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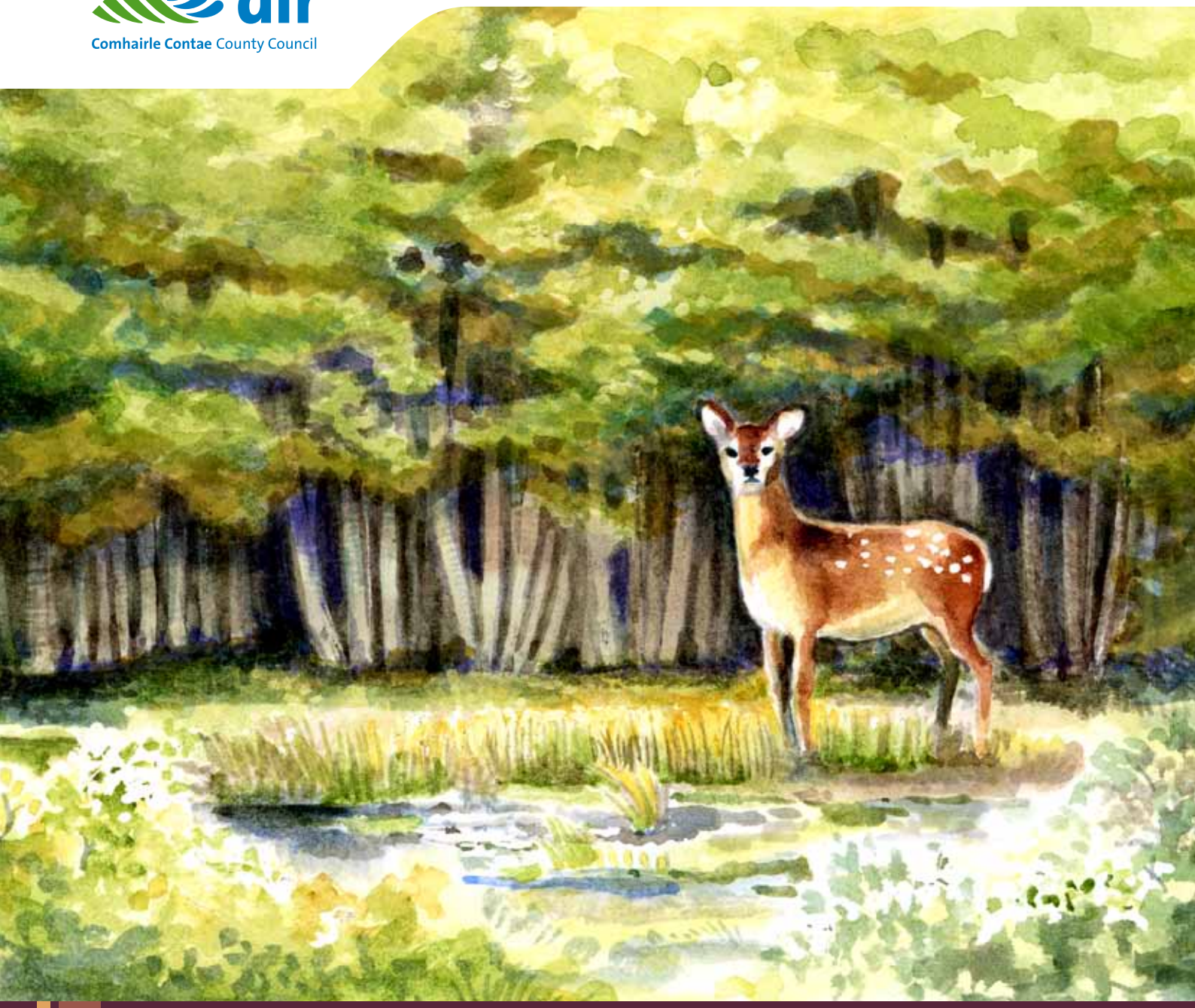

FitzSimons Wood

Biodiversity Education Programme

An action of Dún Laoghaire-Rathdown Biodiversity Plan 2009-2013

An Chomhairle Oidhreachta
The Heritage Council

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Foreward

Biodiversity includes all living things from the tiniest micro-organisms to the largest whales in the sea. The relationship between plants and animals and their surroundings create the environment in which we live, and they are an essential component of our daily lives.

