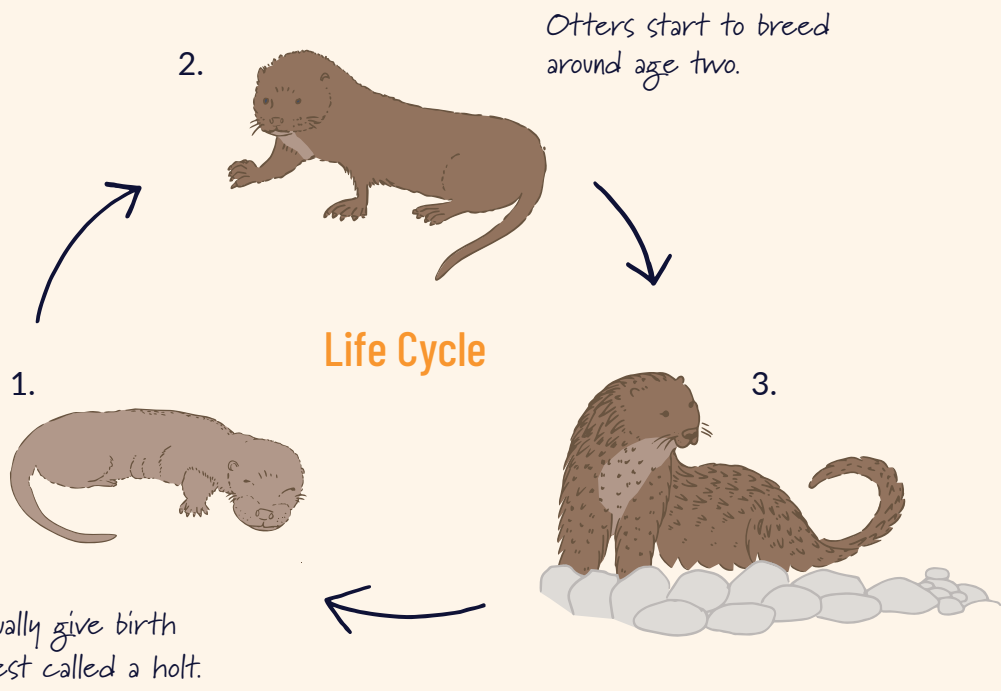
- Otters are listed as 'near threatened' on the IUCN list of threatened species.
- Otters are a member of the weasel family.
- They are most active at dusk and at night.
- A group of otters is called a bevy. A group playing together is called a romp (of otters).
- Their underground burrows are called holts.

Identification Tips

- The otter's long body is covered with brown fur, except for the chest and throat, where the fur is a paler colour.
- It has a broad face, a short snout and a thick tail.
- Tracks and signs include 5-toed footprints and droppings (called spraint) that contain fish bones and smell of jasmine tea.

