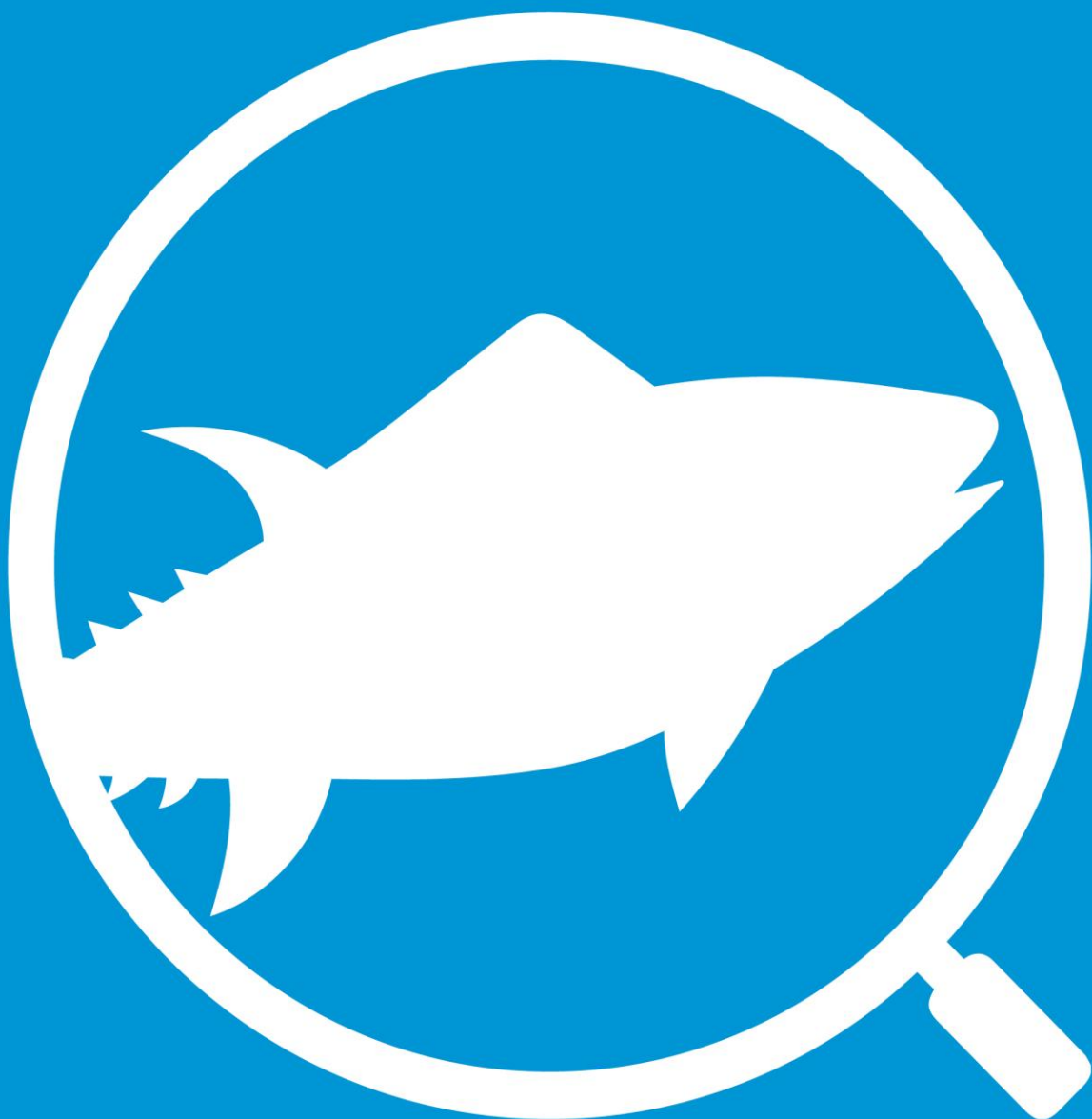


FRESHWATER HABITATS



Freshwater Habitats: Content Page



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The Scottish Wildlife Trust's Discovery Den



The Scottish Wildlife Trust manages a network of over 100 wildlife reserves across Scotland and is a member of the UK-wide Wildlife Trusts movement.


The Trust successfully champions the cause of wildlife through policy and campaigning work, demonstrates best practice through practical conservation and innovative partnerships, and inspires people to take positive action through its education and engagement activities, such as this pack.

For more information, visit the Scottish Wildlife Trust website [here](#).

How to Navigate the Discovery Den

1. Start here! This curated pack of activities will help you discover freshwater habitats and their wildlife, from learning to exploring to helping.

2. Activity key. To help you find the types of activities you like in this pack, check out the [Activity Key](#). Each activity page will display its relevant icons in the top right corner.

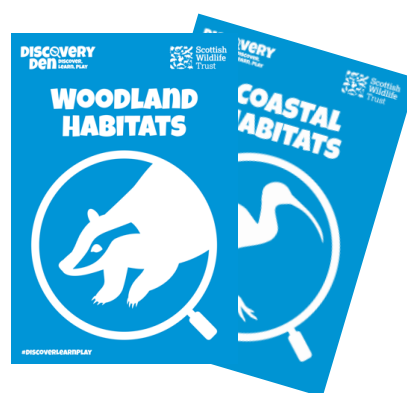
3. Printable. Activities throughout this pack have printable pages for tech-minimal delivery. Print out prior to your activity and hand out to your group (and re-use where you can!). These are denoted by the  icon at the bottom right-hand side of activity pages.

4. Cross-curricular. This pack has different links to outcomes in the Scottish Curriculum for Excellence. See the [Curriculum Links](#) page at the end of the pack for details.

5. The web portal. We have other packs just like this one! You can find other downloadable packs by heading over to the Discover, Learn, Play section on our website [here](#). You can also find individual activities (those included in this pack, plus more!) which you can filter through to find those that suit your needs.

We would love to see you taking part in the activities! You can share with us by using **#DiscoverLearnPlay**

Find us on social media



The Activity Key

To help you find the types of activities you like, each activity page will display its relevant key icons on the top right corner.

Each activity can be used independently, or several used together to make a longer session, depending on your children, time, space and available resources.

Length of time



Up to 15 mins



30 mins



45 mins



Over an hour

Location



Outdoor only



Indoor or outdoor

Activity Type



Mindfulness



Active



Getting science-y



Communicating



Creative



Ice Breaker



Helping nature

Welcome to the Freshwater Pack

It is important to understand how everything in nature is connected – including us! As a society, we are increasingly disconnected from nature; we are spending less time in nature and often forget how much we rely on it to survive. Spending time outside and learning about how living things depend on each other is important when re-establishing our connection to nature. Plus, spending time outdoors can improve health, reduce stress, increase confidence, and many other amazing things!

This pack and its resources are designed to help children:

- Explore freshwater habitats and start to foster a deeper connection with them
 - Investigate the life that lives under the water
- Understand the threats freshwater habitats are facing
- Discover different actions that can be taken to help protect freshwater habitats

There are **three sections within this pack** and each section has corresponding resources that can be used to support nature discovery, learning and play. The suggested age range for these activities is **8 – 12 years**, although most of the activities can be adapted for older and younger learners.

Each activity can be used independently, or **several used together** to make a longer session, depending on your children, time, space, and available resources.

At the end of the pack, you can find *Additional Notes for Educators* which includes session tips, health & safety, and the *Curriculum Links*, which breaks down the **curriculum outcomes for each activity**.



Section 1

Connecting to Freshwater

Section 2

Exploring Freshwater Wildlife

Section 3

Key Threats and How to Help

Freshwater Habitats

Scotland's rain-soaked lands are rich in freshwater habitats, from **small ponds** and **tiny streams** to **long rivers** and **large lochs**. Water and wildlife go hand in hand, so these habitats are great for spotting different species!

These habitats are **excellent for birds**, so if you are an avid birdwatcher they are the place to go! Some frequent finds are ducks, swans, kingfishers, coots, moorhens and more.



There are over 31,000 freshwater lochs in Scotland!

Freshwater benefits

Our lochs, rivers and wetlands support lots of important plant and animal species, but they also help **provide clean water** – which is a vital resource for all living things.

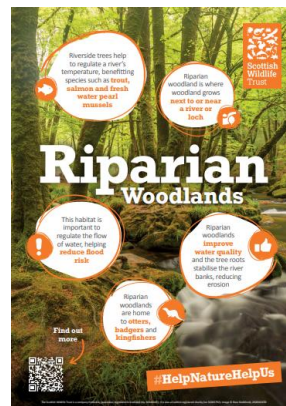
On top of this, they help to moderate floods and maintain river flows, and store vast amounts of carbon.

Peatlands, a type of wetland, can store carbon for thousands of years. It covers 20% of Scotland so it is important we help restore and protect it!

Learn more about important **riparian (riverside) woodland** and **peatland habitats** through our #HelpNatureHelpUs posters.

You can download the posters (with lots of fun facts) from our website [here](#)

#HelpNatureHelpUs



What the Trust is doing to help protect our freshwater habitats

The Trust continually works to **restore and protect freshwater habitats** across Scotland, from managing the lochs, ponds, and bogs on our reserves to influencing policy decisions around their protection. We have **13 bog habitats** across our reserves and over the years we have been working hard to maintain them, so they remain an important habitat for carbon capture, and so that they remain a haven for local wildlife.

The Trust-led **Riverwoods** initiative started in 2019 to bring a wide network of organisations together to look at ways of improving rivers on a tributary scale. Read more about this project to restore riparian woodlands [here](#).



Freshwater Habitats

Some species to spot in Scotland

Scotland is home to some fantastic freshwater habitats. With over 31,000 freshwater lochs, 125,000km of rivers and streams, not to mention the hundreds of thousands of ponds across the country, there is an incredible diversity of freshwater species to spot.

Here are just a few iconic species you can spot in Scotland...



The dipper, a **short-tailed songbird**, gets its name from its habit of perching on rocks and bobbing up and down. Dippers **'fly' underwater** to reach the riverbed, where they feed on insects. There's a lot to love about dippers, and our [Falls of Clyde Reserve](#) is a great place to watch these river specialists in action!



The otter is one of our most **elusive mammals**. They are primarily active at night – although you may be lucky and see one in the daytime! They live by **lochs and rivers** and in banks and holes called **"holts"**. They eat mostly fish, but will also catch small mammals, amphibians and birds. Otters have been present at our [Loch of the Lowes Reserve](#) since the early 1990s, with clear signs and sightings for many years since then.



Atlantic salmon are found in many rivers in Scotland – in fact, Scotland is famous for salmon! Young fish **migrate from the river to the sea**. Once in the Atlantic Ocean, they stay there for 1-4 years before making the long journey back to the river they were born in to lay their eggs. This happens in **Autumn**. During this time it's possible to see salmon jumping high out of the water – in some places even leaping up waterfalls!



Beavers love splashing around in ponds, lochs and rivers. They are vegetarian and love to eat plants, leaves, and even bark from branches. After an absence of more than 400 years, beavers were **officially reintroduced to Scotland** in 2009 through the [Scottish Beaver Trial](#). Beavers are **most active at dawn and dusk**, so this is the best time to try and spot one!

Freshwater Habitats

Make a day of it!

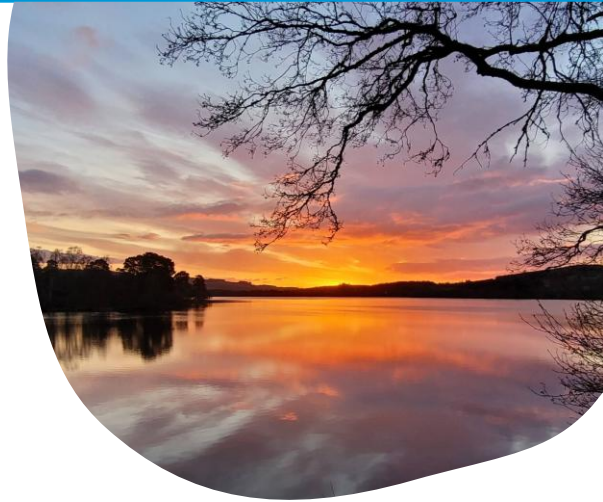
Visit our Loch of the Lowes Wildlife Reserve and Visitor Centre

The [Loch of the Lowes Reserve](#), situated near Dunkeld in Perthshire, covers 130 hectares of woodland and freshwater loch.



These habitats provide for hundreds of species. For example, the loch supports fish, wildfowl, ospreys, otters, beavers and much more.

At night, the lack of light pollution means the skies are clear – perfect for stargazing and bat watching!



Interested in organising an **educational/group** visit to Loch of the Lowes?

Contact the visitor centre on **01350 727 337** for more information.

Life on the Loch

Ospreys are a magnificent bird of prey that spends its summers here in the UK. They eat fish, catching them in spectacular fashion as they dive down towards the water.

Over the osprey breeding season (around April to August) you can watch their lives unfold by following our **live nestcam**. You can catch up on the highlights on our YouTube channel – the ospreys are never short of drama!

Ospreys have bred at Loch of the Lowes for **over 50 years**. Lowes' former resident breeding female osprey, affectionately known as 'Lady', first arrived in 1991 and nested at Loch of the Lowes for 24 consecutive years, fledging 50 chicks!