With the dazzling technology and busy nature of modern life it is easy to become disconnected from nature and to lose sight of how heavily we rely on our natural environment. We forget that trees and other plants provide us with oxygen, food, fuel, medicines and much, much more! Playing and relaxing in natural surroundings benefits our health and contributes to a greater sense of wellbeing.

Our parks and wild areas provide us with the space to play and have fun. These areas also provide homes and habitats for biodiversity. It is important that we share these places with biodiversity and allow space for wild plants and animals to live and thrive.

The Dún Laoghaire-Rathdown Biodiversity Education Programme is intended to increase children's awareness of the local environment, encouraging them to learn about and experience nature in stimulating and creative ways. It provides children, teachers and youth leaders with the opportunities and the tools to explore their local parks and green spaces as well as fostering a greater appreciation for these areas and the wildlife they support.

I would like to take this opportunity to thank Heritage Council for supporting the development of our Biodiversity Education Programme. I would also like to say a big thank you to everyone who provided advice and support during its preparation including the Irish Wildlife Trust, Blackrock Education Centre and Airfield Trust.

Mary Toomey, Biodiversity Officer
Dún Laoghaire-Rathdown County Council

Contents

Dun Laoghaire Rathdown County Council (DLRCC) commissioned The Irish Wildlife Trust to develop a biodiversity education programme for FitzSimons Wood to be used by primary schools and community/youth groups in the area. This is an action of the DLRCC Biodiversity Plan. This programme enables teachers to fulfil practical elements of the school curriculum whilst getting active in the beautiful FitzSimons Wood area. The pack comprises a self-guided handbook which links activities to the habitat types of FitzSimons Wood.

Aim of the project

The aim of the FitzSimons Wood Biodiversity Education Programme is to highlight the value of, and to promote the use and care of biodiversity in the local area through learning exercises and activities taking place in FitzSimons Wood. We hope to raise awareness of the value of green space and wildlife within the DLRCC area. We hope that this handbook will provide a useful resource to teachers and community/group leaders by fulfilling elements of the curriculum and encouraging regular visits to FitzSimons Wood.

How to use the biodiversity pack

This handbook includes a series of teachers' notes and student activity sheets that provide useful information and guidance on investigating wildlife in FitzSimons Wood.

The pack begins with a map and nature trail for FitzSimons Wood that includes information about the site and various trail stops. The map is provided to guide you to the different habitats and viewing points.

The next section of the pack explains the concept of biodiversity and provides some useful information and facts about it.

The teachers' instructions in section 5 include background information, instructions and a list of materials for all student activities.