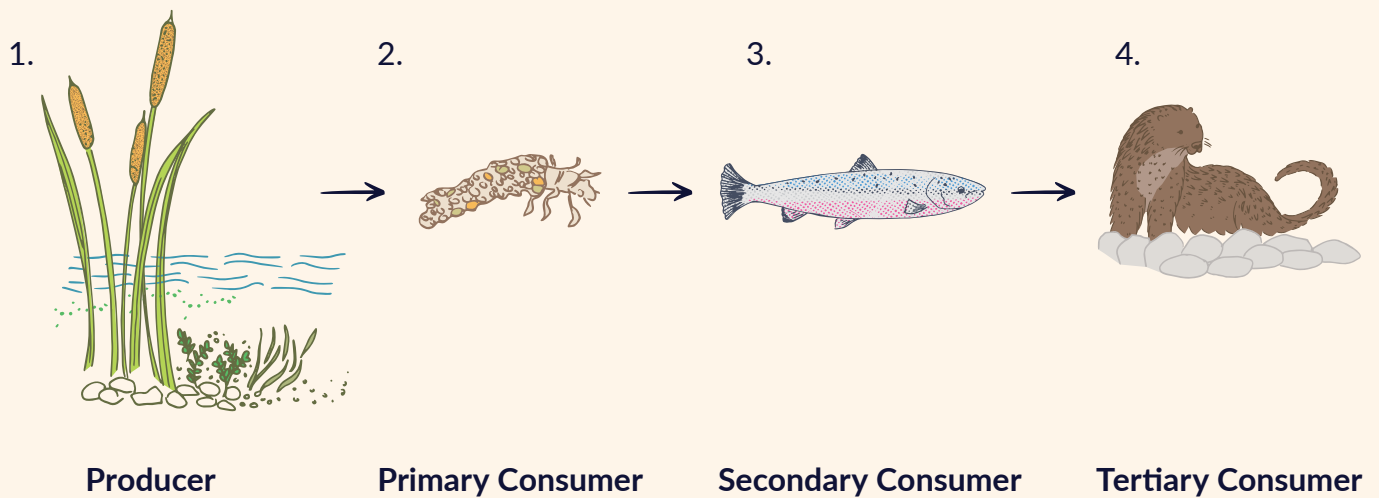


1. Baby (pup)
2. Adolescent
3. Adult



1. Aquatic plants
2. Caddisfly larvae
3. Salmon
4. Otter

Food Chain



Mammal Tracks & Signs



Fox

More space between toes than a dog



Otter

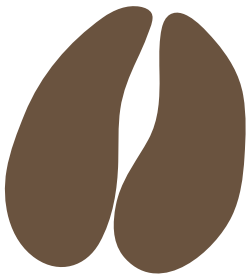
Check the number of toes



Dog

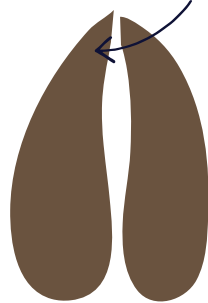


Badger



Red deer

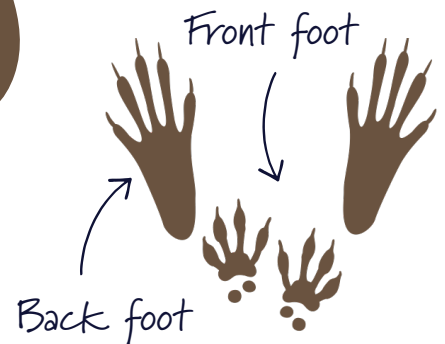
Pointy at the top



Roe deer



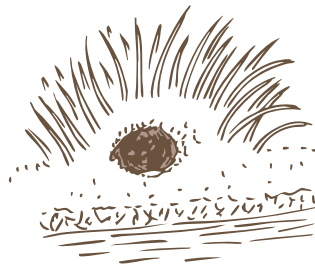
Sheep



Squirrel



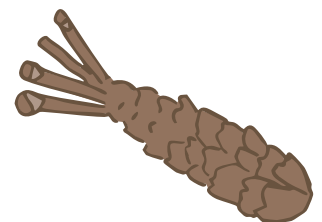
Mole hill



Burrow



Scat (poo)



Nibbled pinecones

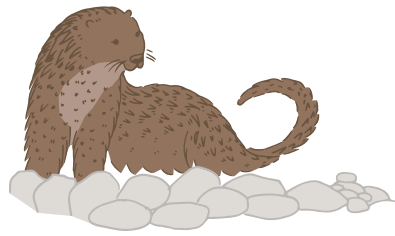
*Not to scale



Select the questions that are most appropriate for your group.