Watch our **live osprey nestcam** on our YouTube channel by clicking the icon below



Watch video of a **beaver scent marking** at Loch of the Lowes by clicking the icon below



Beavers can be seen regularly at dawn and dusk around Loch of the Lowes. From the hides you may spot them swimming across the loch or feeding on their favourite vegetation. You can also join our Rangers for a guided Beaver Breakfast or Beaver Watch throughout the summer. Keep your eyes peeled on our events page [here](#).

Planning a Session

This pack contains a variety of different **freshwater themed activities**, from warm-up games to creative crafts to outdoor exploration. **Each activity can be used independently, or several used together to make a longer session**, depending on your children, time, space, and available resources.



Most of the activities link nicely together to create a longer session, but we have picked out a few below that you could start with. The examples below may follow the activity flow of:



As leaders, it's helpful to structure outdoor education sessions, but it's important to stay flexible. **Child-led exploration and play is important**, so if your group become inquisitive around something, take longer on a certain activity they are enjoying, or ask off-topic questions, it's fine to go along with it. Your sessions may end up looking differently than planned, but that is ok!

Session Idea 1:



Session Idea 2:



Session Idea 3:



Section 1: Connecting to Freshwater

This section is all about helping children foster a better connection with freshwater habitats.

Even if you aren't near any water there are plenty of activities you can do!



In this section you will find 6 activities:

1. [Fresh or Salty?](#)
2. [River Mapping](#)
3. [Raft Building](#)
4. [Sink or Swim?](#)
5. [Pond Poetry](#)
6. [Watching Water Birds](#)

Each activity can be used independently, or combined to create a longer session, depending on your children, time, space, and available resources.

To find out the curriculum links for each activity, check out the [Curriculum Links](#) page at the end of the pack.

Activity 1: Fresh or Salty?

Educator Notes

This is a great warm-up activity, introducing the topic of wildlife in freshwater vs saltwater

Background:

We find different wildlife in our freshwater lochs, rivers and ponds compared to our saltwater seas.

Many animals that **live in freshwater habitats could not live in saltwater** (and vice versa). Can you get your group thinking about species they might spot by a river or pond versus by the beach?

There are species that can live in both fresh and saltwater. For example, **salmon** are born in rivers but then swim out to the ocean to live their adult life. **Otters** can also hunt for food in the sea, but head back to freshwater to drink and clean their fur.

What you will need:

- An open space (this could be by a loch, a grassy area in your local park, or an indoor space)

Instructions:

1. Mark the boundaries of the area so everyone knows to stay in the zone during the game.
2. Point to one side of your 'zone' and label this freshwater (or you could use trees or adults as markers). Point to the other side and label this saltwater.
3. Have everyone warm up by moving their body like water – can everyone make a water sound? It could be a big crashing wave or a trickling stream!
4. You can read out from the list below, asking your group if they think they will find that species in freshwater or saltwater. If they think it's freshwater, run to that side or marker, and vice versa for saltwater! You can also come up with your own prompts... or encourage your group to think of some! You can be sneaky and say an animal that lives in both (e.g. Atlantic salmon or otter to prompt some discussion).

INFORMATION KEY

Length: 

Location: 

Activity Type:  



- Frog (freshwater)
- Dragonfly (freshwater)
- Killer whale/Orca (saltwater)
- Mallard duck (freshwater)
- Jellyfish (saltwater)
- Beaver (freshwater)
- Starfish (saltwater)



Activity 2: River Mapping

Educator Notes

Get to know your river whilst testing your map drawing skills with this activity

Background:

Rivers have lots of **different features**, from the river banks to boulders to waterfalls. The activity below is a great way to sit by a river and pay attention to what is around, whilst improving your **map drawing skills**.

You can print off our **activity sheet** which includes a features key to help everyone create their river map.

Remember to **think about safety** when visiting a river. Before you head out, read our [Visiting Waterbodies Safety](#) page.

What you will need:

- Printed activity sheet
- A pencil and rubber
- Clipboard (optional)

If you have compasses, you could have your group add directions to their map!

Instructions:

1. Find a good spot beside the river. Give everyone in the group a copy of the printed activity sheet and a pencil (or one between each pair/small group). They will need something to lean on. If you have clipboards, hand them out.
2. Have a look around at the river and prompt some discussion. What can you see in the river and along the bank looking left and right? Any wildlife, vegetation or man-made features?
3. Using the key on the activity sheet, start to map out the river in front of you. Look at the shape of the river and draw the shape of the river bank on the page.
4. Next, add some of the features you can see using the correct symbols shown in the key. If you spot something not on the key, add it to your map with a label. Remember to keep checking the river to make sure you place them in the correct position on your map.
5. Once you have added all your features, your map is finished! Hold it up to the river to see if you have added all the features you can see.

If in a large group, you could split up, pick a different spot and re-group once you've completed your maps. Compare your maps, taking turns to say which features you've each spotted. You could even join them up to create a mega map!

INFORMATION KEY

Length: 

Location: 

Activity Type:   




River Mapping Activity

Name:

Location:

Date:

River Key


River bank 

Hedgerows 


Conifer trees 


Deciduous trees 

Direction of river flow 


Plants 


Boulders 

Grass 

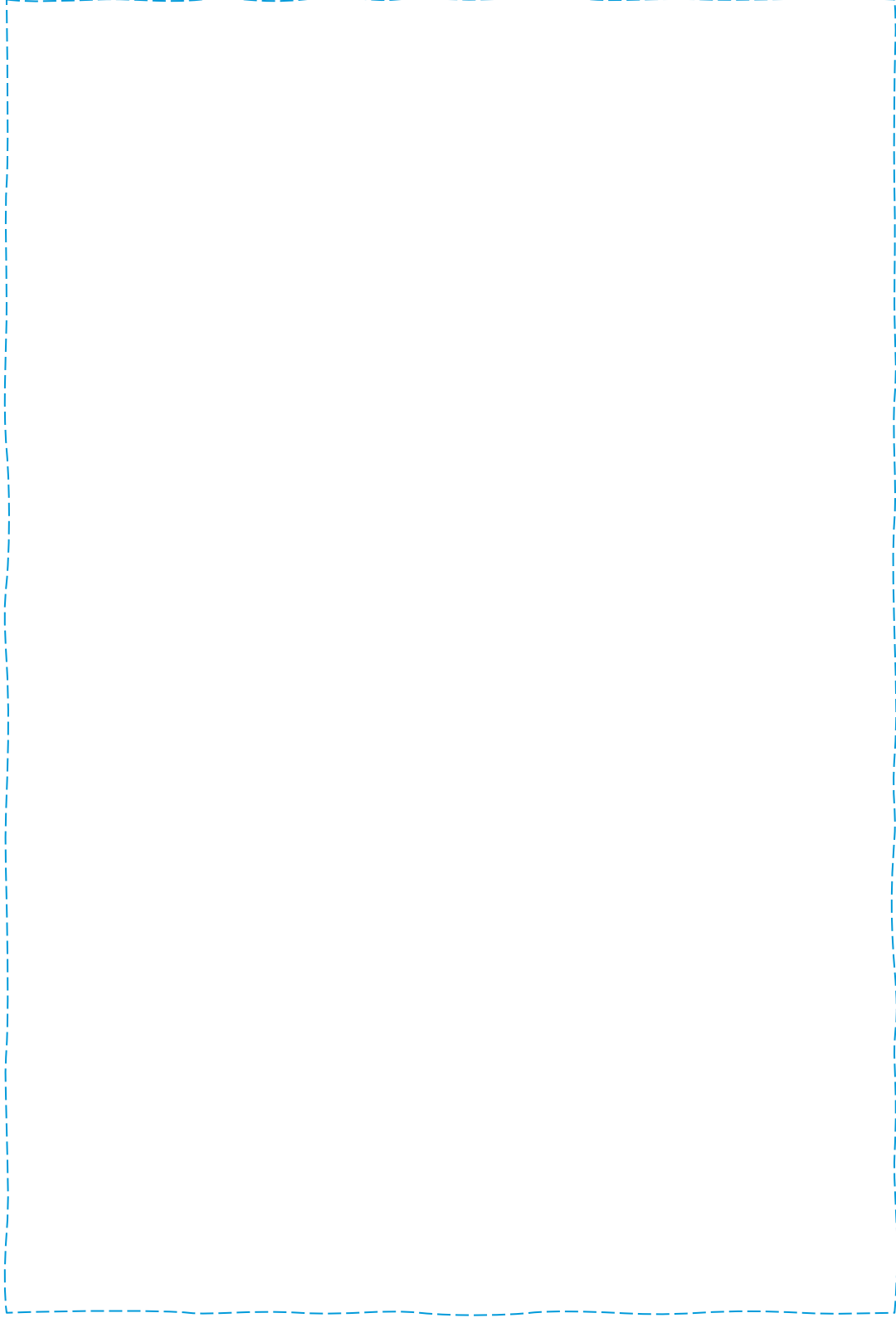
Path/Road 

Fence 

Bridge 

Building 

Wall 



Activity 3: Raft Building

Educator Notes

Build some mini rafts using natural materials and get them sailing on the water

Background:

These rafts are easy to construct and allow children to tap into their design and creativity skills.

It is a fun way to enjoy the water and sparks a range of playing opportunities. You could have a sailing race, test buoyancy, add cargo to rafts, and more!

Below are some instructions on how to make a mini raft, but feel free to let your creativity run wild too.

What you will need:

- Sticks
- String or twine
- Large leaves
- Eco-glue
- Wooden lolly sticks
- Printed activity guide (optional)

Instructions:

Check out the printable activity guide on the next page for illustrated instructions.

1. You could split your group into small teams to encourage teamwork, or everyone can make their own raft. You could also incorporate a little competition into the activity too!
2. Head out and collect your materials. Per raft you will need a handful of sticks (ideally straight ones) and some leaves.
3. Break the sticks so they are all roughly the same length (around 10cm is good) and lay them side by side.
4. Tie string around the end of the first stick and tie a tight knot. Thread the string under and around the end of each stick in turn and tie off on the last stick. Repeat this on the other side. You may need to help young children with this part.
5. Glue wooden lolly sticks over the top of the string lines and leave to dry.
6. Add a mast by pushing a thinner stick between the middle sticks. You can use glue here again if needed.
7. Create a sail for the raft by piercing a leaf or two onto your mast.
8. Once everyone has finished their raft it's time to race! Find a safe spot along a pond or stream, or even a puddle can work well! How far does it travel? Are some quicker than others? How could they be improved?

Length:



Location:

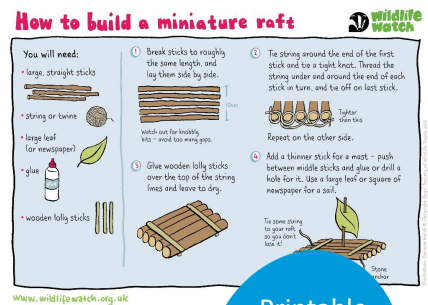


Activity

Type:



INFORMATION KEY



Printable activity guide!

Experiment and see how much cargo your raft can carry!



How to build a miniature raft



You will need:

- large, straight sticks



- string or twine



- large leaf (or newspaper)



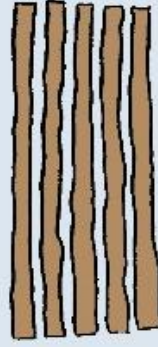
- glue



- wooden lolly sticks

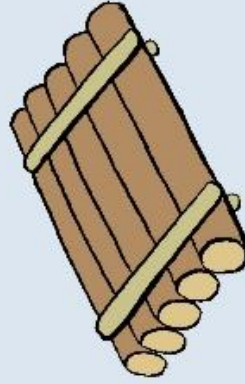


- 1 Break sticks to roughly the same length, and lay them side by side.



Watch out for knobbly bits - avoid too many gaps.

- 3 Glue wooden lolly sticks over the top of the string lines and leave to dry.



- 2 Tie string around the end of the first stick and tie a tight knot. Thread the string under and around the end of each stick in turn, and tie off on last stick.



Repeat on the other side.

- 4 Add a thinner stick for a mast - push between middle sticks and glue or drill a hole for it. Use a large leaf or square of newspaper for a sail.

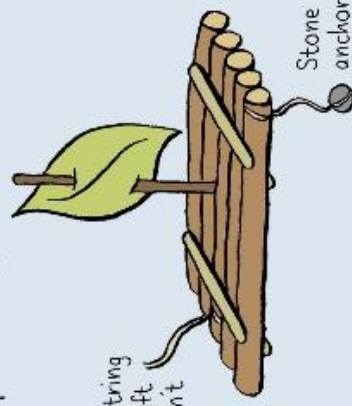


Illustration: Corinne Welch @ Copyright Royal Society of Wildlife Trusts 2015

Activity 4: Sink or Swim

Educator Notes

Try this fun experiment to observe some differences between freshwater and saltwater

Background:

We call the water in our lochs, rivers and ponds **freshwater** while our seas we call **saltwater** – and this is because of the difference in salt! Essentially, **water evaporates** out of the ocean, **leaving salts behind**, and collects in drifting clouds before eventually releasing the water back to Earth in the form of rain or snow. After fresh water reaches the ground through **precipitation**, it flows downhill across a landscape called the **watershed** to lakes, ponds, rivers, streams, and wetlands.

Many animals that have **adapted to freshwater habitats** could not survive in saltwater (and vice versa). But there are species that live in both! For example, **salmon** are born in rivers but then swim out to the ocean to live their adult life. **Otters** can also hunt for food in the salty sea, but head back to freshwater to drink and clean their fur.