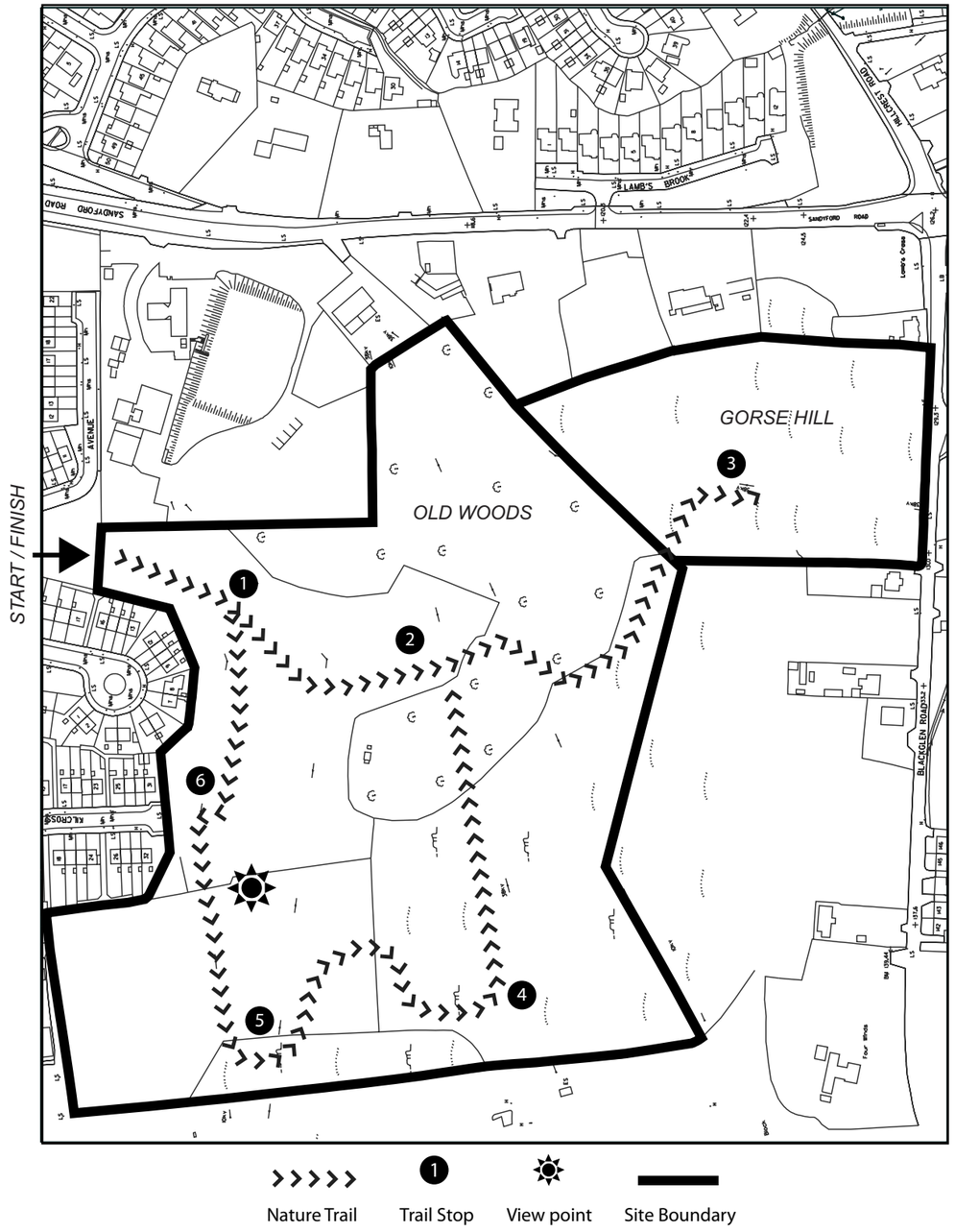
Section 6 comprises student activity sheets, which contain exercises and activities designed to encourage students to actively explore and learn about nature.

The youth and community activities in section 7 outline fun games and activities for all.

Section 8 lists useful field guides, books and websites that can be used for your field trips to help identify species of plants and animals.

Outdoor safety guidelines are provided in section 9 and should be consulted before each trip to minimise potential risks to programme participants.

Lastly, a checklist is provided which links each activity to relevant topics in the primary school curriculum.

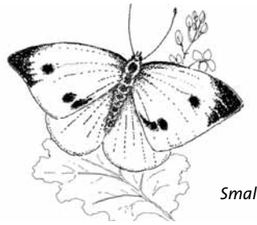


3 FitzSimons Wood nature trail

FitzSimons Wood is a proposed Natural Heritage Area (NHA), as it is a good example of a semi-natural woodland. An NHA is a national designation under the Irish Wildlife (Amendment) Act 2000, which protects areas that are considered important for the habitats present, or which holds species of plants and animals whose habitat need protection. FitzSimons Wood is also important for the presence of the Smooth Newt, which is one of only three amphibian species in Ireland, the other two being the Common Frog and Natterjack Toad. This nature trail explores the biodiversity of FitzSimons Wood. It is a looped trail that starts and finishes at the gate entering FitzSimons Wood from Kilcross Park, within the Kilcross Estate.

1. Wildflower Meadow

The first stop on our trail is the wildflower meadow. Where the path first forks, proceed up the left fork and you will find yourself in an area of wildflower meadow. Wildflower meadows are hugely important habitats for biodiversity. Have a look around this meadow at the many different species of grasses and wildflowers. Wildflowers found here include Birds-foot Trefoil, Common Knapweed and Lady's Bedstraw. These provide both a home and a source of food to a variety of insects, including Butterflies such as the Small Tortoiseshell, Peacock and Common Blue. In Summer, this is an excellent place for spotting butterflies. The variety of insects, including Ladybirds and Grasshoppers, present in a wildflower meadow attracts insect eating animals like Birds and Bats. Animals that feed mostly on insects are called *insectivores*.