- **All birds can fly [FALSE]**
Most birds can fly, but there are some species that can't. This includes penguins, ostriches, emus and kiwis.
- **Birds are the only living creatures that have feathers [TRUE]**
- **All birds that fly have thick and heavy bones [FALSE]**
Birds have adapted, lightweight but strong bones that help them to fly using less energy.
- **All birds lay hard shelled eggs [TRUE]**
- **Birds have bad eyesight [FALSE]**
Generally birds have good eyesight; many can see colour and some can even see light in the UV spectrum, which humans can't see.
- **Birds are vertebrate animals [TRUE]**
This means that they have a backbone and an internal skeleton like we do.
- **Birds are cold blooded [FALSE]**
They are warm blooded, meaning they can regulate their own body temperature.
- **Male and female birds of some species look very different from each other [TRUE]**
For example the male mallard duck is brightly coloured to impress a potential mate. The female has a brown colouring so to not attract attention when on the nest.
- **Birds lose and replace their worn and damaged feathers [TRUE]**





Select the questions that are most appropriate for your group.

- **Mammals are the only living creatures that have fur or hair [TRUE]**
- **The largest wild mammal in the UK is the red fox [FALSE]**
The largest mammal in the UK is the red deer, the largest mammal in the world is the blue whale.
- **Mammals are vertebrate animals [TRUE]**
This means that they have a backbone and an internal skeleton like we do.
- **Mammals are cold blooded [FALSE]**
They are warm blooded, meaning they can regulate their own body temperature.
- **All female mammals nurse their young with milk [TRUE]**
- **There are no mammals that can fly [FALSE]**
Bats are the only mammals that can fly (in a sustained way). We have 18 different bat species in the UK.
- **Humans are part of the mammal group [TRUE]**
- **Otters are one of our special river mammals. They are herbivores and like to feed on riverbank plants [FALSE]**
Otters are one of the top predators in a river ecosystem. They are carnivores and only eat other animals.
- **1 in 4 of our native land mammals are at risk of extinction [TRUE]**
These species are threatened by habitat loss, pollution and the introduction of new (invasive) species.



Species Spotlight: Animals

Species Name

Invertebrate Vertebrate

Picture

Habitat

Diet

Herbivore Omnivore Carnivore

Interesting Facts

Adaptations

Identification Tips

Species Name



Life Cycle

Food Chain or Food Web

The Animal Kingdom

Just some of the different groups of invertebrates

Vertebrates

(Has a spine)

Invertebrates

(Does not have a spine)

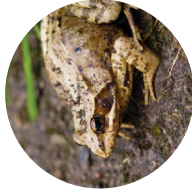
Cold blooded

- Lives in water
- Gills for whole life cycle
- Fins for movement
- Lays soft eggs



Fish

- Lives on and in water
- Changes form as an adult
- Moist skin
- Lays jelly-like eggs



Amphibian

- Scales
- Dry skin
- Lays soft shelled eggs



Reptile

Warm blooded

- Feathers
- Lays hard shelled eggs
- Beaks or bills with no teeth
- Two legs & two wings



Bird

- Fur or hair
- Gives birth to live young
- Produces milk to feed their offspring



Mammal



Insect

- 6 legs
- 3 body parts
- Exoskeleton
- Most have wings



Crustacean

- Exoskeleton
- 5 or more pairs of jointed legs



Mollusc

- Soft body made mostly of muscle
- A radular (a rough tongue covered with teeth)



