

TEACHERS NOTES

These activities focus on the Wildflower Meadow at the northeast end of Braidburn Valley Park, but contain activities that relate to the park as a whole.

They are divided into eight sections, with Teacher's Notes, worksheets, and supporting material, such as identification charts, diagrams or answer sheets where necessary. References to suitable books are also given in the Teacher's notes section. Almost all of these should be available from the Central Library in Edinburgh. Any books or charts that you can get hold of will be just as useful.

The activities should be adjustable for children of different ages and abilities. Feel free to make them more complex or simple as your class or group's needs dictate.

The sections are as follows:

1. **Minibeasts.** A look at minibeasts found in the wildflower meadow.
2. **Bulbs.** These focus on bluebells and are good springtime activities
3. **Braidburn Valley Birds.** A look at four birds found in the Braidburn Valley Park: Grey Heron, Magpie, Wood Pigeon and Chaffinch.
4. **Butterflies and bees.** These are especially suitable for younger children.
5. **Earthworms.** A close look at an important inhabitant of the wildflower meadow.
6. **The Plants of the Wildflower Meadow.** This section contains the bulk of the activities.
7. **Wild foods.** Some recipes that can be made from fruit and other ingredients found in Braidburn Valley Park, and an investigation into what other people know about wild foods.
8. **Habitats.**

ACTIVITY 1. MINIBEAST HUNTING: TEACHER'S NOTES

This is an activity which can be carried out at two different levels – One . It should be carried out in the wildflower meadow at Braidburn Valley Park, but a variation is included where minibeasts are collected and taken back to the classroom for more investigation. While its aimed at the wildflower meadow, can be used anywhere that you might find beasties – rotting leaves or wood, a log-pile or under stones, etc. Worksheets are provided.

Variation 1a: Minibeast hunting

Aims

- To discover the variety of species of minibeasts that live in the wildflower meadow
- To get children to spend time observing nature
- To encourage children to see the wildflower meadow as a valuable habitat

Each child (or pair or children) needs

- A magnifying jar, or glass jar with a punctured lid
- A small plastic spoon for scooping up minibeasts (a stick or paintbrush might do equally well)

The group as a whole needs

- A selection of magnifying glasses, or lenses that you can take to site

The children should be given a set amount of time (perhaps 20 minutes) to look for minibeasts. Look for all sorts of bugs and insects in the wildflower meadow. The idea is to see how many DIFFERENT minibeasts can be found.

NB. One of the best ways to start spotting minibeasts is just to watch for a couple of minutes – look for moving plants or spider webs. Then start hunting between the leaves, under the wildflowers, or under stones. If you lift a stone, it should always be put back where you found it, as it probably provides a home for a number of minibeasts.

After at 20 minutes hunting, gather the group back together and examine each other's collections using the magnifying glasses.

Things to consider and discuss

- How many different species were found?
- Where was each species found?
- Where was the biggest variety of minibeasts found?
- Where were most minibeasts found?
- What were the minibeasts doing? Perhaps feeding, hunting or hiding, or just being at home?
- Can anyone name any of the minibeasts?

Some or all of the class/group can 'handle' a minibeast. This means carefully tipping your beastie onto your hand. Don't poke, prod or touch it. When you are finished, carefully and gently tip it back into its container.

- What does it feel like when you let it sit on your hand?
- If it crawls about, what does that feel like?

Carefully return the creatures to the areas you took them from when you have finished the activity.

You might want to record what you have done in some way – perhaps writing a journal about your day, or a poem about your favourite minibeast, or drawing some of the things that you found, or seeing if you can find out exactly what you found.

ACTIVITY 1. MINIBEAST HUNTING: TEACHER'S NOTES

Variation 1b. A closer look at the minibeasts in the classroom (or on site)

This activity is a more in-depth version of the first. The minibeasts can be taken back to the class and longer can be spent investigating and even identifying the insects that are found. If you are trying to find out the names of some of your insects, use a good insect identification chart or book (suggestions for reference material are given at the end) and encourage the children to do their own investigations.

Aims:

- To look more closely at minibeasts
- To understand the variety of insects that there are
- To investigate one minibeast closely.
- To think about how they live in and amongst plants, and that the way they are designed (their body parts) might help them to do so.

The questions should help the children look closely at them, and to help them think about the reasons for the many different forms. Try to relate the features of an animal to its habitat or lifestyle. Using a minibeast key is useful for looking closely at minibeasts, but remember that with younger children it is more important to help them investigate and be observant than it is to identify the species. This can also be achieved using simple classification, i.e. grouping together animals with the same or similar features. It doesn't matter how the animals are grouped, again it is the process rather than the accuracy that is the valuable experience, especially with younger children.

Each child (or pair or children) needs

- A magnifying jar, or glass jar with a punctured lid
- A small plastic spoon for scooping up minibeasts (stick or paintbrush might do equally well)

The group as a whole needs

- A selection of magnifying glasses, or lenses that you can take to site
- A selection of bug boxes (or white trays) with leaves, stones, bark etc in for the bugs to eat and hide under

As before, children should be given a set amount of time to look for as many different kinds of minibeasts as possible. Use the bug trays to collect the insects you find, to facilitate closer inspection. After hunting, gather the group back. Take the minibeasts back to the classroom (or split the children into groups outside) Put the group's minibeasts into shared bug trays.

Either discuss, or get the children to write down their answers to the following questions

- How many different animals are there?
- What colours are they?
- Are they shiny, smooth, rough, hairy? Are they hard or soft?
- Are they different shapes?
- Are there any unusual features?
- How are they moving?
- Are there different ways of moving?
- How do you think the different creatures might feed? Can you see any of them feeding? If so, how are they doing this?
- Do any of the shapes or features remind you of anything else? (e.g. suit of armour, needle, pincers, a more familiar animal, etc).
- Can you identify any of the insects?

Can the creatures be sorted into different types? E.g. those with six legs, those with eight legs, those with lots of legs, those with no legs, those with segments, those with wings, etc. Perhaps you could make a chart of the insects in the tray.

Once you have finished, gently and carefully take the insects back to where they were found and let them go.

ACTIVITY 1. MINIBEAST HUNTING: TEACHER'S NOTES

ADDITIONAL NOTES

Adapted from Resources and notes by Nottingham Wildlife Trust.

Tips

Encourage the children to spend time and get close by sitting and lying in the grass, using their senses to the full. Try focusing their attention using aids such as small cardboard frames and tubes to look through. The children will soon discover what a busy and interesting place wildflower meadows are.

Age and ability makes identification optional. The main aim is to enable children to discover for themselves the many different types of creature found in wildlife Meadows, and watch their habits.

If a child is keen to put a name to something, guide them through an identification key rather than tell them the name straightaway, so that they are looking closely at the creature's features (also a useful strategy if you don't know the name yourself!). Or children can be asked to make up their own name for the minibeast, which reflects its features.

Wildflower Meadows attract an abundance of insects and other minibeasts. In summer and autumn, you should easily be able to find butterflies, bees and hoverflies. Smaller insects such as beetles can also be found sheltering and feeding in flower heads and leaves. Many other insects and minibeasts will be discovered if the children are encouraged to look closely. Spiders and their webs may be found; also look out for snails, slugs, centipedes and millipedes, and woodlice.