Small White Butterfly

2. Old woodland edge

As you proceed up the path, you will notice an area of woodland on the left hand side; this is old woodland made up of Oak and Birch with a small area of wet woodland within it. Typical species that grow in wet woodlands are Willows and Alder, as they can tolerate the wet conditions. Do you know what Oak, Birch, Willows and Alder have in common? They are all broadleaf trees; trees with soft, flat, wide leaves, unlike the hard, narrow needle-like "pine" leaves on coniferous trees. Ireland was once largely covered in native Irish broadleaf woodland, comprising mostly of Oak, Ash and Hazel. However, there is very little of such woodland left today; so any small patches like this are worth protecting.

A number of species of mammal use FitzSimons Wood including Badger, Fox and Sika Deer. Sika Deer is an example of a non-native species. *Native species* are species of plants or animals that colonised Ireland on their own, while *non-native species* are species that have been introduced by humans. Sika Deer is a native species of Japan and was introduced here by Lord Powerscourt in 1860. It is not easy to spot Irish mammals because most of them are shy of humans and *nocturnal* (meaning they are active at night). However, mammals leave behind signs of their presence and a good place to look for these is along the edges of woodland. Keep an eye on the edges of this path for footprints in soft soil or mud; deer or badgers may have left some while moving in and out of these woods.

Oak

Alder

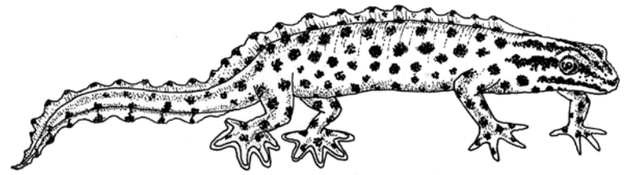
Birch

Silka Deer

Up ahead, the path splits and a gravel path leads off to the right. Go straight on past the gravel track towards the pond at stop 3 (see map).

3. Smooth Newt pond

The presence of breeding Smooth Newts was confirmed in FitzSimons Wood in 2006. The Smooth Newt pond is located through a track leading into the Gorse Hill area which is shown on the map provided. Smooth Newts hibernate between November and February in crevices. Breeding usually occurs in March/April. They are mainly active at night to avoid predators like Crows, Herons, Rats and Mice. When in the pond, they feed on insect larvae and Frog tadpoles. The pond also supports an array of plant life including Water Starwort and Floating Sweet-grass. Also a small plant of Royal Fern grows adjacent to the pond near the southern boundary. To date, the Royal Fern has not been recorded in any other part of Dublin. The pond is also very important to the wildlife of FitzSimons Wood as it provides water for animals like birds, Badger and Sika Deer. It also provides habitat for a range of aquatic insects including water beetles, mayfly larvae and pond skaters.



Smooth Newt

Now return to the gravel track you passed earlier. Take this track and it will lead you up toward an area of scrubland and stop 4. Along the way, keep an eye out for the different species of plants you can spot; you should be able to see Bramble and Holly. Shrubs and smaller species of tree are just as important to wildlife as large towering trees. Birds make great use out of them. **Can you think of one plant that might provide food for a bird or one place it might find shelter in a wood like this?** (Holly). As you pass along the wood listen for the sound of bird calls. If you stop, stand still and face toward the sound you may well see one of our woodland birds in the trees or understorey. Some woodland species you can expect to see or hear are Great Tit, Wren, Blue Tit and Chaffinch.

4. Scrub

Scrub is a habitat type that is not dominated by trees but by smaller "shrub plants", small woody species. Here, the scrub is dominated by Gorse. Bracken and Scots Pine trees are also present. You will also find flowering species like Milkwort and Wood Sage. As you pass through the scrub, look to the ground and keep an eye out for tracks amongst the bushes. If you find tracks that are wide and well worn, they may belong to Badger or Sika Deer. Badgers are creatures of habit and always use the same tracks to get around their territory. This stop is a good place to look out for birds of prey like the Kestrel and Sparrowhawk and smaller birds like Goldfinch and Redpoll.