Arachnid

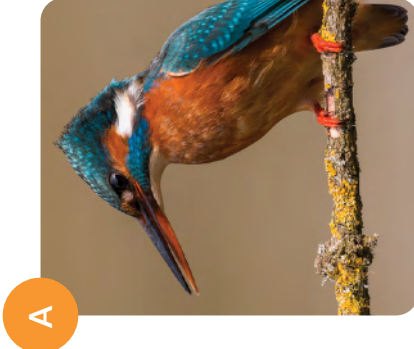
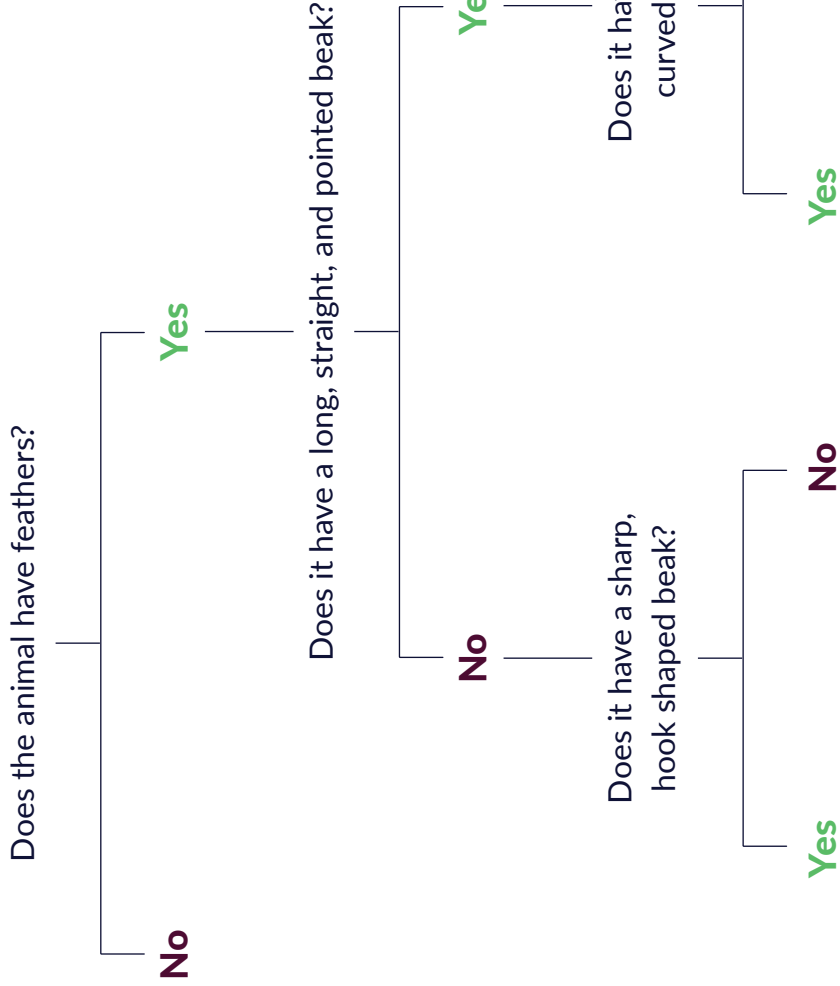
- 8 legs
- 2 body parts
- Exoskeleton

Classification Keys

START
HERE

Classification keys use yes and no questions to help us work out the name of an unknown species.

Have a go at using this simple key to find the names of the animals in these pictures.



A



B



C



D

- Osprey
- Mallard Duck
- Grey Heron
- Kingfisher

Classification: Grouping Animals

Animals can be sorted into different groups based on the way they look and behave. We call this classification, and it can help us make sense of the millions of animals within the diverse animal kingdom.

Check out the 'ANIMAL KINGDOM' worksheet page to help with these next questions.

The animal kingdom is a group that includes all living animals. It can be divided into two groups. What are these groups called, and how are they different?

Use the descriptions of the 5 different types of vertebrate animals to match up the following animals with the right group (draw a line to show your answer).



Red Fox



Mute Swan



Trout



Adder



Common Frog

Fish

Amphibian

Mammal

Bird

Reptile

The invertebrate group contains a huge 97% of the animals in the animal kingdom. One of the most common and easiest to spot is the insect. Name 5 different types of insect and explain what they all have in common.

Classification: Grouping Animals

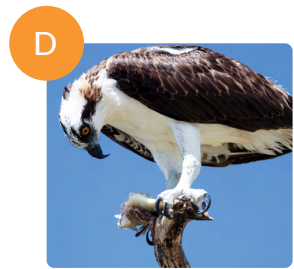
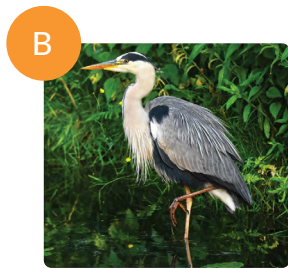
Check out the 'Classification Keys' worksheet page to help with these next questions.