What you will need:

- Two clear glasses
- Water
- Salt
- Two eggs (alternatives include soap, pegs, grapes and bouncy balls)

Instructions:

1. Start by introducing the topic to your group - have you ever splashed around in the sea? You might have noticed the water is salty. What about a loch or river? It's not salty! Do you think it's easier to float in freshwater or saltwater?
2. Fill two glasses with water – about $\frac{3}{4}$ full. Add a cup of salt to one glass and stir.
3. Ask your group if they think an egg will sink or swim in freshwater? After some guesses, add the first egg to the cup with no salt (freshwater).
4. What about saltwater? After some guesses, add the second egg to your saltwater glass.
5. Did you notice a difference? With enough salt, your egg will float in the saltwater cup (you can add some more salt if needed).
6. Here's how it works: very heavy things will sink in both, and very light things will float in both. However, saltwater is heavier than freshwater. So, if you add something that is in between that weight (i.e. lighter than saltwater but heavier than freshwater) it will float!
7. Make sure to wash hands after handling eggs. Your group can check if other things sink or swim too. Some suggestions include soap, pegs, grapes and bouncy balls.

You could use the Dead Sea as an example here!

INFORMATION KEY

Length: 

Location: 

Activity Type:  



Activity 5: Pond Poetry

Educator Notes

Engage children in creative writing and poetry through their outdoor experiences



Background:

Nature is a source of artistic inspiration for many people, from music to painting to writing. This activity encourages children to spend time in nature and let it spark their imagination. They can use what they see, feel, smell or hear to create their poetry.

To help kick-start their writing, we have provided a [collection of word prompts](#), included [sensory rich words](#) to help children create a rich story of their outdoor experience.

Check out some Scottish nature poems, quotes and stories we have pulled together [here](#)

What you will need:

- A place to sit by a pond (or a river, stream or loch!)
- Paper
- Pen/pencils
- Printed activity sheet (optional)
- Scissors (optional)
- Clipboard (optional)

Instructions:

1. Take a look at the word prompts. Your group can copy down the words or cut them out to help them visualise their poem, or maybe they don't need any prompts at all.
2. You can either write your poetry outside or when you are back indoors. We always encourage writing in nature!
3. Encourage your group to sit and watch the water. Ask them the following prompts and have them write down some of the words they think of:
Can you hear anything? Do you see any wildlife? How do you feel?
4. Children can shuffle about the prompt words with their own words on the page and try to form some sentences.
5. Now try and add in extra words to make lines of poetry. Can they think of some words that sound similar, or rhyme? Don't worry if not... poetry doesn't need to rhyme!
6. There is no right or wrong here – poetry is unique to you and your feelings.
7. If children would like to share their poetry, encourage them to do so – and listen to other people's stories too.

Remember, don't just write about what you can see! You can describe how things feel, smell, taste and sound too



Pond Poetry – Activity sheet

Copy or cut out these prompts to help you write your nature poetry

Grass

Happy

Soft

Birdsong

Splash

Bloom

Trickle

Relaxing

Slimy

Buzzing

Playing

Shiny

Activity 6: Watching Water Birds

Educator Notes

Head out birdwatching by the water to start learning about the fascinating lives of birds!

Background:

Freshwater is the heartbeat of its surroundings – many species depend on it for their survival. A river or stream provides a home (or habitat) for water life and also supports the land around it. They are fun places for us to spend time around too, and great for spotting wildlife!

Many birds rely on freshwater habitats, from ducks and swans to dippers and kingfishers. As you watch them, can you observe different behaviours, such as searching for prey, watching out for predators, or socialising?



Length:

Location:

Activity Type:

INFORMATION KEY

Click on the species below to find out more about them...

[Grey heron](#)

[Wigeon](#)

[Goosander](#)

[Moorhen](#)

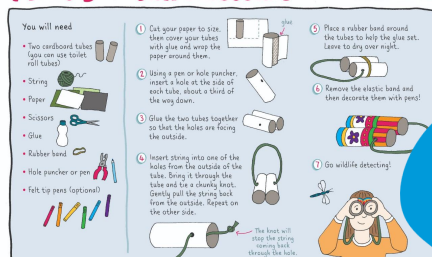
[Dipper](#)

What you will need:

- Printed activity sheet(s)
- Pen/pencils
- Clipboards (optional)
- Binoculars (optional – you could make your own binoculars using our guide found on the following printable pages)



Make your own binoculars



www.wildlifewatch.org.uk

Printable activity guide!

Instructions:

1. Head out on a walk by a river, loch or pond. Take out printed copies of your bird spotter sheets and see what species you can find! If you can't get outside, you could play some video footage instead. Before heading out, read our [Visiting Waterbodies Safely](#) section.
2. The key to birdwatching is to be as stealthy and quiet as you can - you don't want to scare the birds away! If using binoculars, remind children to stop walking before using them to avoid any falls.
3. What types of birds can you see? If you spot one from the sheet, tick it off! If you don't know what it is, note down some features, or take a photo, so that you can try to identify it later.
4. You could add another learning opportunity by creating a survey. You could create a table containing the bird names on your spotter sheet and tally any you find.
5. After your walk, have a discussion with your group – what was the most common bird spotted? Are there some you didn't see? Why do you think that is - perhaps not the right time of year, bad weather, or not the right location?



River bird spotter

wildlife
watch



Scottish
Wildlife
Trust



Grey heron



Moorhen



Mallard



Kingfisher



Mute swan



Dipper



Grey wagtail



Coot



Great-crested grebe



Little egret

Duck detective



Mallard



Tufted duck



Gadwall



Pochard



Pintail



Shoveler



Goldeneye



Teal



Wigeon



Eider



Make your own binoculars

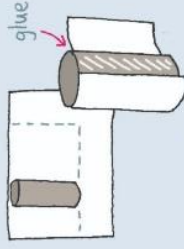
wildlife
watch

Scottish
Wildlife
Trust

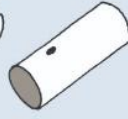
You will need

- Two cardboard tubes (you can use toilet roll tubes)
- String
- Paper
- Scissors
- Glue
- Rubber band
- Hole puncher or pen
- Felt tip pens (optional)

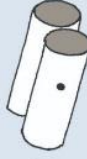
1 Cut your paper to size, then cover your tubes with glue and wrap the paper around them.



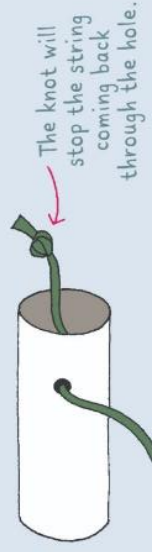
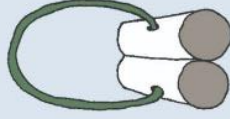
2 Using a pen or hole puncher, insert a hole at the side of each tube, about a third of the way down.



3 Glue the two tubes together so that the holes are facing the outside.

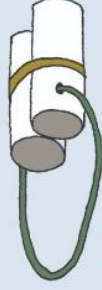


4 Insert string into one of the holes from the outside of the tube. Bring it through the tube and tie a chunky knot. Gently pull the string back from the outside. Repeat on the other side.



The knot will stop the string coming back through the hole.

5 Place a rubber band around the tubes to help the glue set. Leave to dry over night.



6 Remove the elastic band and then decorate them with pens!



7 Go wildlife detecting!



Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2016

www.wildlifewatch.org.uk

Section 2: Wet and Wild Biodiversity

This section is all about helping children learn more about the breadth of life we find in our Scottish freshwater.

Even if you aren't near any water there are plenty of activities you can do!



In this section you will find **7** activities:

8. [Pond Dipping](#)
9. [Build Like A Beaver](#)
10. [Osprey Origami](#)
11. [Freshwater Faces](#)
12. [Damsels and Dragons](#)
13. [Frogtastic Lifecycles](#)
14. [Watercolour Fish](#)

Each activity can be used independently, or combined to create a longer session, depending on your children, time, space, and available resources.

To find out the curriculum links for each activity, check out the [Curriculum Links](#) page at the end of the pack.

Activity 7: Pond Dipping

Educator Notes

This practical activity can be done at a pond, river or stream and is great way to introduce children to the underwater world

Background:

Pond dipping offers the opportunity to learn about food chains and food webs as well as discovering some of the amazing insect transformations during their lifecycles.

With so many species harbouring in our ponds it can be tricky to identify what you catch, but don't worry! We have created a **pond identification sheet** which you can print out to help. There are also lots of other resources you can find online, or sometimes a simple google will do the trick!

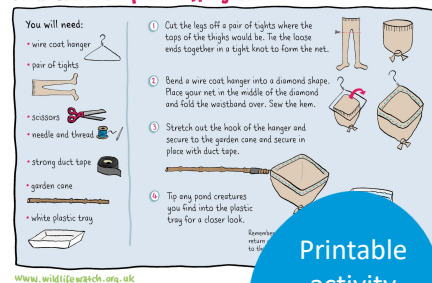
Don't forget to **think about safety** when pond dipping. Check out our [Pond Dipping: Safety and Top Tips](#) to help you plan a safe session.

What you will need:

- A light-coloured shallow tray or container
- A few teaspoons
- Magnifying glasses (optional)
- Paper and pencils for recording
- Printed identification sheet

- Nets (for younger children, a small aquarium net is ideal). Optional – you can make your own nets by following our guide found on the following printable pages

How to make a pond dipping net



Printable activity guide!

Instructions:

1. Put a small amount of pond water into your tray. Now dip your net in the pond and pull it through the water – try a figure of 8 movement!
Always have children kneel when doing this.
2. Empty your net into the tray, wait for the water to settle and look carefully – some creatures are very small! You can use a spoon to scoop up any creatures for a closer look – don't use your hands.
3. Use the identification sheet to help you record what you find. When finished, gently empty trays into the pond. Wash all hands afterwards and disinfect your nets and trays.

Your group could also:

- Draw pictures of the creatures they found
- Write a short story or poem about their experience
- Research a creature and its lifecycle under the water and present findings to the group



Pond Dipping Spotter Sheet

Use the pictures below to try and identify the creatures in your pond

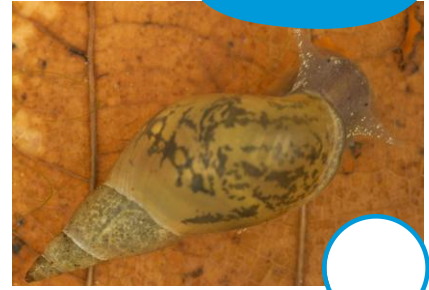
How many
can you spot?
Tick them off
as you go!



Stickleback



Pond Skater



Pond Snail



Frog and
spawn



Great Diving
Beetle



Newt



Leech



Dragonfly
nymph



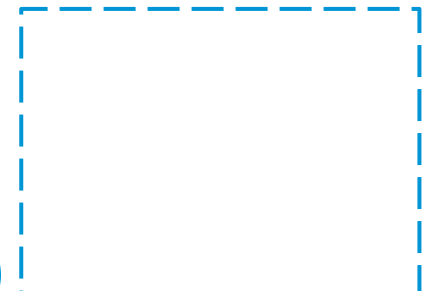
Backswimmer



Water
Boatman




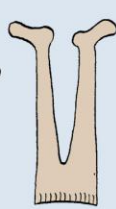




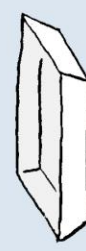
Toad and
spawn



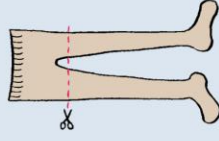
Seen something
else? Draw it here!

How to make a pond dipping net

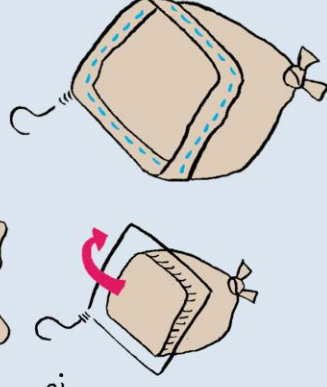
You will need:

- wire coat hanger 
- pair of tights 
- scissors 
- needle and thread 
- strong duct tape 
- garden cane 
- white plastic tray 

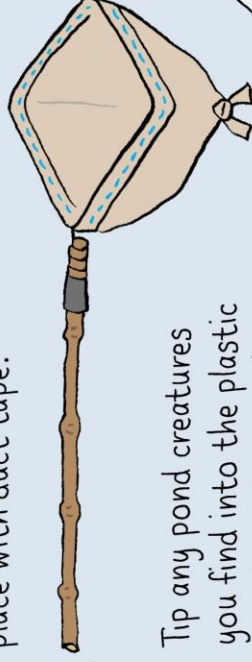
1 Cut the legs off a pair of tights where the tops of the thighs would be. Tie the loose ends together in a tight knot to form the net.



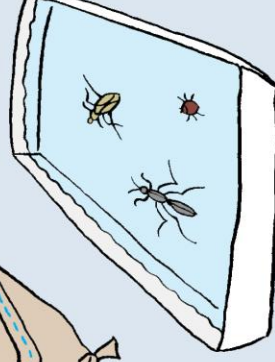
2 Bend a wire coat hanger into a diamond shape. Place your net in the middle of the diamond and fold the waistband over. Sew the hem.



3 Stretch out the hook of the hanger and secure to the garden cane and secure in place with duct tape.



4 Tip any pond creatures you find into the plastic tray for a closer look.



Remember to return creatures to their homes.