Identification charts and reference

A simple identification chart is provided. The two pages can be used as a colouring activity with the help of other reference books

Reference books to help aid identification, find out more (also contains more activities):

- Avril Harpley, Ann Roberts Minibeasts (Themes for Early Years) (scholastic, 2004)
- Neal Morris Minibeasts (Knowledge Masters) Belitha Press Ltd (30 Nov 2002)
- The Usborne Nature Trail book (Usborne

A more comprehensive black and white minibeast identification chart can be downloaded from

- <http://www.workingwithwildlife.co.uk/resource/education/minibeast.asp>

Some insect information

Butterflies

Butterflies are amongst the most beautiful of our insects, and are certainly the easiest to spot. There are nearly 60 kinds of butterfly in Britain, and they can be classified into 5 major groups:

- Whites and Yellows: such as the Large White and Brimstone.
- Nymphalid: large, brightly coloured and patterned butterflies such as the Peacock and Red Admiral
- Browns: usually brown with eye-spots, such as the Meadow Brown and Gatekeeper.
- Blues, coppers and hairstreaks: shiny, metallic butterflies such as the Holly Blue and Small Copper.
- Skippers: moth-like butterflies, usually orange-brown such as the Small Skipper.

Butterfly or moth?

These two groups can be confusing, especially as some moths fly during the day. Look at the antennae: butterflies have club-like antennae, whereas a moth's are always feathered.

Butterflies tend to rest with their wings closed and held upright, as the undersides of the wings are dull and they are better camouflaged this way.

Moths tend to rest with their wings open,

ACTIVITY 1. MINIBEAST HUNTING: TEACHER'S NOTES

Feeding

Butterflies and moths feed on nectar, the sweet liquid found inside most flowers. As soon as they land on a flower they unroll their proboscis (long tongue) and feed from deep inside the flower. Some flowers have lines or spots on their petals to point to where the nectar is. Butterflies feed from flowers which have a strong perfume and are brightly coloured. Most moths feed at dusk or night and are attracted to night-scented and pale-coloured flowers that can be seen easily in the dark.

The butterfly life cycle

In spring, the female butterfly lays tiny eggs on the food plant of its larvae, or caterpillar. When the caterpillar emerges from the egg its sole purpose is to feed, munching through huge quantities of leaves, rapidly building up its body weight. After a few weeks the caterpillar pupates, either on the plant, or on the soil. Inside, the body of the caterpillar is broken down, and the tissues are rebuilt to produce the body of a butterfly. Once the adult butterfly is ready to emerge the pupa splits, and the new butterfly crawls out. Its crumpled wings are spread out to dry and harden in preparation for flight.

Bumble-bees

Wildflower Meadows are good places to observe bees, which are fascinating insects. Many children are afraid of bees, but if they are encouraged to observe bees going about their daily business, they will realise how interesting they are and hopefully become less afraid. Bumble-bees are not aggressive or shy, and won't sting unless they are handled or their nests are attacked.

Bees are related to wasps and ants (all in the order Hymenoptera). There are many different species in Britain, including the honey-bee (*Apis mellifera*), bumble-bees (of which 19 species are true bumble-bees) and others.

- Bees have two pairs of wings and long mouthparts like tongues, for probing deep into the nectaries of flowers.
- Every bee as an adult feeds on the nectar of flowers. Its young, in the larval stage, are fed upon a mixture of protein-rich pollen and honey (concentrated sugary nectar).
- Bees have special feathered 'hairs' on their heads for collecting pollen
- The females or workers have special means of collecting the pollen from their heads and bodies and carrying it back to the nest. These may be hairy legs, or special basket shaped hairs on the hind legs, or long hairs under the belly.

Bumble-bees can be distinguished from honey bees by their more rounded shape, deeper buzz and the dense coat of patterned hair. Bumble-bees can be grouped into 3 main categories:

- Browns: no black bands on the thorax
- Red-tails: thorax totally or partly black; tail red or orange
- White-tails: thorax with some yellow or brown; tail white, buff or brown (eg *Bombus terrestris*, or buff-tailed bumble-bee, one of Britain's commonest bees).

Some bees are social insects and some are solitary. Bumble-bees are social insects. The colonies of social bees are made up of a queen (female), drones (males) and workers (sterile females). In spring, a fertilised queen crawls from her over-wintering place in the soil to feed on pollen or nectar. She then lays her eggs in a dry cavity such as a mouse's nest or sunny bank, and protects them until they hatch into female worker bees. These take over the job of fetching food, and the queen stays at home laying eggs. The workers also make new honeycomb cells from scales of wax secreted from the glands on the underside of their abdomen, which they lift off with their legs and knead into lumps with their jaws. The colony grows over the summer (up to 150 bumble-bees – much smaller than a honey-bee colony) and at the end of the season produces queens and males, which mate. Bumble-bees don't produce as much honey as honey-bees and there is not enough food to last the colony over the winter. Only the fertilized queens survive, which hibernate, to continue the cycle again next spring.

ACTIVITY 1. MINIBEAST HUNTING: TEACHER'S NOTES

Hoverflies

There are over 260 species of hoverfly in Britain, so-called due to their habit of hovering with swiftly moving wings, making the humming sound so familiar of summer. The otherwise defenceless hoverfly has developed an excellent strategy of escape from predators. They are easily confused with wasps and bees, being expert mimics of these insects. By copying the striking patterns of bees and wasps, they are avoided by potential predators, who mistake them for the insects with powerful defences that they have learned to avoid. Most hoverflies are smooth, although some are hairy like the bees they mimic.

Hoverflies start off life as larvae, which have tiny heads and are of three types:

- Aphid eaters, which look like tiny caterpillars or slugs. They can be found both day and night devouring hundreds of aphids on plant shoots, and are an important pest controller.
- Eaters of dung, decaying vegetation, or muddy water. These are short-bodied. The water dwellers have a long 'rat-tail' which serves as an extended breathing tube, like a snorkel, that pierces the surface of the water whilst the larva feeds below.
- Eaters of the refuse from the nests of bees or wasps.

Once the larvae have pupated and emerged as the adult hoverfly, they feed mostly on energy rich nectar from flowers, alongside the bees and wasps that they resemble. The female also feeds on pollen, as this helps her to produce eggs. They are particularly attracted to the more open flowers and those with flat flowerheads such as daisies and umbellifers.

Ants

Ants live in colonies made up of thousands of individuals. There are about 15,000 known species of ant in the world, but only a few of these live in Europe. Ants have three body parts - a head, a thorax and an abdomen. The narrow waist between the thorax and the abdomen forms the familiar 'ant shape'.

- Ants build an underground nest that can contain up to 50,000 ants. There are three kinds of ant in each colony.
- The queen ant is the largest and she spends her time laying eggs.
- The male ants have wings and spend most of their time eating. Most of the ants are workers, which are small female ants.
- Worker ants rarely lay eggs, but look after the queen, feed the young, defend the colony and search for food.
- They are always busy and only live for a year or two, but the queen can live for fifteen years.

The soil that ants dig out when they are extending the nest forms anthills on the surface. Ants love sugary liquids and collect aphids that feed on the juices of plants that are full of sugar. Aphids are very greedy and eat too much, so the spare sugar leaks from their bodies in droplets. Ants drink these droplets and may keep herds of captive aphids that they milk for the sweet liquid.

In July or August, a young mated queen ant flies in search of a suitable place to lay her eggs. She scoops a small hole out of the earth and lays her first batch of eggs. She lies on the eggs to keep them warm and safe and her wings drop off, as they are no longer needed. She will stay with the eggs over the winter, living on her body reserves, until the eggs hatch into larvae the following spring. The larvae then turn into pupae, before hatching into small, underfed worker ants. The workers tunnel upward to the surface and go in search of food. They feed the queen and then some of them start to extend the nest. The nest is composed of chambers and connecting tunnels. As the queen lays eggs, the workers carry them to a nursery chamber and feed the larvae when they hatch. The queen produces eggs continuously for the rest of her life unless the weather is very cold in winter, when the whole colony goes into hibernation.