Goldfinch

5. Young woods

You are now in an area of young woodland. Woodlands do not grow overnight. In nature, they take time to develop. For example, here the woodland is spreading into what was grassland. It happens in a number of stages and the process is called *succession*. Around here you will notice species like Blackthorn, Elder and Birch. These are a pioneering species, meaning that when woodland is developing they are the first species to take hold. So, their presence shows that this is a young patch of woodland; eventually the birch will be out-competed by *climax* species like Oak and Ash. Bird species in this area include the Bullfinch, which loves fruit and feeds on the Blackthorn sloes and Elderberries.

Blackthorn

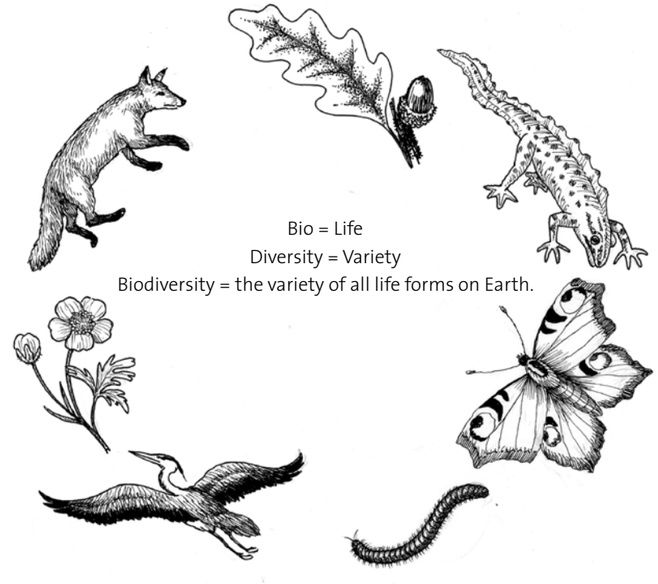
Elder

As you move along the path between stops 4 and 5, look out for views of Dublin Bay and Howth Island. We are well above sea level here at the foothills of the Dublin Mountains.

6. Green refuge

As you move along the last section of the trail approaching the wildflower meadow once again, you will notice the back of the Kilcross housing estate to your left. This should act as a reminder of how close human developments are to green spaces like this. In a country as small as Ireland, much of the landscape has been converted into concrete urban areas, including roads, railway lines and farmland. You can think of our landscape like a patchwork quilt of different land uses with green spaces like this sandwiched between developed land. These wild areas are a refuge for our native plants and animals and should be cherished and protected. Through correct land management and thoughtful planning, we can preserve what green spaces we have left and give our wildlife the best chance possible to survive in our crowded landscape. It is important for wildlife to be able to move through these patches. Animals need to move around to find breeding partners, shelter and food. One way they can move around is along green corridors. Green corridors include structures like hedgerows, grass verges and river corridors and are important for ensuring that habitat patches and the wildlife they contain are connected to the wider countryside. Continue along this path and you will end up back at the wildflower meadow and at the end of the nature trail.

WHAT IS BIODIVERSITY?



Our life forms can vary from the tiniest bacteria and bugs to humans up to the biggest whales in the sea.

WHY BIODIVERSITY IS IMPORTANT:

Biodiversity is our **life support system.**
Ecosystems regulate **climatic processes.**
Animals and plants breakdown waste and **recycle nutrients.**
Animals and plants filter and **clean water.**
Natural habitats buffer against **flooding.**
Ecosystem services maintain **soil fertility.**
Biodiversity provides **natural resources.**
Biodiversity provides essential **medicines.**

BIODIVERSITY LOSS:

- Biodiversity is currently being lost at an unprecedented rate globally, and Ireland is no exception.
- Scientists estimate that species extinctions are occurring **100 to 1000 times faster** than without human influence.
- Without a change in our actions, half of the world's species may be lost by 2100.

SOME OF OUR NATIONALLY THREATENED SPECIES:

- Kerry Slug.
- Lesser Horseshoe Bat.
- Natterjack Toad.
- Otter.
- Pearl Mussel.
- Red Squirrel.
- Salmon.