Activity 8: Build Like a Beaver

Educator Notes

Challenge your group to beat the beavers at their own game! Can they create a watertight dam using natural materials?

Background:

Beavers love splashing around in ponds, lochs and rivers and have **amazing adaptations for living in water**. They have skin flaps in their ears and nose to keep water out, and they can chew under water without swallowing water as their lips close behind their front teeth!

Although beavers are native to the UK, they were **hunted to extinction** in the 16th century. The Scottish Wildlife Trust and the Royal Zoological Society of Scotland **helped return these amazing animals to Scotland** in 2007, at Knapdale in Argyll. Today, beavers are living in over 250 places around Scotland!

Beavers **build using natural materials** in their habitat and can even **fell trees by gnawing** through them. They don't waste anything, eating the bark and the vegetation and using the trunk and branches for their construction work. The dams they build can help **create new wetlands**, restore native woodlands, and benefit lots of other species such as dragonflies, otters, and fish. That's why beavers are known as **'ecosystem engineers'!**

What you will need:

- Trays/Tupperware (must be watertight)
- Natural materials you've collected (twigs, leaves, rocks, mud)
- Water (to pour)

Instructions:

Depending on the size of your group, you could split them into small teams— the most watertight dam wins!

1. Start by collecting things like twigs, leaves, grass and mud outside. Before starting, set boundaries with your group so that they know what area to stay in. Make sure you know your area and remind children about any poisonous or prickly plants to avoid.
2. Now it's time to assemble your dams. In the middle of your trays, create a strong dam with the things you found.
3. Once everyone's dams are complete, pour water into one side of the tray and see how long it takes for water to pass through the dam to the other side. Beavers don't quit so have another go if you see a way to make it better!

Length:



Location:



Activity

Type:



INFORMATION KEY



Top tip – fill any holes with mud and use branches to make it strong!




Activity 9: Osprey Origami

Educator Notes

This craft activity includes a template for your group to make their own magnificent osprey!

Length: 

Location: 

Activity Type: 

INFORMATION KEY

Background:

The **osprey** is one of Scotland's most iconic **birds of prey**. These birds fly a great distance to **spend summers in Scotland** before **migrating** back to Africa for the winter. Ospreys usually nest near areas of water, like **rivers and lochs**. This is because they **eat fish**. Here are some osprey fast facts:



- They are one of our largest birds with a 1.5 metre wingspan
- Ospreys fly up to 7,000 miles a year, migrating to Africa for the winter
- They can spot a fish from a height of up to 100 metres
- Osprey nests can be as large as a double bed
- They can catch fish as heavy as they are!

Our [Loch of the Lowes Reserve](#) in Perthshire has frequent summer osprey visitors! We have lots of footage of the nest from over the years, plus a live camera during their nesting period – check it out on our [YouTube here](#).

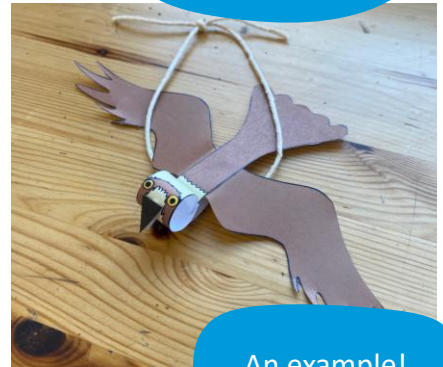
You can find out even more about ospreys by reading our [Osprey Fact File](#)

What you will need:

- Printed activity sheet
- Scissors
- Eco-glue
- String/tread/twine
- Paper (optional)
- Coloured pencils (optional)
- Printed colouring sheet (optional)

Instructions:

1. Hand everyone a copy of the activity sheet. Carefully cut out each osprey part – the wings can be fiddly. Or, have your group trace the osprey part onto paper and colour them in.
2. Glue the wings on to the underside of the body where shown. Loop the top of body (cream part) under the wings and glue in place just behind the wings.
3. Form the head by gluing the two ends together to make a loop. Fold the beak and glue on to the head between the eyes. Glue the head to the front of the body.
4. Loop the string under the wings to hang. Your osprey is ready to fly!
5. You can also print off the osprey colouring sheet (of a family on its nest) for your group to colour in if you have time during your session.

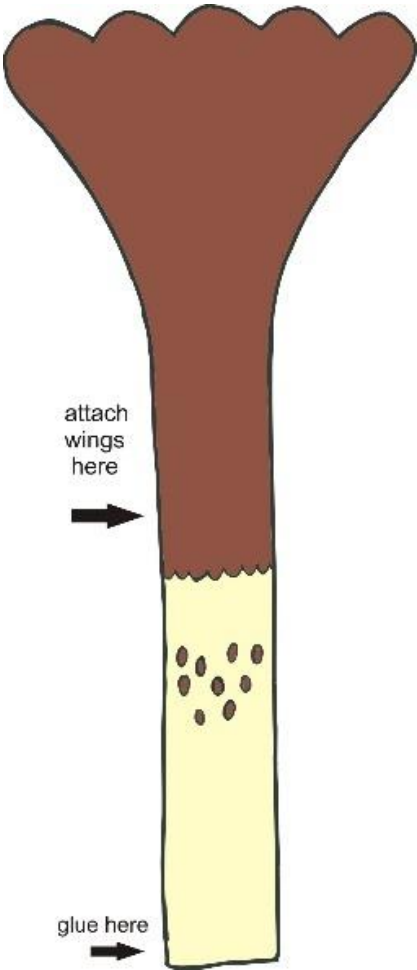


An example!



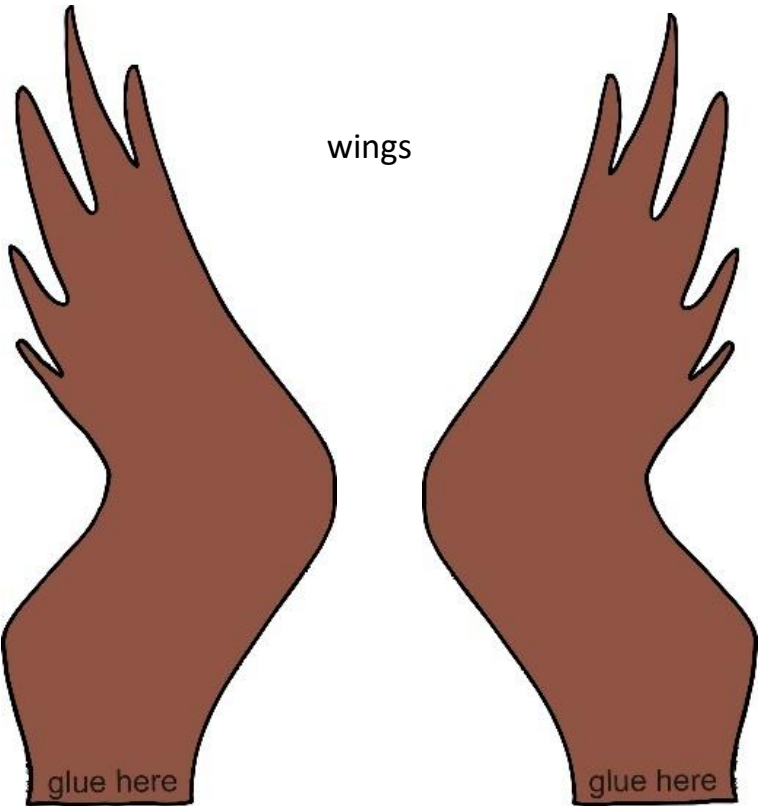
Osprey Template Activity Sheet

tail



body

wings



beak

head





Activity 10: Freshwater Faces

Educator Notes

Make an animal mask using our templates and become your favourite freshwater species

Length: 

Location: 

Activity Type:  

INFORMATION KEY

Background:

Become a **kingfisher**, perching by a river, an **otter**, fishing and bathing in its favourite loch, or a **frog**, splashing around in a local pond.

Click on the animals to learn more about them on our website!



Scotland is home to fantastic freshwater habitats, with **over 31,000 freshwater lochs, 125,000km of rivers and streams**, not to mention the hundreds of thousands of ponds across the country!

What you will need:

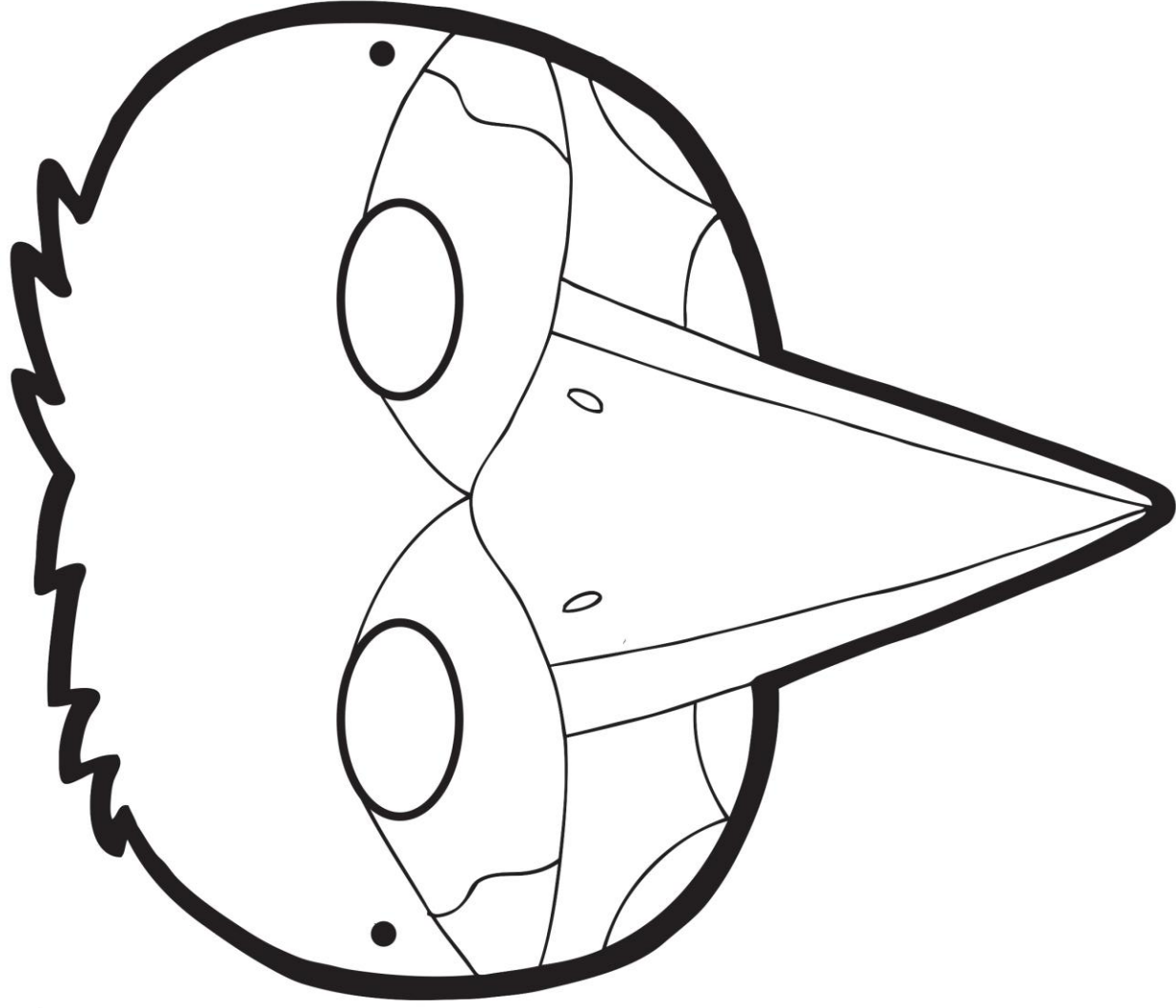
- Printed activity sheet (or paper/card)
- Pens/pencils
- String (or elastic)
- Scissors
- Hole punch (optional)

Instructions:

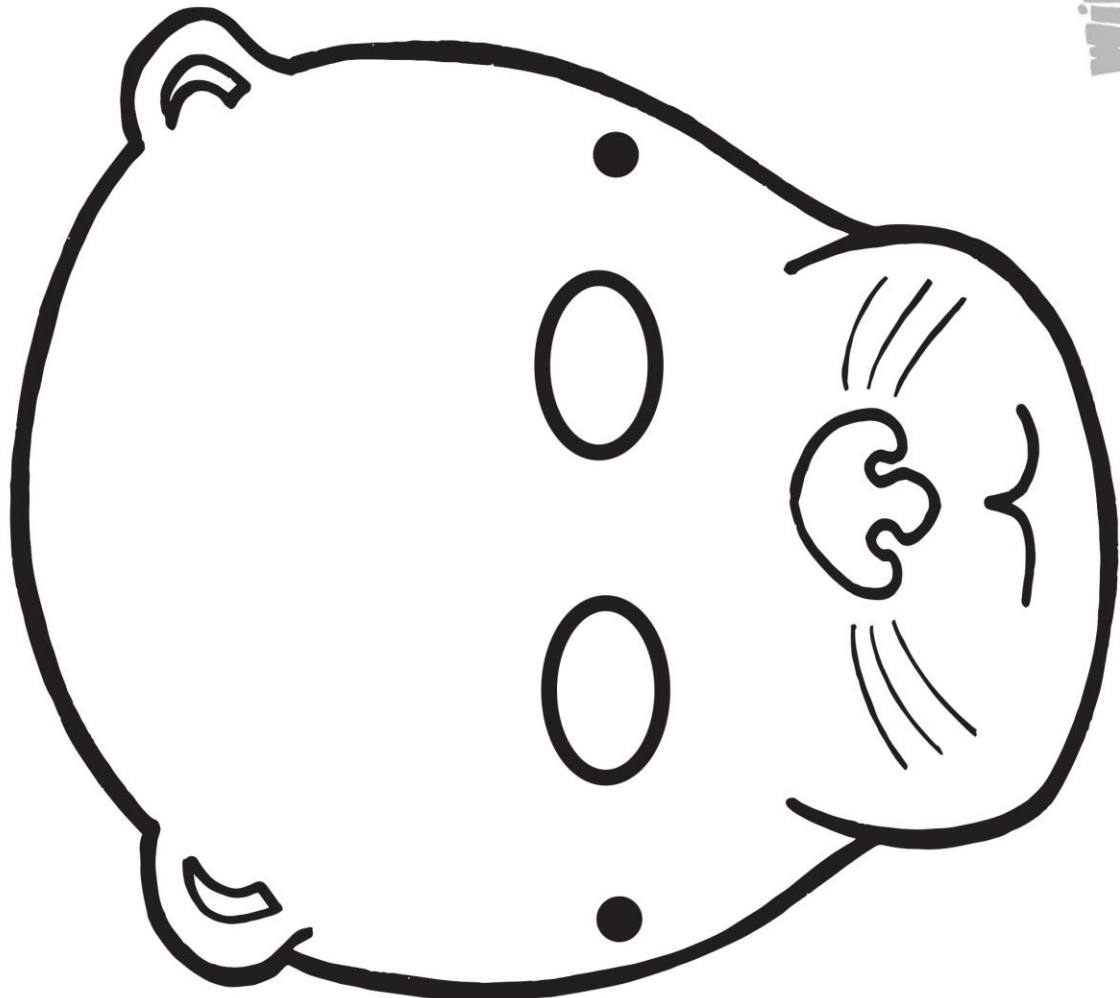
1. Print out some masks for your group to choose from. If you don't have a printer, you could get your group to copy the designs onto paper or card.
2. Time to let the creativity flow and decorate the masks! Once done, carefully cut around the outline and the eyes – you may need to help younger children here.
3. Carefully punch out the two holes at the sides of the mask. A hole punch is helpful for this, but you could use a sharp pencil or scissors.
4. Measure a piece of string around the child's head so that you get the right size. Tie the string between the two holes.
5. You can use the masks to create some wild performances. If possible, ask the children to research their animal online or in books. Videos could give them some inspiration too.
6. It's performance time! Can they move around like their animal and make some of its calls/noises? Individually, or in pairs/groups, they could present their research findings or a fun fact.



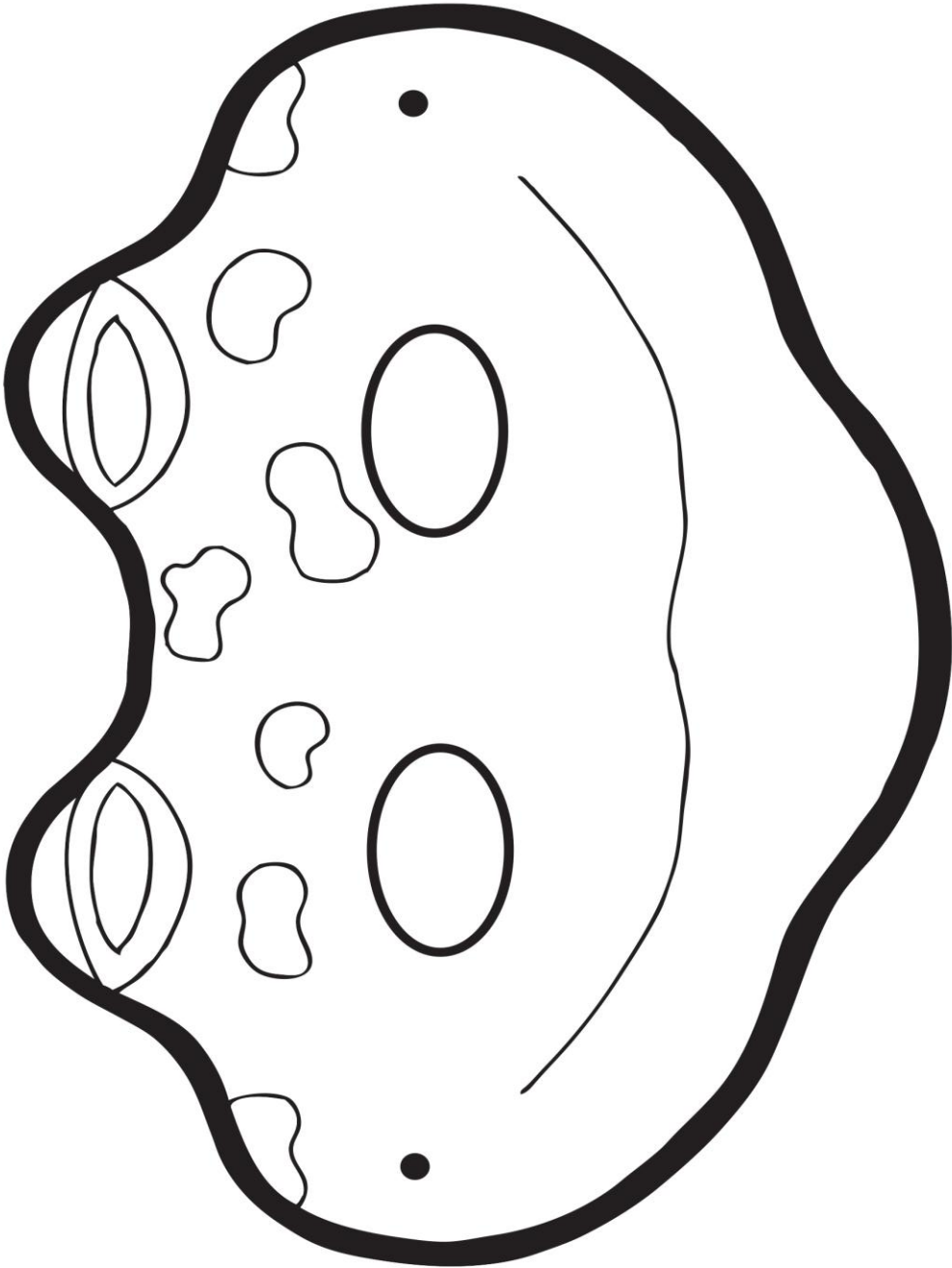
Kingfisher



Otter



Frog



Activity 11: Damsels and Dragons

Educator Notes

Collect sycamore seeds and twigs to get crafty and make some dragonflies!

Background:

Dragonflies and damselflies love watery habitats. You can find them in places like lochs, ponds, rivers, canals, burns and bogs. Scotland is home to around **29 different species** and **summer** is the time to spot them, as adult insects emerge and go on the hunt for a mate.

At first glance, dragonflies and damselflies look similar but there are some **really simple ways to tell them apart**:

- Dragonflies are bulkier and damselflies are smaller and daintier
- Dragonfly wings are held out when resting, damselfly wings are held together when resting



They spend most of their lives in the water as **predatory larvae**, eating all sorts of underwater insects and even tadpoles. You may find some if you go pond dipping!

What you will need:

- Sycamore seeds
- Twigs
- Glue
- Scissors
- Wool/string/twine
- Paint (optional)

Instructions:

Check out the printable activity guide on the next page for illustrated instructions.

1. Head outside and collect sycamore seeds (or another type of 'helicopter seed') and twigs. Task your group to try and find twigs that are long, thin and strong. Sticks that have a fork shape at the end work great too, as they can act as dragonfly antenna. If it's not the right time of year for sycamore seeds, see if you can find another natural object to use as wings. Each child in your group will need at least one stick and a handful of sycamore seeds.
2. Cut the middle sections off the sycamore seeds so you are left with just the wings. Glue the wings to the twig and leave to set.
3. Either leave them natural or paint them in lots of wonderful colours!
4. Tie lengths of wool/string around the twig bodies to suspend them – perhaps from a stick or the ceiling of your classroom!

INFORMATION KEY

Length:

Location:

Activity Type:



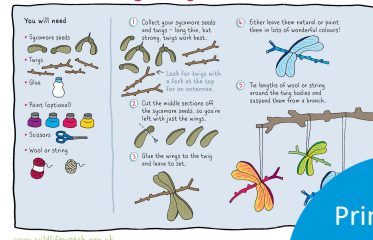
Damselfly



Dragonfly

Dragonflies and damselflies were around way before dinosaurs!

Make a dragonfly



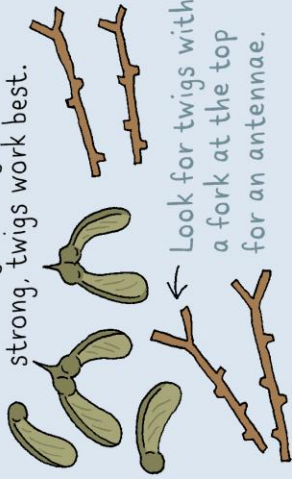
Printable activity guide!

Make a dragonfly

You will need

- Sycamore seeds
- Twigs
- Glue
- Paint (optional)
- Scissors
- Wool or string

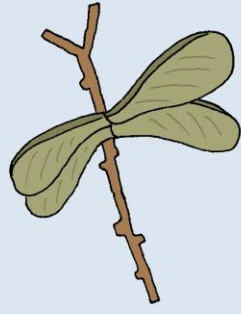
- 1 Collect your sycamore seeds and twigs – long thin, but strong, twigs work best.



- 2 Cut the middle sections off the sycamore seeds, so you're left with just the wings.



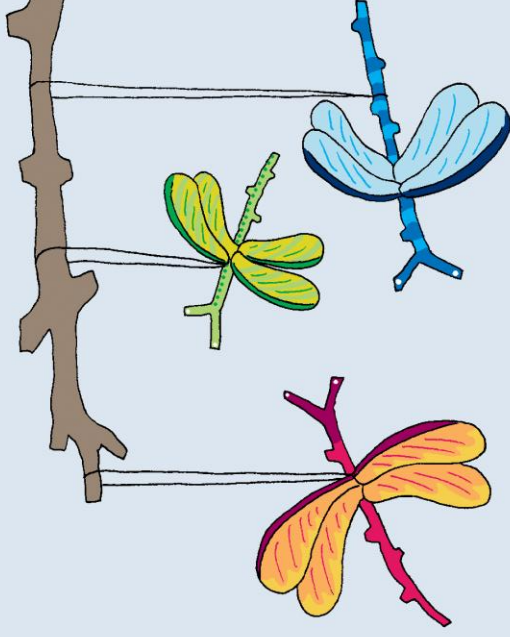
- 3 Glue the wings to the twig and leave to set.



- 4 Either leave them natural or paint them in lots of wonderful colours!



- 5 Tie lengths of wool or string around the twig bodies and suspend them from a branch.



Activity 12: Frogtastic Lifecycles

Educator Notes

Use drama and movement to tell the story of a frog's life cycle. It's a great icebreaker game!

Background:

The frog lifecycle consists of three main stages – **the egg, tadpole and adult frog**. The process of change is called **metamorphosis**.

You can also try this role-playing activity with other species, such as dragonflies!

What you will need:

- An open space (e.g., a grassy area or an indoor space)



Instructions:

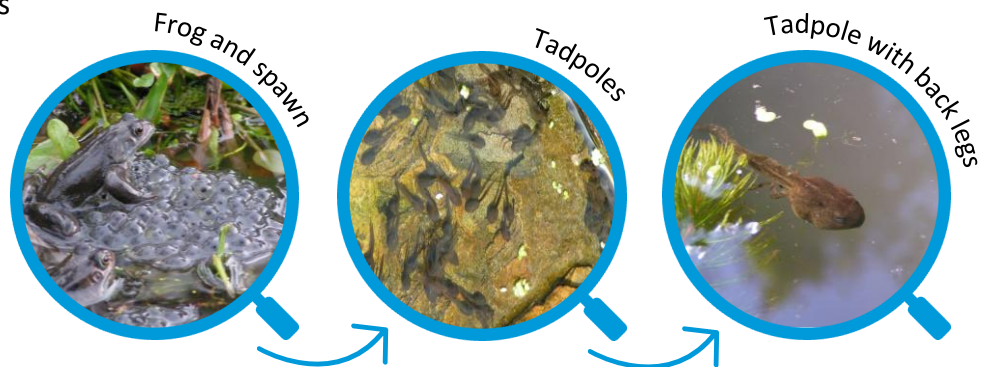
1. Gather everyone together in a clear, open space.
2. Everyone is newly laid frog spawn! What sort of shape should we make? Children could curl up and huddle together like a spawn mass.
3. The eggs are starting to hatch! Everyone should move from their frog spawn shape to become tadpoles.
4. What do tadpoles look like? How do they move? Children can move their feet together and have their hands by their side.
5. Now our back legs are starting to grow! Arms stay by our sides but now our feet can move and wiggle.
6. Next to grow is our front legs. Everyone can wiggle their arms now.
7. It is now that our young frogs start breathing with lungs. Have everyone try puffing their cheeks in and out as they love around.
8. We are now fully grown frogs! Everyone can hop around, puff their cheeks and croak like frogs!