Sometimes, the queen lays unfertilised eggs that hatch into male ants. They are fed by the workers and grow strong. The workers feed some of the eggs better than others and they develop into new queens. A colony can only have one queen, so the next July the young queens fly from their home nest with the males. The males fertilise queens from other nests and new colonies are founded. The males' usefulness is over and they quickly die.

ACTIVITY 2. LOOKING AT BULBS: TEACHER'S NOTES

Aims

- To encourage children to look more closely at bluebells and their bulbs, and at other bulbs
- To observe and record the various parts of a bulb and the way that they grow
- To learn about bulb planting
- To consider the aesthetic value of bulbs

Included are activities that can be completed in autumn ('About bulbs' and bulb planting - described only within teacher's notes) or spring (Bluebells in Close-up, 'About Bluebells' and 'Bluebell Wood') when the bluebells are flowering

There is also an information sheet describing the parts of a bulb that you can photocopy to give to your class or group, whichever activity they are doing.

Activity 2a 'About bulbs'

if resources stretch, consider giving groups of children bulbs to take apart to see if they can find the various parts labelled in the diagram below. Bluebell bulbs are very small, so you may consider using daffodil or other bulbs. The text from the sheet is repeated below:

Super storage!

- Bulbs are a squashed, swollen stem or shoot that lives underground, where it is protected from cold winters and dry summers.
- The swollen stem is a food store-cupboard for the plant. It has enough energy to grow even though for many months it has no leaves to make food.

How they grow

- When the temperature rises in spring a green shoot will come out of the bulb. This will turn into the long, strappy leaves of the plant, and then a flower shoot will follow.
- After flowering the plant will set seed - but the leaves will still be making food to store back in the bulb for next spring!
- Bulbs increase in two ways. The flowers make seeds, and the bulbs make little offsets called bulblets, next to the bulb. The bulbs you plant will increase each year until you have a whole host of flowers

Look closer

- Give the children bulbs to slice in half (with help if needed) and see if they can spot all the parts of a bulb labeled below

Activity 2b 'Bluebells in close-up'

In spring once the bluebells have flowered, the 'Bluebells in close-up' worksheet should be completed on site. It looks at On your field trip, consider giving the children magnifying glasses or even cardboard tubes to encourage them to look closely at the plants.

Activity 2c 'About bluebells'

This is a self-explanatory counting and recording activity, which encourages children to look at the parts of the plant and label them.

Activity 2d 'Bluebell wood'

An art activity for the whole class or group to take part in.

ACTIVITY 2. LOOKING AT BULBS: TEACHER'S NOTES

Growing bulbs in a pot

If you want to plant bulbs, but don't have room, spring bulbs can easily be grown in a pot or container. You can plant more than one type of bulb in each pot for a great show in spring. Bulbs come into the shops in late summer and are planted by autumn, so you need to plan ahead for beautiful spring flowers and get planting! Daffodils and tulips are well-known, with tulips mostly flowering a little later than daffodils. You can only fit a few hyacinths to a pot but they smell just wonderful! Grape hyacinths are really easy and fun to grow.

What you need

- Newspaper, or a covering for the table you are working on
- Pots about 20cm (8in) across and a little deeper.
- 'Crocks' or large pebbles – these should be washed
- A good, free draining compost
- A selection of bulbs - they should be large and small ones that flower at different times of year. A good selection would be crocus, iris reticulata (a dwarf, or small, variety), grape hyacinth, tulips and daffodils
- Optional – pansies or polyanthus plants

What to do

1. Put the crocks in the bottom of the pots to help the water to drain away easily.
2. Add about 5-7cm (2-3in) of potting mix over the crock and then place your bulbs in the pot with the roots facing down and the 'pointy' end up. Pack the bulbs fairly tightly but not touching. If you have different bulbs, plant your large bulbs, e.g. daffodils, cover with potting mix and then a layer of smaller bulbs, again covering with soil.
3. You will also need a variety of bulbs that grow easily - those listed above are good. Tulips and daffodils can be planted 20cm deep if you are planning a real extravaganza of a container display.
4. Add an inch or two of potting soil to the bottom of your pot and then take your largest bulbs - normally daffodils or tulips. Set them with their noses pointed upward, not quite touching. Now sift enough soil over them to almost, but not quite cover them.
5. Next, add tulips, if you are using them. Early blooming tulips work best - either species tulips like Kaufmannia varieties and their hybrids, or single early tulips like Apricot Beauty work best. The trick with these is to plant them with their flat sides facing the rim of the pot. This will allow the tulip to grow with its outer leaves draped gracefully around the rim of the pot for a nice, lush look.
6. Place the tulips carefully between the noses of the daffodils. Now sift more dirt over the two layers of bulbs. This time you can cover them. Remember that tulips and daffodils should be planted at least 12cm - 15cm below rim of the pot.
7. Hyacinths, which can form your next layer, can be planted anywhere from 10cm - 15cm deep.
8. Iris reticulata need to be planted about 10cm deep. Lay these on the soil with which you have covered the preceding layers. Aim for planting between the bulbs for the last layer you planted - but bulbs are amazingly accommodating and will bend their stems to find their way to the light.
9. You can also add your grape hyacinths to this layer - the bulbs of both this and the iris are quite small and so you will be able to fit several of both onto a single layer. Finish covering the bulbs with soil to not quite the rim of the pot.
10. Now water the entire pot so that the soil is damp but not too wet. The soil will settle as you water, so you may find that you need to add a bit more soil.
11. For instant flowers plant two, maybe three, pansies or polyanthus over the bulbs. You'll have flowers from now right through to spring.

Caring for Your bulbs

- Water the pot well and put it in a nice sunny place, then wait for the magic to work. Don't forget to water it carefully if it is very dry - a lot of plants growing in a small space all need to drink.
- When the bulbs have finished flowering put the pot somewhere shady for next year. Or, even better, as bulbs don't like being potted up for long and stop flowering, try to plant them outside.

ACTIVITY 3. BRAIDBURN VALLEY BIRDS: TEACHER'S NOTES

These activities focus on four birds that have been seen in Braidburn Valley Park : Magpie, Grey heron, Chaffinch and Woodpigeon.

Aims

- To familiarise themselves with some of the birds that frequent Braidburn Valley Park
- To get children to spend time observing nature

Activity 3a Braidburn Valley Birds

This is a word unscrambling and colouring activity: The sheets are self-explanatory. A sheet with a colouring key is provided, although any good bird book will help. The following paragraphs give the correct answers to the unscramble activity. A quiz is given below the answers, so that you can test the children on what they have learned. The children can also colour in the bird pictures – encourage use of books or the internet to discover exactly what colours should go where.

MAGPIES are jacks-of-all-trades. They are pest-destroyers, predators and scavengers. Scavenging is what earns this bird the reputation of being a **thief**. Noisy chattering, black-and-**white** plumage and the long **tail** make them one of the easiest birds to recognise. When you see one close up, its black plumage suddenly becomes colourful, with a purplish-**blue** iridescent sheen to the wing feathers and a green gloss to the tail. Non-breeding birds will gather together in **flocks**. Their name is a shortened form of Margaret's pie and other local **names** include madge, marget, miggy and maggot.

Where do they live and breed?

They are found in many habitats - woodland, farmland, moorland, parks and gardens - though they prefer grassland with thick hedges or scattered trees. They have adapted well to **town** life and can be seen right into the centres of cities. You can see them all year round in most of Britain, except for the Highlands of **Scotland**.