CAUSES OF BIODIVERSITY LOSS:

- Habitat destruction.
- Water pollution.
- Unsustainable consumption.
- Climate change.
- Invasive alien species.

PROTECTING BIODIVERSITY LOCALLY AND GLOBALLY:

- Change consumption patterns,
- Buy local, and seasonal produce where possible.
- Do not buy peat based gardening products.
- Do not use slug pellets, as they not only kill slugs but the birds that eat them too.
- Reduce your energy consumption as climate change and biodiversity concerns are inextricably linked.

5.1 Getting started

Step 1: Read the FitzSimons Wood nature trail information in section 3 as provided.
Step 2: Prepare for the starter activities outlined in activity sheets 1-4 in the classroom.
Step 3: During the visit to FitzSimons Wood, you can pick and choose which activities you would like to concentrate on.

The following are teachers' notes for activity sheets 1-4

These activities are designed to introduce each student to the programme and to FitzSimons Wood.

Activity 1. "Making a Nature Diary" will provide a catalogue of what the students have discovered and studied. It can be used as a reference notebook for the different words and skills that are introduced to them. All good ecologists have their notebooks to describe, illustrate and catalogue their findings in the field. The Nature Diary is a good way of keeping all of the students' discoveries in one notebook.

Activity 2. Journey to FitzSimons Wood .
Activity 3. Making a map.
Activity 4. Be a FitzSimons Wood explorer.

5.2 Grasslands

The following are teachers' notes for activity sheets 5 and 6 and are applicable to trail stop 1.

Background information for activity sheet 5 - Be a grassland detective

Grasslands are characterised as lands dominated by grasses rather than large shrubs or trees. Trail stop 1 is a wildflower meadow. Here the grass has been allowed to develop into a meadow by cutting it only a few times a year, and by not applying any chemicals such as fertilisers or pesticides. The diversity of species here or biodiversity would be much greater than at a maintained grassland. To find out what plants live in the grasslands in FitzSimons Wood, you will need to spend some time examining a small area very closely with a quadrat. A quadrat is a square frame that you place on the ground to look at the plants living within the square. It is usually a half metre square. Use a Wildflower Collins Field Guide to help you, available from your local library.

You will need:
- A pencil and notebook.
- A half metre square frame or quadrat.
- A magnifying glass (if available).
- A Wildflower Field Guide.

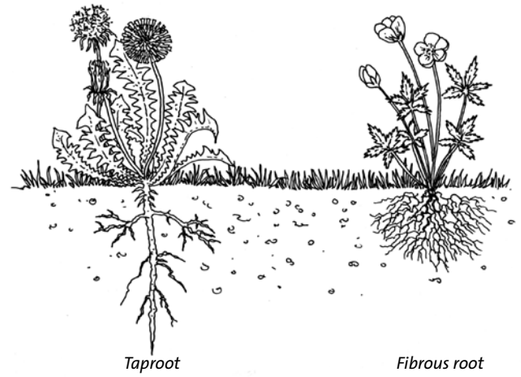
Limitation: This activity is more suited to Spring, Summer and early Autumn ,and may not be suitable in Winter when it is more difficult to identify species.

What to do:
1. Depending on how many quadrats or frames you may have, divide the students into groups. Choose an area to study such as the wildflower meadow at trail stop 1.
2. One student must randomly throw the quadrat behind their shoulder so that the site they will study is randomly chosen.
3. Use the Wildflower Collins Field Guide to identify the plants you find in the quadrat. They can record their findings on activity sheet 5. Make drawings or take pictures of the plants you cannot identify.
4. Throw the quadrat three times, so you get to look at three different areas in the grassland.
5. On the activity sheet, the students are asked questions about the amount of different species of plants found so they can establish which plant species is dominant in the grassland habitat.
6. When the students are back in class, make a checklist of grassland plants. Organise a class discussion on the plants you have discovered, considering the time of year, and the type of area you studied.
7. This activity can be repeated in different types of grassland and a comparison can be made regarding grassland management by Dun Laoghaire Rathdown County Council Staff and their mowing regimes. When grass grows tall, a greater the amount of wildlife can normally be found.