Length:

Location:

Activity Type:

INFORMATION KEY



JARGON BUSTER!

METAMORPHOSIS is a process some animals go through to become adults. It's a bit like growing up, but instead of just getting bigger, these animals change their shape, size, and often their lifestyle too! A famous example are butterflies (egg > caterpillar > butterfly)

You could add a literacy element by writing a story of the lifecycle from a frog's perspective

Activity 13: Watercolour Fish

Educator Notes

Try this art activity using watercolour and crayon to create a fishy masterpiece

Background:


Freshwater fish populate all bodies of water, from small pools to large rivers and lochs. Scotland has **over a dozen native species** of freshwater fish with a wide diversity in size, shape and behaviour.

They also play a **huge role in the ecosystem** and are a key member of food webs.

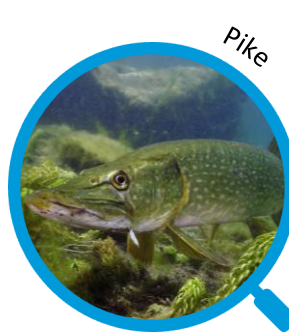
INFORMATION KEY

Length: 

Location: 

Activity Type: 

Click on the fish to learn more about them on our website



The instructions below can help you create a colourful fish, but you could **use the same technique** for lots of other freshwater species too. Get creative and **design an underwater display!**

What you will need:

- Printed activity sheet (or plain paper if you want to draw your own fish)
- Pencil or pen
- Watercolour paints
- Paint brush
- White wax crayon



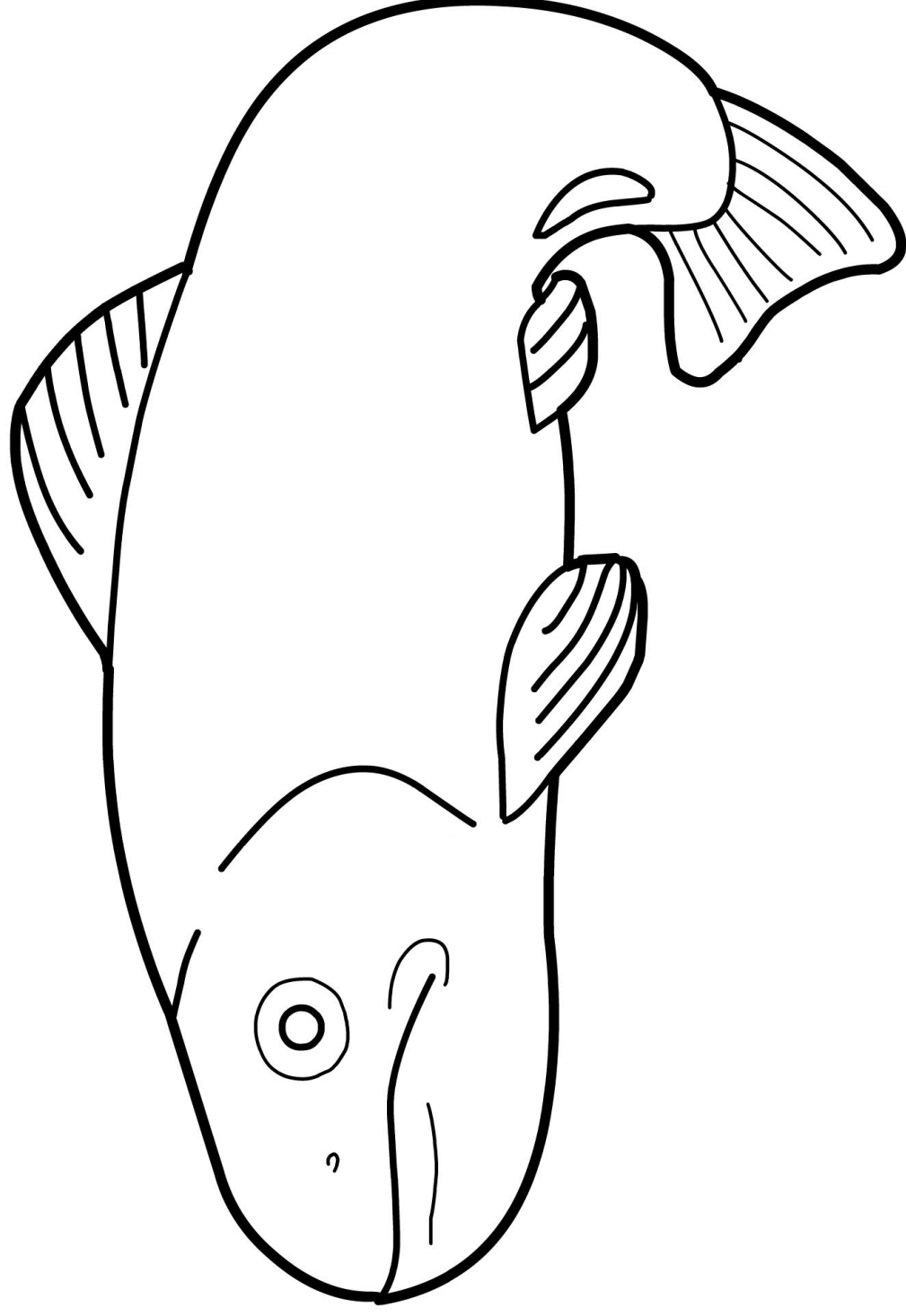
Here is an example!

Instructions:

1. Draw the shape of a fish – or hand out print-outs of the template provided.
2. Use the white wax crayon to draw a pattern in the fish. You could create some scales or add some fun shapes and designs. It will be hard to see the pattern you draw, so keep it simple and try to remember the areas you've already drawn in to not overlap your design.
3. Use your watercolour paints to colour in the fish – you can use lots of colours to create a bright rainbow fish! Add water to your brush to help you blend the colours. You can always use some kitchen roll to dab up water if you have added too much.
4. The paint will sink into the paper but won't be able to stick over the wax pattern. As you paint the wax pattern will remain white. Remember to leave to dry.



Brown trout (*Salmo trutta*)



Section 3: Key Threats and How to Help

This section is all about helping children understand some of the key threats freshwater habitats are facing and empowering them to take their own action to help protect them.

Even if you aren't near any water there are plenty of activities you can do!



In this section you will find **7** activities:

- 14. [What do Ducks Eat?](#)
- 15. [Give a Frog a Home](#)
- 16. [Water Saving Superheroes](#)
- 17. [Litter Pickers](#)
- 18. [Build a Pond](#)
- 19. [Make Your Own Compost](#)
- 20. [Citizen Scientists](#)

Each activity can be used independently, or combined to create a longer session, depending on your children, time, space, and available resources.

To find out the curriculum links for each activity, check out the [Curriculum Links](#) page at the end of the pack.

Activity 15: What do Ducks Eat?

Educator Notes

Make a poster about how to feed ducks healthy snacks

Background:

Feeding ducks and other birds is something that is enjoyed by people of all ages. It is likely that everyone has either fed ducks bread or seen someone else do so. **But did you know that bread is not very nutritious for ducks?**



Ducks, like us humans, need **a varied diet to be healthy**. Bread doesn't have a lot of nutritional value. Ducks can easily get full up on bread and then don't forage for other foods they would naturally eat. Can you imagine the health issues you would have if you only ate bread?

Ducks don't chew their food - make sure they are in bite-sized portions so they can eat them easily!

What healthy snacks should we treat ducks to instead of bread?

- Sweetcorn
- Lettuce
- Peas
- Oats
- Rice
- Seeds

What you will need:

- Printed activity sheet (on white paper is best)
- Colouring pens/pencils

Instructions:

1. Start with a discussion... has anyone seen people feeding ducks bread? Did you know that bread is their version of junk food? What could we feed ducks instead of bread?
2. Your group can either use the poster template we have provided or grab some plain paper and make their own design.
3. Colour in the poster and add text that helps spread the word about what is good food for ducks.
4. Once finished, decide who you would like to share the poster with. Should it be displayed somewhere, or given to someone for them to learn from? Think about audiences, e.g., friends, family, school, local community groups and businesses.
5. Remember to be responsible when putting up posters outdoors – they can easily become litter. Does your local woodland have a noticeboard you can display it in?
6. Why not take a video or photo of your posters, or you feeding the ducks healthy food, and share it with us!

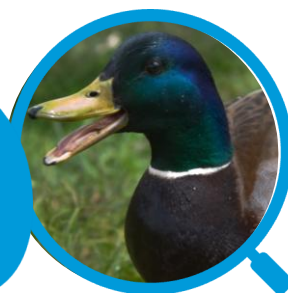
Length:

Location:

Activity Type:

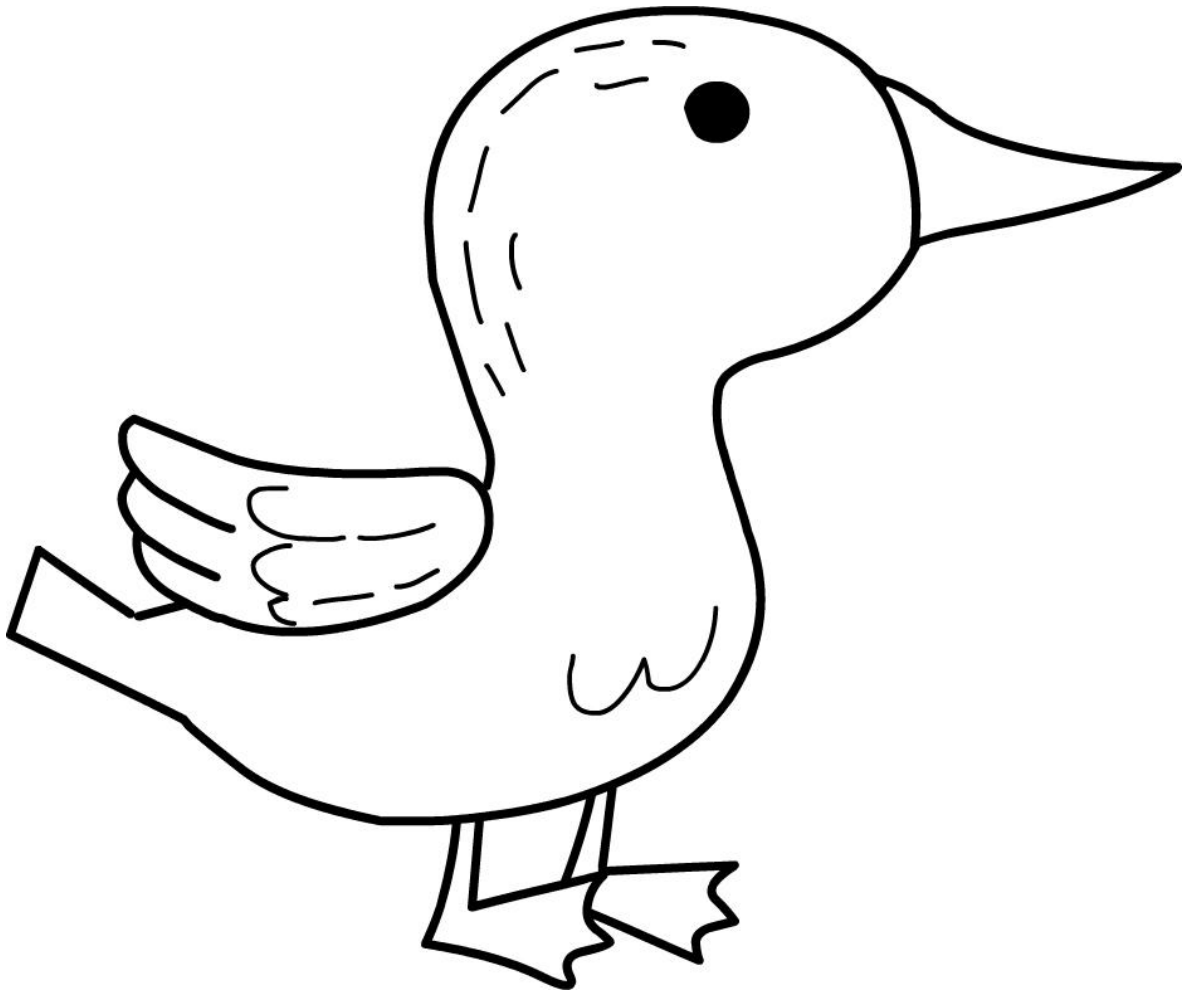
INFORMATION KEY

Feeding me peas makes me hap-pea!



If you are heading out to feed ducks, couple it with **Activity 6** for some duck ID!





Activity 16: Give a Frog a Home

Educator Notes

Help frogs by building them a safe home in winter

Background:

The **common frog** is one of our best-known **amphibians** and just like its name suggests, it's really common in Scotland! They like **wet habitats**, such as garden ponds, where they lay their eggs in big 'rafts' of **spawn**. A female frog may lay up to 4000 eggs in one spring!



A group of frogs is called an army!



Length:

Location:

Activity Type:

INFORMATION KEY

JARGON BUSTER!

AMPHIBIANS are cold-blooded animals that live on both land and in water. There are only six types in Scotland – one frog, two toads, and three newts.

Frogs have **smooth, moist skin** – which they also breathe through! They can also make their body colour lighter or darker to match their surroundings.

In **winter** they need a **safe place to shelter** and rest, although they don't fully hibernate. Ideal winter resting places are underneath rocks, in compost heaps or in the mud at the bottom of ponds.