When to see them All year round
What do they eat? It's an omnivore (eats animal and plant life) and a scavenger
What do they sound like? Harsh chattering and chacking calls
How long do they live? They live up to 21 years
Length: 44-46cm **Wingspan:** 52-60cm **Weight:** 180-270g

The GREY HERON is the largest **heron** in Europe. You might see it standing with its neck stretched out, looking for **food**, or hunched down with its neck bent over its chest. In the air, when its **flying**, it looks like a Pterodactyl from prehistoric times, because of the angle it holds its neck at and its large rounded wings. You will normally find these **birds** on their own, although they may have fairly close neighbours. Like a hunter, it stalks its food, often standing **still** for some considerable time, silently watching fish until the time is right to grab one. It usually feeds close to the **bank** of a river or the shore, but may wade out into shallow **water**.

Where do they live and breed?

You'll find it in wetland marshes, gravel pits, reservoirs, lakes, **lochs** and rivers and estuaries - anywhere where there are plenty of **fish**. You will also find it near to estuaries and **coastal** marshes, especially in Scotland. It will come to gardens with ornamental fishponds and to fish farms.

When to see them All year round
What do they eat? Mainly fish
What do they sound like? A loud 'fraank' call
How long do they live? They live up to 25 years
Length: 90-98cm **Wingspan:** 175-195cm **Weight:** 1-2kg

ACTIVITY 3. BRAIDBURN VALLEY BIRDS: TEACHER'S NOTES

The CHAFFINCH is the UK's second most common breeding bird, and is arguably the most colourful of the UK's finches, with blue, **brown**, black green and **white** markings. Its patterned plumage helps it to blend in when feeding on the ground and it becomes most obvious when it **flies**, revealing a flash of white on the wings and white outer tail feathers. It does not feed openly on bird feeders - it prefers to **hop** about under the bird **table** or under the hedge. You'll usually **hear** these birds before you see them, with their loud **song** and varied calls.

Where to see them

Look anywhere with trees and **bushes**, including coniferous and deciduous woodland, farmland hedgerows, parks and rural and your own **garden**.

When to see them

All year round

What do they eat?

Insects and seeds

What do they sound like?

Fast, descending song phrase; 'pink, pink' calls

How long do they live?

They live for up to 14 years

Length: 14.5cm **Wingspan:** 24.5-28.5cm **Weight:** 18-29g

The WOODPIGEON is Britain's largest and most common **pigeon**. It is mostly grey with a white patch on its **neck**, almost like a shirt collar. You can also clearly see white patches on its wing as it **flies**. It is quite shy in the countryside and is considered a **pest** because it eats crops. But in towns and cities it can be **tame** and approachable. Its cooing call is a familiar **sound** in woodlands as is the loud clatter of its **wings** when it flies away.

Where can I see them?

In the wider countryside it is found on farmland with hedges, **woods** and copses. You are quite likely to see a large **flock** of woodpigeons on the fields. In **towns** and cities it occupies parks and gardens.

When to see them

All year round

What do they eat?

Crops like cabbages, sprouts, peas and grain, as well as buds, shoots, seeds, nuts and berries.

What do they sound like?

Its most common call is 'coo coooo coo cu-cu'

When to see it

All year round

How long do they live?

They live for around 10 years

Length: 40-42cm **Wingspan:** 75-80cm **Weight:** 284-614g

ACTIVITY 3. BRAIDBURN VALLEY BIRDS: TEACHER'S NOTES

Braidburn Valley Park Bird Quiz

This quiz is designed to see how much the children have retained in reading about the birds and unscrambling the words in the bird description paragraphs. Pre-warn the children there will be a quiz when you give them the information to unscramble, and that they should read and try to remember all of the information given to them, because the questions could be about anything they read! Before you start, make sure all of the children know the correct unscrambled words. If you think it is too easy to have the sheets in front of them, take them away! The children can either do the quiz individually, or in a 'pub quiz' style, where groups of children can confer over their answers, and the answers are given to them at the end.

1. Which bird is the smallest of the four? *Chaffinch*
2. Which bird lives up to 21 years? *Magpie*
3. Which bird lives close to water? *Heron*
4. Which bird is considered a pest by farmers? *Woodpigeon*
5. Why? *Because it eats crops*
6. Which bird hides under the bird table? *Chaffinch*
7. Which bird is a scavenger? *Magpie*
8. What does this make them known as? *A thief*
9. Which bird is the biggest of the four? *Heron*
10. Which bird can you see almost anywhere that has shrubs and trees? *Chaffinch*
11. Which bird looks like a bit like a Pteradactyl when it flies? *Heron*
12. What noise does a woodpigeon make? *Cooing noise*
13. What is another name for the Magpie? *Margaret's Pie, madge, marget, miggy or maggot.*
14. Which bird eats insects and seeds? *Chaffinch*
15. Which bird eats fish? *Heron*
16. Which bird might you see in a flock? *Woodpigeon*

Activity 3c: Birdwatching in Braidburn Valley Park

Once the children have got to know these four birds, why not go and look for them in the park. Split the children into groups (or pairs) and send them to different areas of the park (eg riverside, shrub areas, wildflower meadow area, amphitheatre, cherry walks etc.) and give them the worksheet 'Braidburn Valley park Birdwatching'.

If you can get hold of them, binoculars would be excellent to use for this activity.

Before setting out, explain to the children that bird spotting requires patience and quiet. The best way to see birds is to stand still and keep quiet!

Activity 3d: Birdfeeder Recipe

Activity sheet 3d is an easy way to make a bird feeder. Not suitable for children with nut allergies. Note that birdseed, including peanuts bought for birds, is not suitable for human consumption.

The bird feeders can be hung around school grounds or gardens and can be the focus of further birdwatching projects.

Activity 3e: Build a Batbox

Activity sheet 3e gives instructions on how to build and site batboxes. This activity requires a little knowledge of woodworking, or you may be able to get a sawmill to cut the pieces for you, and the children could nail them together.

ACTIVITY 4. BUTTERFLIES AND BEES: TEACHER'S NOTES

Adapted from resources and notes by Nottingham Wildlife Trust

Here are two simple observational activities. They are ideal for a calm, warm sunny day. Each can be used as an activity in its own right, or as a precursor to further investigation of bees, or an art activity based on bees.

Aims;

- To get children to observe wildlife
- To enable children to understand the role of these insects in relation to wildflowers as pollinators

Activity 4a: A bumble-bee walk

Look for bees on a warm, sunny, calm day. To focus children's attention on bees in the wildflower meadow, first show them some pictures of bees and point out the different coloured tails of different species that they are going to look out for. Also reinforce the fact that bees visit flowers for food: pollen (nearer the top of the flower) or nectar (deeper in the flower), and that by doing this they also pollinate the flowers.

Encourage the children to sit near some flowers and watch for the bees to visit flowers. A colouring activity could be used to focus attention on the different tail colours seen, for example: colouring in the tails of photocopied pre-drawn bees as they are spotted. The numbers of different types of bees recorded can be used to make a chart. Watch the bees feeding, are they collecting nectar or pollen? Can you see how the bee carries the pollen?

Older children can investigate the types and numbers of bee that visit different flower species. Do different species of bee show a preference for certain colours or type of flower?

Do other insects also visit the same flowers as bees? Some flowers are flat and open, so any insect can feed from them. Some are deeper, so only insects with long tongues can reach the nectar. Some flowers can only be opened by the weight of a bumblebee.