Background information for activity sheets 6 – Identify parts of a plant

This activity familiarises the student with the different plant parts and their functions.

Basic parts of most plants:
Plant parts - roots
The roots help provide support by anchoring the plant and absorbing water and nutrients from the soil which is needed for growth. Plants can have either a taproot system (such as Dandelion) or a fibrous root system (such as Buttercup).



Taproot *Fibrous root*

Plant parts - stem
Stems carry water and nutrients from the roots to the leaves. The food produced by the leaves is then transported to other parts of the plant. The cells that do this work are called the xylem (pronounced zylem), and phloem (pronounced floam) cells. Xylem cells transport water and nutrients absorbed from the soil. Phloem cells transport food made in the leaves to other areas of the plant. Stems also provide support for the plant allowing the leaves to reach the sunlight that they need to produce food.

Plant parts - leaves
Leaves are the food making factories of green plants and use a process called photosynthesis to make food. In this process, carbon dioxide and water in the presence of chlorophyll (the green pigment in the plant), and light energy are changed into glucose (a sugar) and oxygen. This energy rich sugar is the food used by most plants. Photosynthesis is unique to green plants and supplies food for the plant and oxygen for other forms of life, like people. A green plant helped create the oxygen you are breathing today.

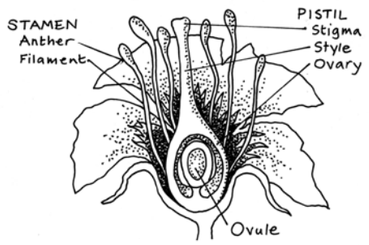
Leaves have evolved to catch light and have openings to allow the exchange of water and air with the atmosphere. The outer surface of the leaf has a waxy coating called a cuticle, which protects the leaf. Veins within the leaf transport water and nutrients.

Leaves come in many different shapes and sizes. Leaves can be simple with a single leaf blade connected by a petiole to the stem, e.g. Oak leaf, or they may be compound and made up of separate leaflets attached by a petiole to the stem, e.g. Ash leaf.

Plant parts - flowers
Flowers are important in making seeds. Flowers produce pollen. Once a flower's ovule has been fertilised (by pollen that is produced by the anther), it becomes the seed and the ovary of the flower becomes the fruit. This is a very important part of the life cycle of plants. Petals are also important parts of the flower because they help attract pollinators such as Bees, Butterflies and Hoverflies with their colours. You can also see tiny green leaf-like parts called sepals at the base of the flower. They help to protect the developing bud.

Plant parts - fruit
The fruit is the ripened ovary of a plant containing the seeds. After fertilisation, the ovary swells and becomes either fleshy, or hard and dry to protect the developing seeds. Many fruits help seeds spread. Many things that we label as vegetables are really fruits, for example, Tomatoes, Cucumbers and Beans.

Every seed is a tiny plant (embryo) with leaves, stems, and root parts waiting for the right conditions to enable it germinate and grow. Seeds are protected by a coat that can be thin or thick and hard. Thin coats don't protect the embryo very well but thick coats can let the embryo survive tough conditions. The seed also contains a short-term food supply called the endosperm, which is formed at fertilisation but is not part of the embryo. It is used by the embryo to help its growth. Seeds allow plants to disperse. They are transferred from one area to another by wind, water or animals.



Drawing of male and female parts of a flower

What to do:
Provide the background information to your students. Then visit FitzSimons Wood and conduct activity sheet 6. You can use the diagram here to identify the different parts of a plant on activity sheet 6.

Answers to activity 6: Identify parts of a plant
- Leaves.
- Fruit.
- Seeds.
- Flower.
- Stem.
- Roots.

5.3 Discover your woodland

The following are teachers' notes for activity sheets 7-13 and are applicable to trail stop 2.

Background information for activity sheets 7- 9 – Getting to know a tree/ Woodland structure/ Create a food web

This section is designed to introduce school children to a woodland habitat. It aims to encourage children to use important skills like exploring, observing and recording. It will help them discover the plants and trees in a woodland, and the layers in which they are found. They will be shown how to recognise a number of plants and then be able to record these in their nature diaries. They will see the importance of light and plants competing for it. Children will expand the use of their senses to experience the sounds, smells and textures of the woodland and by the end of the activities will have discovered how a woodland works.