What you will need:

- Damp, shaded spot of ground
- Gardening gloves
- Trowel or shovel
- Clay plant pot
- Watering can or water bottle

Instructions:

1. Dig a small hole in a damp and shaded spot. Always make sure you have permission from the landowner before adding a frog home.
2. Place a clay plant pot in the hole on its side.
3. Bury the pot halfway up the sides and fill it halfway with soil.
4. Make it nice and cosy inside by adding some damp leaves.
5. Sprinkle the area with water using a watering can or water bottle – this will help to keep the pot in place.




Optional: Add a splash pool for your frog by placing a shallow dish containing gravel and some water near the entrance of your frog home!

Activity 16: Water Saving Superheroes

Educator Notes

This activity looks at the way we can help save water by making small daily changes

Length: 

Location: 

Activity Type:  

INFORMATION KEY

Background:

Water is **essential for all life** – so let's look after it! **Water conservation** means using water wisely and not wasting it. If we avoid wasting water our rivers, streams, bogs and lochs stay topped up – which is important for wildlife like otters, birds, water voles, fish and more.

What you will need:

- Printed activity sheets
- Paper (at least A3 size)
- Pens
- Scissors
- Glue sticks



Instructions:

1. You can split your group into pairs or smaller groups. Give each group a piece of paper and pens. Using a pen, ask the group to split their paper into 2 sections. Label section 1 'Ways we use water' and label section 2 'Ways to be a water hero'
2. Start by asking everyone to think about the different ways we use water day to day. What appliances do we have at home or school that use water? Hand each group a copy of *Water Saving Superheroes – Activity Sheet 1*. Have everyone cut out the squares and glue them under section 1 (they can colour them in too). They can choose the ones most important to them, or they can stick them all down.
3. Now encourage everyone to think of ways we might waste water – you can discuss as one big group here. The average person uses around 140 litres of water a day. Huge water deficits are on track to occur by the 2080s, so we need to start cutting down!
4. Using less water keeps more in our ecosystems and helps to keep wetland habitats topped up for wildlife. It also helps reduce our carbon footprint and can save us money! How could we waste less water?
5. Hand each group a copy of *Water Saving Superheroes – Activity Sheet 2*. Have everyone cut out the action squares. Encourage each group to choose around 5 actions that they think they could do, and glue them under section 2. If they have any other ideas, they can write/draw them on their paper too.
6. After every group is finished glueing, encourage everyone to share one change they are going to make to become a water saving superhero. As a group you could also start to think of ways you might spread awareness around water conservation.

Waiting for the tap to run cold can waste 10 litres of tap water a day!



Water Saving Superheroes – Activity Sheet 1

Having a bath
or shower



Washing
clothes



Watering
plants



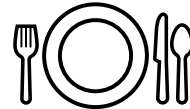
Flushing the
toilet



Drinking



Washing the
dishes



Swimming



Washing hands



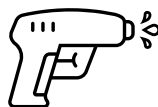
Looking
after pets



Making food



Playing with
water toys



Washing cars



Water Saving Superheroes – Activity Sheet 2

Turn the tap
off while
brushing
your teeth

Collect
rainwater to
water the
garden

Use a
watering can
instead of a
garden hose

Look out for
leaks and
drips at home
and school

Take shorter
showers –
even by just
one minute!

Avoid leaving
the tap
running when
cleaning
dishes

Avoid water
toys that need
a constant
flow of water

Use eco settings
on dishwashers
and washing
machines

Try to use
towels more
than once

Make
suggestions to
your friends,
family and
teachers

Use old water
(e.g. from a pet
bowl) to water
plants

When turning a
tap off, make
sure you do it
properly

Activity 17: Litter Pickers

Educator Notes

Whilst on a walk, bring a bucket and some gloves to pick up any litter you find!

Background:

Every year, millions of pieces of litter end up in and around our freshwater habitats, with a significant amount being carried out to the ocean. **80% of the litter** on our beaches has found its way there from rivers and streams.

This litter can destroy freshwater ecosystems and habitats and even impact our water quality, as well as endangering species such as water voles, otters and birds. Plus, it can create an **unsafe environment for us humans** too!

The good news is that **litter-picking is a simple action** that we can do. Straight away it makes a visible difference to the environment, and it can stop rubbish from reaching our oceans too.

What you will need:

- Strong binbags (or buckets)
- Gloves
- Suitable footwear
- Litter picker (optional – you can ask your local council if you can borrow some)

Instructions:

1. You could start with a little interactive quiz about litter, asking your group how long they think these items take to break down in the environment. Remember, plastic never fully goes away – it just breaks into little pieces.

Fishing line
600 years

Plastic bottle
450 years

Tyre
Up to 2,000
years

Crisp packet
100 years

2. Avoid picking up any broken glass or sharp objects, anything very large or heavy, and anything that appears dangerous. Try not to overfill bags to avoid splitting.
3. Here are some prompts for discussion along the way...
 1. What types of litter are you finding and where do you think it comes from?
 2. Why do you think there is litter here?
 3. What can we do to stop litter ending up in the environment?

Length: 

Location: 

Activity
Type:   

INFORMATION KEY



See our ***Citizen Scientists*** activity to find out how to get involved in some litter surveys!

Activity 18: Build a Pond

Educator Notes

Build a mini pond to help improve your local space for wildlife



Background:

In the last century, more than **half of all ponds in the UK** countryside have been lost. Looking to help wildlife in your local space? **Install a wildlife pond!**

You'll be amazed how much wildlife even a small pond can support, from insects to amphibians to plants to birds – almost all garden life and every part of the food chain **will benefit from a water source.**

If you don't have a garden, you could contact the owner of a local green space to see if they would be interested in installing a wildlife pond with you. You can build a pond at **any time of the year**, but if you start in late winter, it will get established much quicker.

What you will need:

- An old bucket or watertight container
- A spade 
- Sand
- Old bricks, rocks or pebbles 
- Native pondweed or other pond plants
- Printed activity guide (optional)

Instructions:

1. Choose an ideal spot. Your pond will want light, but not full sunlight all day. Dig a hole deep enough to sink your container (unless you choose to place your container above ground).
2. Remove any sharp rocks and line the bottom of the hole with sand.
3. Place the bucket into the hole, filling in any gaps around the edges with soil.
4. Add a layer of bricks or rocks. Use logs or stones to create a range of depths and a slope for creatures to climb in and out. If your container is above ground, you'll need to create a ramp.
5. Fill the bucket with rainwater (**not tap water** – this contains chemicals).
6. Start adding some pond plants! You only need one or two plants. Great plants for small ponds include miniature waterlily, lesser spearwort, starwort, and flowering rush.
7. Over the next few weeks, check your pond regularly to see if it needs topping up. Sit and watch as wildlife comes to your pond (you can use the pond life spotter sheet). Don't introduce frogs, fish or even water from another pond as this can spread disease.

Length: 

Location: 

Activity Type: 

INFORMATION KEY



Ponds can be as big or small as you like, even an upturned bin lid sunk into the ground can be a hive of activity!

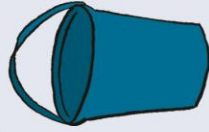


Printable activity guide!



How to build a mini wildlife pond

You will need:



- an old bucket or watertight container

- spade



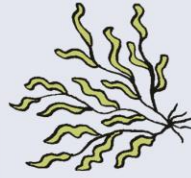
- sand



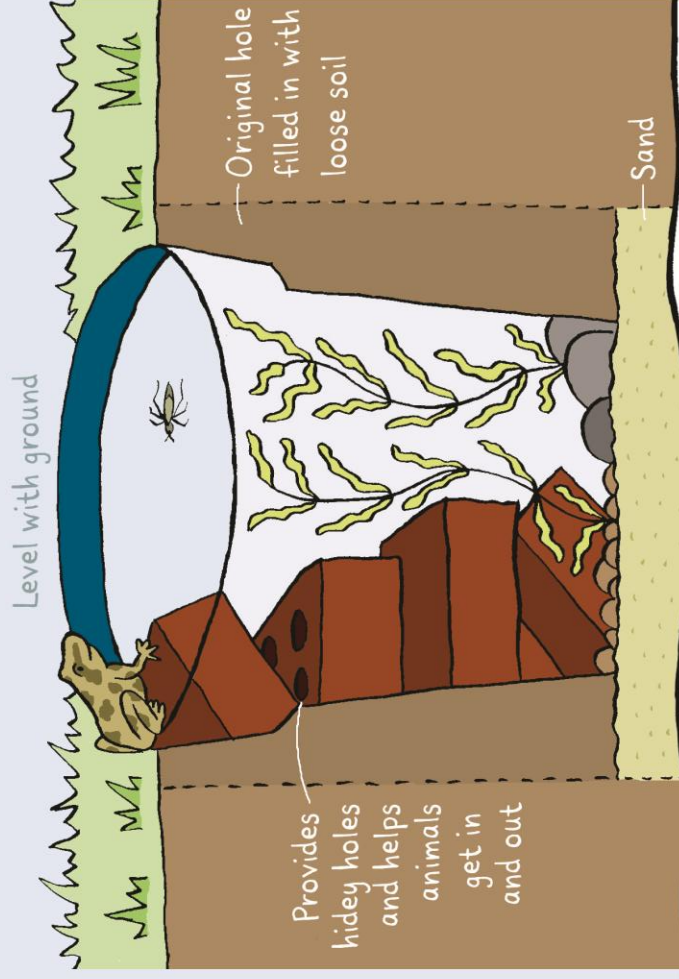
- old bricks, rocks and pebbles



- native pondweed (eg. curled pondweed)



- 1 Dig a hole deep enough to hold your container.
- 2 Remove any sharp rocks and line bottom with sand.
- 3 Sit the container in the hole and fill the gaps with loose soil.
- 4 Build a pile of rocks and bricks in bottom, scatter pebbles and add pondweed. Fill with rainwater.



Activity 19: Make Your Own Compost

Educator Notes

Help save our peat bogs and make your own compost for gardening!

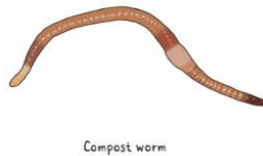
Background:

Peatlands, a type of wetland, is an incredibly important habitat as it stores lots of carbon, helping us fight **climate change**. However, peat soil is extracted for gardening, which is extremely damaging to these important wetland habitats.



One thing we can do to help is **only buying peat free compost** for our gardens. Digging up peat for soil from bogs means we lose all the amazing animals that live on them so peat free is always best!

Making your own compost also means you will **reduce the amount of waste** sent to landfill and you will be providing a home and food source for a range of invertebrates. Once you have made compost you can then use it to **help plants grow** as it will be jam-packed with super nutrients!



Compost worm

What you will need:

- A shady spot where the heap will stay moist
- Some old bricks
- Long sticks/branches
- Soil or manure
- Gardening fork
- A piece of mulch matting or polythene sheet
- Compostable ingredients!
- Gardening fork
- A piece of mulch matting or polythene sheet (an old carpet or plastic works too)
- Compostable ingredients!

Instructions:

Follow the instructions on the printable activity guide on the next page. Here you will also find examples of compostable ingredients (and non-compostable).

Here are a few extra tips:

- Composting works best if you add a large quantity of material at one time, so it's best to save up your kitchen scraps and add them to the heap along with some old plant clippings.
- Make sure you have a good mix of items. If you have large amounts of compostable items to dispose of, such as hedge trimmings or bags of cut grass, use your garden waste bin instead.
- Your compost is ready to use when it becomes dark and crumbly.

Length:

Location:

Activity Type:

INFORMATION KEY

JARGON BUSTER!

COMPOST is decaying organic material that is added to soil to help improve its quality and help plants grow. You can buy it in shops, or you can make your own!

How to make your own compost



Printable activity guide!

You could make your compost in a handy container (e.g. a compost bin)

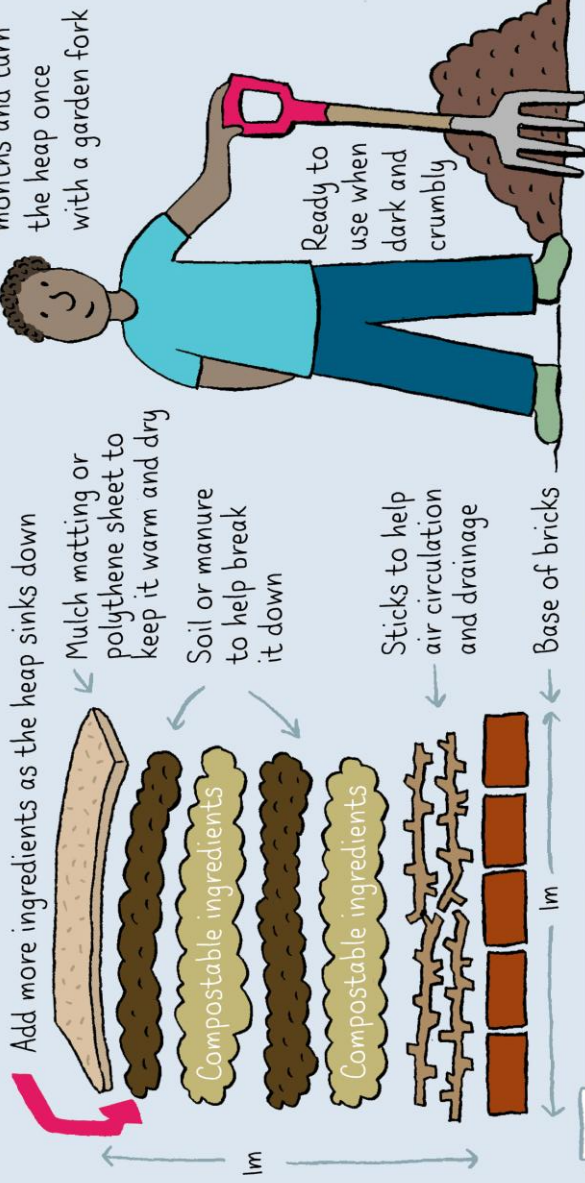


How to make your own compost

You will need:

- a shady spot where a heap will stay moist
- some old bricks
- long sticks or branches
- soil or manure
- gardening fork
- a piece of mulch matting or polythene sheet
- compostable ingredients!