Activity 4b: Butterfly activities

Butterflies are bright and colourful, and easy for children to spot on a nature walk. They are not so easy to identify, but they can be classified into five major groups quite easily (see below and also in 'minibeasts' activities) and this will also help if identification is then to be taken further, in which case you will need a good chart or field guide, such as

Michael Chinery *Field Guide to the Insects of Britain and Northern Europe* (Collins Field Guide)

Butterflies are easily damaged and should not be caught - encourage the children to watch them as they fly, rest and feed. Note how different species fly differently, look carefully at the colours and patterns on the wings, and at resting and feeding butterflies. See if you can see a butterfly drinking nectar from a flower with its long proboscis. Encourage the children to think about how flowers with deep nectaries and butterflies with long 'tongues' are adapted to each other.

In addition to watching the habits of butterflies and recording the groups or species seen, you can investigate the numbers and species that visit different flower types and colours.

ACTIVITY 4. BUTTERFLIES AND BEES: TEACHER'S NOTES

Activity 4c: Attracting butterflies

Butterflies and bees can be attracted to your garden or school grounds by planting nectar-rich shrubs, wildflowers and herbs in a sunny border or corner. Try Buddleia and Hebe species, Valerian, Knapweed, and Michaelmas Daisy, and herbs such as Lavender.

Another way to attract butterflies as an activity is to make artificial flowers. Cut out large flowers from card, and place in the centre a jam jar lid containing sugar solution or jam. Place the flowers on a table in the garden, or suspend from a bush or tree at a level that the children see. This may also attract other insects, including bees (and honey can be used to attract bees).

The children can then record the numbers and types of butterflies seen, and watch them closely. Try making flowers from different colours of card. Record which colours the butterflies favour.

Activity 4e: Creative Ideas

There are lots of opportunities for creative work on butterflies, from the well-known painting activity (painting on one half of a butterfly shape, then folding in half to get a symmetrical print) to making sun-catchers, mobiles, models, hats and masks. Here are some other ideas:

Butterfly glass painting

Make a paper template, by folding a piece of paper in half. Draw and colour the butterfly as you would normally.

Place the paper under a sheet of acetate

Use a cd writing pen to draw the outlines of the butterfly patterns.

use glass paints to colour in the butterfly.

These can be hung at a window, or smaller ones can be made into a mobile

Stained glass insects

Another idea for a 'stained glass' insect is to cut out a butterfly or bee stencil from black paper or card (for bees - leave the black bands in and cut out yellow ones). The gaps can then be filled by sticking coloured

ACTIVITY 5. ALL ABOUT EARTHWORMS: TEACHER'S NOTES

This activity and factsheet are designed to help children look more closely at a creature that either goes unnoticed, that children might feel uneasy about, or have false preconceptions about.

Aims

- To help children understand the importance of earthworms in recycling material into the soil
- To encourage children to move beyond any revulsion they might feel about worms
- To show children how much work is done by earthworms.

Earthworm Factsheet

The factsheet can be used as a teaching aid - to ask children what they know about earthworms, or it can be photocopied and given to children.

Activity 5: Earthworm experiment

Encourage the children to look closely every day at the glass container as the experiment progresses. Children can also make graphs or charts to show how long it takes for the worms to mix the sand and earth.

More information about worms

www.angliangardener.co.uk/I_like_I_like_worms.htm

www.bbc.co.uk/nature/wildfacts/factfiles/416.shtml

www.bbc.co.uk/cbeebies/springwatch/spottersclub/animals/worm.shtml

ACTIVITY 6. THE WILDFLOWER MEADOW: TEACHER'S NOTES

These activities form the largest part of this resource and cover a range of activities, from observational activities, to creative and research-based activities. It focuses on ten of the flowers that can be found in the wildflower meadow; Tufted Vetch, Meadow Cranesbill, Birds Foot Trefoil, Field Scabious, Yarrow, Common Knapweed, Red Campion, Self Heal, Common Poppy and Ribwort Plantain

Aims for activities as a whole

- To encourage children to look closely at wildflowers with a view to being able to identify some of them.
- To learn some of the names of the wildflowers that feature in the wildflower meadow
- To encourage children to notice wildflowers in all areas of the park
- To help children understand that plants have a long history of being used for food, medicine, agriculture, household uses, folklore and more.
- To think about what plants need for food

Activity 6a. Plant Hunter

Give the children the identification sheets to study before going to the meadow. There is also a diagram with flower and leaf parts to help children name what they are looking at. Then get the children to find as many of the plants as they can and make sketches of them. Encourage your class or group to draw pictures which show the number of petals in a flower, or the shape of the leaves.

Activity 6b. Wildflower wordsearch

easy puzzle which features the names of the wildflowers focused on in this section.

Activity 6c Wildflower map

Give children a copy of the map each, or in twos. Get each child or pair to think of a symbol (or a few) for wildflowers that they could use on the map. Then get them to explore the park and mark where wildflowers grow. Encourage children to notice that wildflowers grow all over the park. Get them to look in the following places:

- In the wildflower meadow.
- By the Braid Burn
- Under trees
- By fences
- In long grass
- In short grass

Remind them that weeds, such as dandelions, daisies and nettles are also wildflowers, and that a 'weed' is just a plant that is growing in the wrong place. They should end up with a map that is quite well covered in symbols.

To take the activity further, encourage children to notice that different wildflowers grow in different places. Some prefer the wet conditions by the burn, some prefer grass. The idea is just to notice that different plants prefer different conditions. Also note the size of plants that grow in different places - in general, plants with more access to water and nutrients will grow larger and have larger leaves.

You could take the original map and enlarge it on a photocopier, or use an overhead projector to create a larger map which could then be used to bring all the children's results together. Use different symbols for different kinds of wildflowers (for example, those that grow by water, or in grass)

ACTIVITY 6. THE WILDFLOWER MEADOW: TEACHER'S NOTES

Activity 6d. Wildflower Poetry

Poetry activities based around the wildflower meadow. Poppy templates are supplied for the Word Outline activity, although children should be encouraged to create their own. Put the different Word Outline poems together to make a wildflower meadow of poetry.

Activity 6e. Plants with a Purpose!

This activity encourages children to understand that plants have uses, and that many plants have more than one use. The following sources can be used to supplement their search. These books should be available in the Central Lending Library In Edinburgh, or from good bookshops/online sellers.

- Darwin, Tess: *The Scots Herbal: The Plant Lore of Scotland* (1996, Mercat)
- Mabey, Richard: *Food for Free*, (2004, Collins Gem)
- Mabey, Richard: *Flora Britannica* (1996, Sinclair-Stevenson Ltd)
- Culpepper, Nicholas: *Culpeper's Complete Herbal* (1995, Foulsham)
- The electronic version of 'A Modern Herbal' by Maud Grieve: [http:// botanical.com](http://botanical.com)
- Flora Celtica – Database of Scottish Plants, with notes on their uses, based at the Royal Botanic Garden Edinburgh: <http://rbgweb2.rbge.org.uk/celtica/dbase/common/A.HTM>
- Good search engine for plant information: www.ibiblio.com

Once your class or group have finished their research, use the following questions to reinforce the concept of plant use and facilitate discussion.

- Which plant has the most different uses?
- Which plant has the most uses in total?
- Which plant(s) have least uses?
- Which plant(s) have least uses in total?
- Discuss or write about any other plants that you know have uses like ones you have read about.
- Which uses do you think are 'old wives' tales'?
- Which uses do you think are proven to be true?
- Do you think any of the plants that have 'Old wives' tales' attached to them have any basis in fact? Why, or why not?