Have a look at the 4 animals pictured A, B, C, and D on the Classification Keys worksheet.

List 3 things that they all have in common. Which of the vertebrate groups do they all belong to?

(The first question on the key might help you work this out.)

Have a go at using the key to work out the species name of each animal by answering the yes or no questions for each picture. Add your answers under the pictures below.



Create your own key for these invertebrates using yes or no questions.



Snail



Slug



Ladybird



Ant

River Wildlife: Glossary

You can use this page for reference or print & cut out the rectangles for a plenary game of mix and match.

Organism

Any living thing.

Ecosystem

An environment where living and non-living things interact. E.g. plants & animals interact with weather & soil.

Habitat

An area where a species can get everything it needs to survive (e.g. a woodland).

Classify

To group things into categories based on their shared characteristics.

Vertebrate

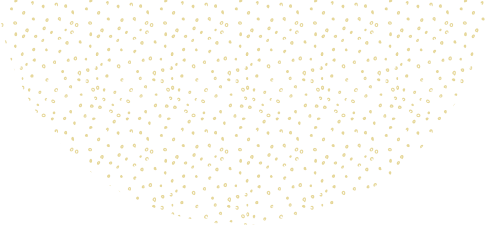
An animal that has a backbone/spine.

Life Cycle

How a living thing changes throughout its life.

Predator

An animal that eats other animals.



Species

A group of organisms that share the same characteristics and can produce offspring.

Biodiversity

The variety of living things in an environment.

Microhabitat

A small area where a species can get everything it needs to survive.
(e.g. a rotting log).

Classification Key

A set of questions that can help identify an unknown species.

Invertebrate

An animal that does not have a backbone/spine.

Food Chain

Shows how living things gain their energy through the sun or through eating.

Prey

Animals that are eaten by predators.

Curriculum for Excellence

CfE Experiences & Outcomes	Minibeasts	Pollinators	Birds	Mammals
SCN 2-01a: Classify living things and explain adaptations.	X	X	X	X
SCN 2-02a: Interactions between plants and animals. Design a wildlife area.	X	X	X	X
SCN 2-02b: Benefits of plants to society.		X		
SCN 2-14a: Investigate life cycles of plants and animals.	X		X	X
SOC 2-08a: Environmental impact of human activity.		X		
HWB 2-23a: Working with others.	X	X	X	X
TCH 02-02a: Using digital technology to access information.	X		X	X

National Curriculum

KS2	Minibeasts	Pollinators	Birds	Mammals
SCIENCE				
Yr. 3: Explore the role of flowers in a plant life cycle		X		
Yr. 4: Identify and classify living things	X	X	X	X
Yr. 4: Potential threats of changing environments	X	X	X	X
Yr. 4: Construct and interpret food chains	X		X	X
Yr. 5: Describe and compare the life cycle of animals	X		X	X
Yr. 6: Classify plants, animals, and micro-organisms	X	X	X	X
Yr. 6: Identify plant and animal adaptations	X		X	X

Sustainable Development Goals (SDG)



All River Wildlife Lesson Plans

All the River Wildlife Lesson Plans support SDG 15, by promoting biodiversity and fostering a sense of environmental stewardship for learners.

Project Delivery Partners



Project Funders



Co-funded by the European Union



FALLAGO
ENVIRONMENT
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NORTHUMBRIAN
WATER *living water*

Federated
Hermes

Tweed Forum: At the heart of land and water management on Tweed.

Destination Tweed: Destination Tweed is a unique project which aims to celebrate and share the nature, history and stories of the River Tweed and deliver significant economic, environmental, educational and social benefits to the South of Scotland and North Northumberland.

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