Save up enough ingredients for a week or two until you have enough to build a heap in one day.



	tea leaves	raw fruit and veg peelings	grass cuttings	dead leaves	shredded paper	prunings and dead plants	cotton and wool
	woody stems	cooked food scraps	cat or dog poo	meat or bones	weed seedheads	perennial weed roots	diseased plants

Activity 20: Citizen Scientists

Educator Notes

This activity gets children outdoors and connecting with nature, whilst also engaging with the scientific community through data collection

Length: 

Location: 

Activity Type:    

INFORMATION KEY

Background:

Citizen science can help children **foster curiosity and critical thinking**. They will be helping the environment on a small scale (e.g. recording litter found) but contributing on a large scale (e.g. the data being used to help inform single-use plastic policies).

It can seem daunting (“but I’m not a scientist!”) but **citizen science is for everyone!** You don’t need to be able identify different species of seaweed or recognise a seabird by its call – if you can observe, count and take photographs, you can be a citizen scientist.

What you will need:

Here are a few basic items that can help you with your recording, but they may vary depending on the campaign you choose.

- Paper, pen, clipboard
- Mobile phone/camera
- Binoculars
- Net, magnifying glass, bug pot

JARGON BUSTER!

CITIZEN SCIENCE is the opportunity for members of the public to volunteer to observe and record the natural world around them and submit their findings, which then help scientists and experts inform conservation efforts and decisions.



Instructions:

We have created a **Freshwater Citizen Science Guide** (next page) with lots of different projects you can get involved in. Click on the links to take you to the organisations websites and find out how to record. There are lots of options from recording litter to beavers to frog spawn.

Here are some key tips when it comes to being a citizen scientist:

- Always be mindful of wetland habitats and wildlife
- Read over our [Visiting Waterbodies Safely](#) page before heading out
- Take your time, closely observing the world around you
- If you have access to them, identification guides can be useful
- Have fun with it!



[Seek by iNaturalist](#) is an **identification app**, great for using with **young people**. All you need is a smartphone – download the app, take a photo of your find and it will identify it for you – plus the data gets recorded so it is **even more citizen science**

Freshwater Citizen Science Guide

[PondNet Survey](#)



Log any toad and frog spawn sightings with the *Freshwater Habitats Trust*

[Dragon Finder](#)



Identify and record amphibians and reptiles with *Froglife*

[Source to Sea](#)



Collect and record inland litter with the *Marine Conservation Society*

[Plastics Challenge](#)



Collect plastic along canals and rivers with the *Canal & River Trust*

[BirdTrack](#)



Record your bird sightings with the *British Trust for Ornithology*

[Bloomin' Algae](#)



Record your sightings of blue-green algae with the *UK Centre for Ecology and Hydrology*

[Beaver sightings](#)



Record beaver sightings with the *Mammal Society*

[Garden Dragon Watch](#)



Record garden amphibian and reptile sightings with the *Amphibian and Reptile Conservation*

[Dragonfly Recording Scheme](#)



Record your dragonfly sightings with the *British Dragonfly Society*

Additional Notes for Educators

This section includes extra information to help you plan and lead your outdoor sessions.

For more activities, head over to the **Discover. Learn. Play** section of our website!



In this section you will find the following:

- [Follow up Opportunities](#)
- [Visiting Waterbodies Safely](#)
- [Pond Dipping: Safety and Top Tips](#)
 - [Curriculum Links](#)

Have you used some of this pack? We would love your feedback!

This is one of our first Discovery Den activity packs. We are developing a series of packs, just like this one, and so your feedback will help us improve them for your use.

After using some of the activities, we would greatly appreciate you taking a few minutes to fill out our short feedback form [here](#).

Follow up Opportunities

Discover Scotland through our reserves

The Scottish Wildlife Trust manages **over 100 wildlife reserves across Scotland**, covering more than 17,000 hectares. With 90% of the population living within just 10 miles of a Scottish Wildlife Trust reserve, you're never far away from your next wildlife encounter!

Falls of Clyde, near Lanark, is a river woodland reserve famous for its waterfalls. It's perfect for spotting kingfishers, dippers and otters!



Our **Loch of the Lowes Visitor Centre** offers spectacular views of the freshwater loch as well as educational/group visits where you can learn all about the local wildlife. You can find out more by visiting our website [here](#).

You can find your nearest reserve and start planning your trip by visiting our website [here](#).

Explore our other activities



We have other fun activities about different topics! To find a host of other activities, visit the Discover, Learn, Play section on our website [here](#). You can filter through activities to find those that suit your needs.

Join our Wildlife Watch Network



Wildlife Watch groups are the Scottish Wildlife Trust's **nature clubs for children**. We have a **network of groups across Scotland**, from the Borders to the Highlands and islands! Learn more [here](#).

Setting up a new group is a great way to help connect children in your community with the nature on their doorstep. Groups can be set up by volunteers in the community, organisations, or schools. Learn more [here](#).



Watch our Wildlife Videos

Watching our **wildlife clips online** is a great way to connect with nature whilst indoors. You can watch footage of ospreys on our nest cam to clips of beavers and otters swimming at Loch of the Lowes. Head over to our YouTube [here](#) to get watching!

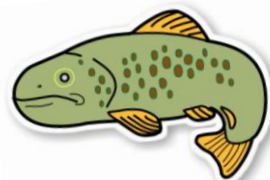
Watch wildlife clips on our YouTube channel by clicking the icon below



Visiting Waterbodies Safely

If you are taking your group to visit the water, it is important to do so safely. Before your trip, it's important to assess the site you are visiting and complete a comprehensive [risk assessment](#). We have included some things to keep in mind below.

Take a read of the [Scottish Outdoor Access Code](#) and the [RoSPA Water Safety Code](#) before you go. These guidelines are there for your safety and the protection of nature. They also have resources and activities on their website that you can use with your group.



Things to keep in mind before and during your trip:

- It is important to [check the weather forecast](#) before setting off and keep an eye on it whilst you are out – you can find this by visiting the MET office website [here](#). Remember that water levels can rise following heavy rain.
- Always [dress appropriately](#) for the terrain and the weather. Many layers if it's cold, alternatively, sun cream and hats if it's warm. Always check for weather warnings before heading out. We recommend wellies or sturdy shoes too.
- Look up your [nearest public toilet](#) before heading out. You could contact cafe/leisure facilities ahead of time to ask if your group can use their toilets too.
- Be aware of limited [phone reception](#) in remote places. Keep a mobile to hand. Know your nearest landline (a nearby café?).
- You can access wet habitats from lots of public places, such as parks, bridleways and public footpaths. Keep to [designated paths](#). Beware of uneven, unstable or slippery ground. Avoid steep river banks and deep or fast flowing water.
- Stick together. Having your group wear brighter clothing can help. A great way to [set boundaries](#) with children is to get them to identify the boundaries themselves. Explain what the activity is and then ask them to suggest where is on limits and where is off limits.
- Pack a bottle of [hand sanitiser](#) to clean hands after touching the water.
- Don't go in the river with [bare feet](#) – there may be sharp objects.
- Treat [freshwater wildlife with care](#). Don't take any creatures home with you – they need to stay in their habitat to survive and thrive!
- Take [your rubbish home](#) (and any rubbish you can see and pick up safely). Bring a rubbish bag with you.

Always remember to stay
SAFE near water – Stay
Away From the Edge!

Pond Dipping: Safety and Top Tips

Make sure to read the [Visiting Waterbodies Safely](#) page before heading outside. It is also important to have a complete a comprehensive [risk assessment](#) before carrying out your pond dipping activity.

If you are looking for somewhere to pond dip, try your local park or other green space. Some places even have special pond dipping platforms. Always [remember to get permission](#) before pond dipping.



Things to keep in mind before and during your pond dip:

- Make sure you are [always supervising children](#) while pond dipping.
- Applying a kneeling rule ('when nets are in the water, knees are on the floor') can help ensure children [don't lean too far over](#) the water and exercise more caution.
- Pond water contains bacteria so make sure any [cuts are covered](#) by watertight plasters. Always [wash hands](#) thoroughly after this activity. Avoid touching nose, eyes and mouth when you have wet or dirty hands.
- For ponds which are too deep for an adult to perform a wading rescue, [suitable rescue equipment](#) such as a reach pole or a throw line should be provided. Never enter the water if you drop something – the pond may be deeper than it looks.
- Dress appropriately for the weather and outdoor work. Children and adults should wear [appropriate footwear](#) – we recommend wellies or sturdy shoes.
- Any adult acting in a supervisory role should be [adequately trained](#), including the use of rescue equipment, and ideally first aid.
- If your pond isn't [physically accessible](#) for everyone, fill up a bucket from the pond so it can be transported.
- Return all creatures [back in the pond](#) once you are finished and [do not take any home](#) with you. Remind everyone to be careful when putting them back... tipping the tray can be like a massive waterfall for the creatures!
- Afterwards, [wash all trays and nets](#) you used before using them for different activities or in a different pond – this helps limit the spread of disease.



Curriculum Links

All activities included in this pack are listed below with their links the Scottish Curriculum for Excellence highlighted. Outcomes for only first and second levels are shown. This list is not definitive and can be adapted.

Activity	Curriculum Links
Section 1: Connecting to Freshwater	
Activity 1: Fresh or Salty?	<ul style="list-style-type: none">Health and Wellbeing (Physical activity and sport)Sciences (Planet Earth)Social Studies (People, place and environment)
Activity 2: River Mapping	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing)Sciences (Planet Earth)Social Studies (People, place and environment)
Activity 3: Raft Building	<ul style="list-style-type: none">Sciences (Planet Earth)Social Studies (People, place and environment)Technologies (Craft, Design, Engineering and Graphics)
Activity 4: Sink or Swim?	<ul style="list-style-type: none">Sciences (Planet Earth)
Activity 5: Pond Poetry	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing)Literacy and English (Listening and talking, Writing)Sciences (Planet Earth)Social Studies (People, place and environment)
Activity 6: Watching Water Birds	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing; Physical activity and sport)Sciences (Planet Earth)Social Studies (People, place and environment)



Curriculum Links

Activity	Curriculum Links
Section 2: Wet and Wild Biodiversity	
Activity 7: Pond Dipping	<ul style="list-style-type: none">• Health and Wellbeing (Mental, emotional, social and physical wellbeing; Physical sport and activity)• Sciences (Planet Earth)• Social Studies (People, place and environment)
Activity 8: Build like a Beaver	<ul style="list-style-type: none">• Health and Wellbeing (Mental, emotional, social and physical wellbeing)• Sciences (Planet Earth)• Social Studies (People, place and environment)• Technologies (Craft, Design, Engineering and Graphics)
Activity 9: Osprey Origami	<ul style="list-style-type: none">• Expressive Arts (Art and design)• Sciences (Planet Earth)
Activity 10: Freshwater Faces	<ul style="list-style-type: none">• Expressive Arts (Art and design)• Sciences (Planet Earth)
Activity 11: Damsels and Dragons	<ul style="list-style-type: none">• Expressive Arts (Art and design)• Sciences (Planet Earth)
Activity 12: Frogtastic Lifecycles	<ul style="list-style-type: none">• Expressive Arts (Drama)• Health and Wellbeing (Physical sport and activity)• Sciences (Planet Earth)
Activity 13: Watercolour Fish	<ul style="list-style-type: none">• Expressive Arts (Art and design)



Curriculum Links

Activity	Curriculum Links
Section 3: Key Threats and How to Help	
Activity 14: What do Ducks Eat?	<ul style="list-style-type: none">Expressive Arts (Art and design)Health and Wellbeing (Mental, emotional, social and physical wellbeing)Social Studies (People, place and environment)
Activity 15: Give a Frog a Home	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing)Sciences (Planet Earth)Social Studies (People, place and environment)
Activity 16: Water Saving Superheroes	<ul style="list-style-type: none">Expressive Arts (Art and design)Health and Wellbeing (Mental, emotional, social and physical wellbeing)Literacy and English (Listening and talking)Sciences (Planet Earth)Social Studies (People, place and environment)
Activity 17: Litter Pickers	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing; Physical activity and sport)Social Studies (People, place and environment)
Activity 18: Build a Pond	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing; Physical activity and sport)Sciences (Planet Earth)Social Studies (People, place and environment)Technologies (Craft, Design, Engineering and Graphics)
Activity 19: Make Your Own Compost	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing)Sciences (Planet Earth)Social Studies (People, place and environment)
20: Citizen Scientists	<ul style="list-style-type: none">Health and Wellbeing (Mental, emotional, social and physical wellbeing)Literacy and English (Listening and talking)Mathematics (Information handling)Sciences (Planet Earth)Social Studies (People, place and environment)



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