Activity 6f. Plants identification

Wild flowers are different colours and shapes for a reason. They use colour, shape scent and nectar to attract different insect pollinators. This is why you can see so many different kinds of wildflower in the Braidburn Valley Park wildflower meadow.

Looking at shapes and colours

For this activity, does not require the class or group to be able to identify wildflowers. Instead, they will be investigating how many different kinds of wildflower there are, and taking the first steps to recognising different characteristics in plants, through the different shapes and colours of petals.

You can take this activity further by making a chart to look at different kinds of leaf shape. This one can be a picture chart. Don't worry about the various names for leaf shapes (although a simple chart showing five shapes is provided). Get children to sketch and colour the leaf shapes that you find in the wildflower meadow and then use them to make a graph back at the classroom.

The web link below will provide a more details chart of leaf shapes

http://en.wikipedia.org/wiki/Image:Leaf_morphology_no_title.png

ACTIVITY 6. THE WILDFLOWER MEADOW: TEACHER'S NOTES

Activity 6g. Plant dye paints

Aims

- To introduce children to the idea of natural dyes, and their place in history
- To encourage children to consider more closely at the makeup of plants – their smell, their coloured parts, and their potential
- To encourage children to use powers of deduction in guessing which plants make which colour dyes
- (Especially in relation to dyemaking, or making higher quality paints) to consider the chemical reactions involved.

This activity can be made more or less complex to suit the age and needs of your class or group.

Making higher quality paints

The directions given will yeild soft, pastel-like and quite watery paint. It is possible to make a more smooth watercolour paint, by adding some or all of the following ingredients to a paint which has been made with less water so the colour is stronger. Use these to facilitate a discussion about how real paint is made (all of these ingredients can be found in professional watercolour paints. For more information see <http://www.handprint.com/HP/WCL/pigmt1.html>)

- **binder**, traditionally and still commonly said to be *gum arabic* but, in some brands, actually a *synthetic glycol*. Gum Arabic is available from art shops.
- **plasticiser**, usually *glycerin*, to soften the dried gum arabic and help it redissolve. Glycerin is available from chemists.
- **humectant**, traditionally simple syrup or honey but now often inexpensive *corn syrup*, to help the paint retain moisture (especially in pan paints).

Dyemaking is a great activity to try if you have access to cooking facilities. The colours are softer and more natural than commercial paints and dyes, but will make beautiful painting of leaves or the countryside.

If you only have access to a four ring cooker, consider using four colours – for example

- *onion skins, birds-foot trefoil or dandelion to make a soft orangey yellow*
- *berries, beetroot, red kale or red cabbage to make reds/purples*
- *spinach or kale or for green and birch leaves*
- *hawthorn very, very strong coffee for browns*

Children can work in groups, so that they all have access to the process.

If you have no access to cooking facilities, consider preparing the paints in advance the night before, but keep examples of the ingredients so that your class or group can compare, or try to match the ingredient to its paint colour. The paints will not keep for long, so they should only be prepared the night before use. This is also a good way to work with younger children, or those who may have special needs which mean they are unable to use cooking facilities.

More suggestions for dye experiments – do they make the colours you expect?

- Chamomile
- Turmeric powder
- Pond scum
- Weeds, wildflowers,
- Garden plants
- Pine tree needles
- Tea and coffee grounds
- Purple cabbage leaves
- Different spices
- Eucalyptus
- Sunflower Seeds
- Olives

ACTIVITY 6. THE WILDFLOWER MEADOW: TEACHER'S NOTES

Activity 6g plant dye paints ctd.

Making dye for fabric

To make a dye for cloth or wool, you will need to add a mordant (fixative) to make the colour permanent. You will also need to make a large enough quantity of dye to colour your chosen cloth or wool. Strands of wool are very good for experimenting with as wool takes up colour really well – and mean you can make smaller quantities of dye. Animal fibres such as wool or silk are generally better for taking up dye than plant based fibres such as cotton. Synthetic fibres will tend not to take up natural dyes. Looking at different fabrics through a microscope will show that animal fibres are scaly (like hair, which you can also look at) and this helps the fibre to hold on to the colour. The best mordant to use is alum (aluminum potassium sulfate). To obtain this, try local art shops or www.frankherringandsons.com

Fabric Dye Bath

This activity requires more equipment, time and materials, and will reward students with more colour fabric for their efforts. Remember to make sure that children wear gloves and that their clothes are adequately protected. Students may want to experiment by leaving the fabric in the dye bath for different amounts of time, even overnight. Or they might want to do some “tie dyeing” to see what patterns emerge when they tie knots, rubber bands, or otherwise prevent the dye from penetrating throughout the fabric.

1. Getting the colour Out. In a stainless steel pot, cover the plant materials with water and then simmer for about an hour until the water is coloured and the plant tissues look bleached. Strain the dye bath through cheesecloth or an old stocking to get rid of plant material. (Some dyers do simultaneous dyeing in which the plant materials are left in when the fabric is dyed. If you decide to do this, place the plants or the fabric in an old stocking or net bag to protect the material from direct contact.)

2. Treat the material. Wash your material with soap to remove dirt and oils that could prevent the dye from binding to the fabric. If you're using a skein of yarn, tie it loosely so the mordant and dye can penetrate well.

3. Treat with mordant. If you're just getting started, you may choose not to use a mordant to “fix” the dye. Some plants will yield colourfast dyes without a mordant (e.g., turmeric and black walnut shells), and others may yield colour without a mordant, but it may wear out with washing and sunlight (e.g., purple cabbage). If you're using the mordant alum to help the dye bind better to the fabric, you can either pretreat the yarn or fabric (as is typically done) or try adding the mordant directly to the dye bath.

To pretreat the yarn or fabric, measure $\frac{3}{4}$ teaspoon alum plus $\frac{1}{4}$ teaspoon cream of tartar per each litre of water in your dye bath. Dissolve this in a cup of hot water, then add it to a pot of water (1 litre of water per each ounce of fabric). Wet the fabric to ensure penetration, then add it to the mordant solution.

Heat slowly and simmer for one hour. (wool, in particular, doesn't respond well to rapid temperature changes.) Remove the pot from the heat; cool and rinse the fabric before adding it to the dye bath.

4. The Dyeing Begins. Simmer for 30 to 60 minutes, turning the material gently. Stir and check the colour every 10 minutes or so. Rinse dyed materials with progressively cooler water and hang them to dry.

Information about dyeing with plants:

- www.kidsgardening.com/growingideas/projects/may03/pg1.html#materials
- www.kidsgardening.com/growingideas/projects/may03/pg2.html
- www.science-experiments.info/How_to_make_dye.html

Alum Stockist

- www.frankherringandsons.com

ACTIVITY 6. THE WILDFLOWER MEADOW: TEACHER'S NOTES

Activity 6h. Pressing and drying flowers

These activities can be done with any kind of plant, flower or leaf, so they can be tried at any time of year, using bought flowers, or get pupils to bring in things from their gardens.

The instructions are given as children's worksheets, as they are fairly self explanatory.

Picking wildflowers

Wild flowers should not normally be picked. The flowers are an essential part of the reproductive cycle. Picking flowers may prevent the plant from setting seed and surviving into the future. In fact, it is a crime to uproot any plant or pick any part of 170 or so protected species.

The Friends of Braidburn Valley Park have got permission from the City of Edinburgh Council for wildflowers in the meadow too be picked for this pressing and drying activity. None of the plants are on the protected list. When you do pick them, make sure you never pick all of one species, so that they can continue to set seed and keep the meadow looking beautiful. If there are not many plants of any particular species, leave it to keep growing.

For more information, contact the biodiversity officer

Natural Heritage

City of Edinburgh Council

Waverley Court, 4 East Market Street,

Edinburgh, EH8 8BG

Tel: 0131 469 3920

Find out more about Edinburgh's environment at,

http://www.edinburgh.gov.uk/internet/Environment/Land_and_premises/Natural_heritage/CEC_biodiversity_action_plan_2004_-_2009

Tips

Choose only flowers that you know are common, and do not pick them unless there are lots of them. Remember to pick a stem with a leaf, or take a separate leaf to press with it.

Pressing: Flat flower heads like Tufted Vetch and the Common Poppy press well. Avoid very bulky flower heads like Knapweed. It is better to dry those. Take a plastic bag to put the flowers in. It will help to keep them fresh until you get back to the classroom.

Drying: For preserving wildflowers, drying is even better than pressing. It keeps their shape as well as their colour, and in some cases dried flowers are hard to tell from fresh ones.

Members of the daisy family, like daisies, thistles and dandelions all dry well. Field Scabious and roses are good too. Try to pick the flowers just before they are in full bloom. Don't pick any flowers that are beginning to fade or wither, unless of course you wait until they go to seed. Poppies, Teasel, and many other seed heads look very attractive dried, as do grasses.

Drying More Delicate Flowers: Some flowers lose some of their shape and colour if they are just air-dried. This method uses a mixture of cornmeal (polenta flour - available from supermarkets and delicatessens) and borax, which you can buy from a chemist. This way preserves leaves better too.

ACTIVITY 6. THE WILDFLOWER MEADOW: TEACHER'S NOTES

Activity 6i. Wildflower Art Activities

There are probably many more art activities that you can add to this list.

Wildflower drawings

Outline drawings of the plants featured in this section are supplied. These should be used in conjunction with a plant identification book, or taken out to the meadow where the real plant can be found. Drawings and paintings of the wildflowers can, of course, be made from scratch.

Wildflower collage

Use tissue paper, painted paper, cut out pictures from magazines to create a colourful wildflower meadow – work alone, in small groups, or as a large group to create a giant meadow.

Wildflower Jungle

Make 3d wildflowers using wire, pipecleaners and tissue paper. Set the flowers in to a cardboard box, plasticene, or anything you can find that will help the flowers to 'stand up'. Make sure your jungle is full of minibeasts – use eggboxes, buttons, pipecleaners and scraps of fabric to make minibeasts, such as beetles, spiders, worms, centipedes, millipedes, butterflies and moths who live, wander and fly through your wildflower jungle.

Luminous Poppies

Use thin wire to twist into the 'frame' of a poppy and stem. Cut petal shapes slightly larger than the wire frame. Cover the tissue in PVA glue and use it to cover the frame, folding it over the wire edges. The glue and tissue paper will dry together to form a delicate crisp petal. Cut out a black circle and glue it to the centre of the poppy. You can add leaves if you like. Or leave out the stem and use thread to hang the poppies in front of a window, and they will gently glow in the daylight.

Wildflower stained glass windows

Use black paper and coloured tissue to create 'stained-glass' wildflower windows. Choose one or more of the flowers in the meadow, take a sheet of black card and cut out petal, stem and leaf shapes. Glue coloured tissue on one side (the back). Once they've dried, hang them up against a window. The tissue petals, stem and leaves will glow in the sunlight. Look at real examples of stained glass to give you some ideas.

ACTIVITY 7. WILD FOOD: TEACHER'S NOTES

Activity 7a. Wild Food Recipes

The foods used in these recipes are from plants that most children and adults should be familiar with. However, if you are at all unsure, do not collect the plants without knowledgeable supervision. You may want to take a guide book with you. If wild foods are scarce when you collect them, some of the foods can be substituted for shop-bought ingredients. However, do make sure that you go and identify the wild food first. (You can substitute nettles with spinach as the taste is similar, but make sure that the children understand the difference). Well-structured discussion should help the children understand that all fruit and vegetables originate in the wild. Some questions are given below – you may want to ask them at a point between picking the food and cooking it. There are many more foods and recipes than are given here. Good identification books will help children learn to identify some of the other plants that can be made into food, both at the park and elsewhere. Other common plant foods in the park are listed in the table below. Other foods, like mushrooms, may come up during discussion. Take the opportunity to reinforce that mushrooms should never be picked without an expert present, as some are extremely poisonous. Also, be sure to reinforce the fact that wild food should be picked from clean sources (ie not somewhere that dogs use as a toilet, where there have been chemicals, or where there is pollution from cars).

Wild food	Season	Foods
Blackcurrant	summer, early autumn	puddings, jams, wine
Chickweed	spring, summer, autumn	salad leaves
Common Sorrel	early summer	salad leaves, soup
Elderberries	early autumn	syrup, jam, wine
Garlic Mustard	spring	salad, herb
Rocket	late spring, summer	salad, herb
Rowan berries	autumn	syrup, jelly
Watercress	spring, summer, autumn	salad, soup
Wild Strawberry	summer	puddings, jams, wine

Children can work in groups – especially when picking the foods. You may also want the children work in small groups to make small batches of food, rather than all trying to cook at once. For Elderflower Cordial, children could taste the batch at different stages of its development and record what they think (decant some into a smaller jug first).

While the children are picking and working with the recipes, encourage them to talk about what they think and how they feel about picking and working with 'wild food'.

Questions to ask

- Have you come across these plants before?
- Are they like anything you see in the shops?
- Where do the fruit and vegetables that we eat at home come from?
- What is the difference between a plant, a fruit or a vegetable and a weed?
- Why do you think some food plants are grown in farms and some are not?
- Has anyone ever gone 'brambling' or to pick strawberries/raspberries at a farm?
- Do you think people picked more wild foods in the past? Why? (Food being more expensive, people having less money and less varieties of food being available, people growing their own food and being more 'self sufficient').

Recipes for jams and jellies are not included here, as the boiling required could be hazardous. For older children and adults, very easy recipes can be found on the internet for rowan jelly, raspberry jam etc.

ACTIVITY 7. WILD FOOD: TEACHER'S NOTES

Activity 7b. Wild Food Recipe Review

After using any of the wild food recipes, try reviewing what you did and what it tasted like. A table is provided, but children could also write their own version of the recipes and illustrate them.

Activity 7b. Wild Food Questionnaire

This activity encourages children to find out from other people what they know about wild food. The idea is that some of their discoveries will be confirmed and others will be added. Children can either take the questionnaires home, or they can take them out into the park and ask people there. There are some questions for the class or group to discuss once they are back in the classroom

Do many people know about wild foods?

Do older or younger people know more about wild foods?

Why do you think this is?

Did you discover any new wild food

References

Here are some books with more information and recipes for wild food.

Roger Phillips, *Wild Food* (Natural History Photographic Guides) Pan (1983)

Richard Mabey, *Food for Free* by Collins; New Ed edition (2001)

Raymond Mears, *Wild Food* Hodder & Stoughton Ltd (6 Sep 2007)

ACTIVITY 8. HABITATS: TEACHER'S NOTES

Activity 8a. Habitat Hunting

ABOUT HABITATS

Aims

- To introduce the concept of habitats
- To help children understand the different habitats in the park
- To introduce the concept of food, water, shelter and space as being vital for a habitat

A **habitat** is where something lives. It's more than a home, it's more like a neighbourhood. For an animal, a habitat includes all the land it needs to hunt, gather food, find a mate and raise a family.

Here are some examples of different habitats you can find in the landscape of Scotland;

woodland	riverbanks	open grassland	lochside
coast	hedgerows	wetlands	scrub
sea	garden	mountain	heath
	pond	meadow	

Each of these must provide **food, water** and **shelter**. It must also provide **space** - the "territory" needed to find food, water and shelter. These four basic things must be in the right amounts for an animal to survive

Shelter	Provides protection from predators and the weather
Air	Oxygen - either from the air or dissolved in water is required for breathing
Water	All living things need liquid water to survive
Food	All living things need food (for energy) to grow and reproduce. Some organisms (such as plants) make their own food from air, water and sunlight. Other organisms must eat plants or other living things to get their energy.
Space	Animals require different amounts of space to find food, water, shelter and a mate. Some animals defend a large territory or roam over a large range. Other animals only need a small amount of space and can tolerate close neighbours.

Things to discuss

- What happens if there is food, water, space and no shelter?
- What happens if there is food, space, shelter and no water?
- What happens if there is space, shelter, water and no food?
- What happens if there is shelter, water, food and no space (hint: what happens when humans are overcrowded?)
- A leaf can be a habitat and so can a forest: Why is this? (hint: different sized animals)

Most plants and animal are very specialised and able to survive in only a very specific habitat, where conditions are suited to them.

For example,

- Earthworms - which live in the moist soil - often have delicate, moist skin.
- A Grey Heron must live near water so that it can hunt for fish.

Braidburn Valley Park has several different habitats, which means that many different animals of different sizes can live in the park.

ACTIVITY 8. HABITATS: TEACHER'S NOTES

Activity 8b. Habitat Map

This follows on from the 'Habitat Hunting activity (8a)

Preparation

Enlarge the map of Braidburn Valley Park provided - you will find it in section 6c. Either enlarge it as much as you can using a photocopier (A1 or even A0) if you can manage it, by tiling bits of the map) so that you can put information on it later. Or, you could trace the map onto acetate and project it onto a piece of large paper pinned to the wall using an overhead projector, and get the children to draw and colour the map.

Introduce the children to the idea of habitats, and animals requirements, using the notes above before visiting the site. Children should go in pairs to survey different parts of the park, and then come back with the information on the worksheet provided.

With a large class or group, send more than one pair of children to each habitat, and then let them compare their answers. The average of their answers should go on the summary sheet (see below), so that if one group in the trees saw one bird, and the other group saw two, the average should be 1.5 (in case they care counting the same bird!)

Here are some areas to survey, along with animal life that may be seen.

- Water margins (insects in the plants that feed trout in the water)
- Mown grasslands (worms)
- Long grasslands (slugs, worms, beetles)
- Trees (Greater Spotted Woodpecker, Pipistrelle Bats)
- Shrubberies (restricted ground flora means that not much may be found. However, it may be used as shelter by birds)
- Wildflower Meadow (insects, butterflies, bees)

MAKING THE MAP

- Groups that have been to the same habitat should collate their information and transfer it to the summary sheet provided (sheet 8a2).
- The large map should have a title, which says the time of day and time of year it was surveyed (you can do more than one survey at different times, and see how things change and compare).
- The large map can be coloured in and decorated with illustrations or 'finds' from each habitat. These should go in the right place on the map.
- The summary sheets should either be stuck to the map in the right place, or at the side of the map, closest to the right place, and perhaps joined with a piece of string or arrow.

FURTHER DISCUSSION

- Which habitat had the most animals at the time of your visit (most 'species rich')?
- Why do you think that was? Think in terms of the four requirements – food water shelter and space.
- Which habitat had the least animals at the time of you visit?
- Why do you think that was?
- What would you find at different times of year?

ACTIVITY 8. HABITATS: TEACHER'S NOTES

Activity 8c Food pyramid

A food chain will always start with a plant and end with an animal. This exercise shows food relationships between the flowers in the wildflower meadow at Braidburn Valley Park, and the other wildlife that can be found there.

Aims

To show children that plants are an important part of the food chain

To demonstrate the difference in numbers between producers, herbivores and carnivores, and that this creates a pyramid shaped food chain.

Children are asked to go out and look for signs that producers, herbivores and carnivores are all present in Braidburn Valley Park. The following notes are also given as a worksheet. They should be studied (and discussed if liked) before venturing out to look for signs of the three groups.

Notes about Producers, Herbivores and Carnivores.

Producers

All green plants are producers. This means they use energy from the sun to produce their stems, leaves and flowers (this process is called photosynthesis). All food chains start with a producer. Don't forget that grass is a plant, and that if you look closely, you will find different kinds of grass (leaves may be hard or soft, glossy or not, and they will have different flowerheads). There should also be lots of other types of wildflowers to find. Write down, or make drawings of as many 'producers' as you can. If you know their names write that down too.

Herbivores

Herbivores are animals that eat plants. If you stay quiet and look very closely, you should be able to find some animals such as caterpillars, snails, woodlice or even worms. When you see them, make a sketch, and write the animal's name beside it. You might also find evidence that there has been a herbivore around – look for chewed or holey leaves. Try to sketch them without picking the leaves.

Carnivores

Carnivores are animals that eat other animals. These include spiders, birds and mammals. The best way to look for carnivores is just to keep quiet and watch – look in the sky, or near places that they can find shelter – such as in trees, bushes or riverbanks near the wildflower meadow. Or you might find evidence that carnivores have been around. Look for feathers, spiderwebs and even fur and droppings. Ask for permission to collect things like feathers, but make sure you don't touch droppings with your fingers. Always wash your hands after handling things like this. Or you could sketch what you find.

In The Classroom

See if you can find out any more information about the things you sketched and took notes on. Children may wish to colour some of the sketches before you stick them on your pyramid.

Things to discuss

- What did you find the most evidence for?
- What did you find the least evidence for?
- Why do you think this is? Is a food pyramid a good name?

ACTIVITY 8. HABITATS: TEACHER'S NOTES

Activity 8d Food Pyramid Collage

This activity transfers what has been learned in the Wildflower Food Pyramid (on sheet 8b.2) onto a large scale artwork. It can be done without making a Food Pyramid, as long as some kind of methodical survey of the wildflower meadow and the creatures who live in and around it is completed first.

It may need the use of research resources (books, internet etc) to identify some of the plants or insects that have been found on the survey or Food Pyramid activity, so that more colourful or detailed pictures than those done on the survey can be made. You may want to do this as a separate activity beforehand.

Aims

- To reinforce the idea of habitats and growing conditions for plants
- To reinforce idea of the dependence of all creatures on plants
- (Through discussion) to consider the fact that every organism has a function in the world

Discussion:

- Is everything in nature connected? How? (Through what they eat or where they live)
- Does everything in nature have a role (ie is it a food or a home for something? – this can lead to a good discussion of people's role in the world – remember we are hosts to parasites and bacteria)
- How many of each category of organism should there be? – remember that organisms exist in a 'pyramid' – you need many, many plants (producers) to feed lots of insects and small creatures (herbivores), to feed lots of predators (carnivores)

Further research about food chains for children

http://www.bbc.co.uk/schools/revisewise/science/living/03b_act.shtml

(Good interactive information. KS2)

<http://www.woodlands-junior.kent.sch.uk/Homework/habitats.html>

(More habitat information)

<http://www.countrysidefoundation.org.uk/Activities/Foodchain/chainmainquiz.htm>

(Interactive Food chain quiz)

Some identification charts are supplied with this pack, but use any books or the Internet to investigate the creatures that are found. *The Usborne Nature Trail Book* (Usborne. 1998) is a good reference book for identification in different habitats