What to do:
Give a talk to your students about the woodland structure while walking through the trees. Look closely at each layer as described in activity sheet 8. Ask the students to fill in activity sheets 7-9.

Background information for activity sheets 10 -13 - Bark rubbing/ How tall is your tree?/ How old is your tree?/ What lives in your tree?

The following activities include interactive activity sheets that require the students to practically investigate the wonderful world of trees by measuring the height of their chosen tree, calculating how old the tree is and discovering what lives in the tree. It incorporates ecology and maths and develops an understanding of tree ecology. The activities are self-explanatory on the student activity sheets. Some of the skills and concepts can be replicated and repeated for shrubs and grasslands.

Useful Information:

Types of invertebrates which may live in woodland	
Ants	Grasshoppers
Aphids	Ground Beetles
Butterflies	Hoverflies
Centipedes	Leafhoppers
Cockchafers	Ladybirds
Crickets	Longhorn Beetles
Daddy-Long-Legs	Millipedes
Earwigs	Moths
Woodlice	Spiders
Flies	Weevils

Definitions of the different organisms:
Invertebrate: An animal without a backbone (e.g. Snails, Worms and Insects).
Arthropod: A type of invertebrate which has a segmented body, a hard external skeleton and jointed appendages that are used for feeding, feeling and walking (e.g. Insects, Crabs and Spiders).
Arachnid: A type of arthropod with four pairs of legs, no wings and usually two body parts (e.g. Spiders).
Insect: A type of arthropod that has three body parts (head, thorax and abdomen) and three pairs of legs. Many have wings. Many undergo complete changes of shape during their life cycle (e.g. a Caterpillar transforms into a Butterfly).
Myriapod: A type of arthropod with many pairs of legs (e.g. Centipedes and Millipedes).
Mollusc: A soft-bodied creature with a hard external shell (e.g. Snails, Mussels and Clams).

5.4 Discover wildlife and their habitats

The following are teachers' notes for activity sheets 14 and 15.

Background information for activity sheet 14 – Become a FitzSimons Wood Birder

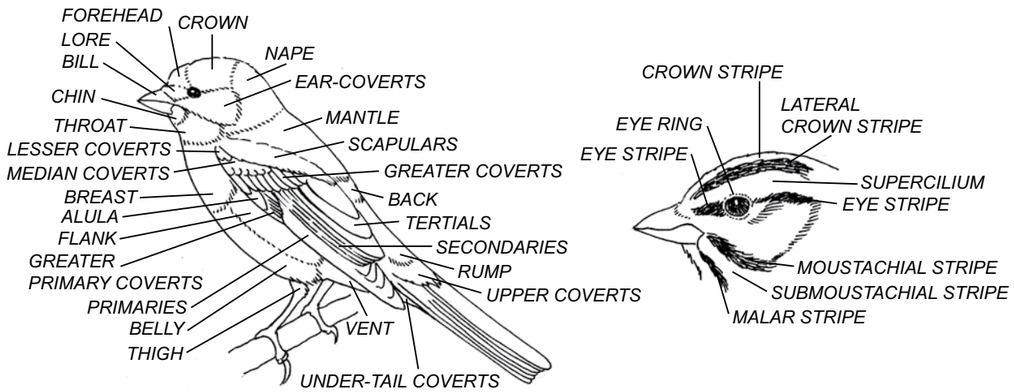
The purpose of this activity is to discover and record different bird species at FitzSimons Wood.

You will need:
- Binoculars (if available).
- A Bird Identification Guide (see section 8 for guidance).

What to do:

1. Set up a viewing point at trail stop 1, 3 or 5.
2. Ask the students to record their sighting on activity sheet 14.
3. Compare the different findings among the students.
4. Finish the visit to FitzSimons Wood with a discussion on the different birds, what makes them different, for example, size of the beak, size of birds and what are they doing?
5. Back in the classroom, get each student to draw one of the birds on the recording list and do a seek and discover project to learn more about that bird. You could pool class data and use it in numeracy work, scientific enquiry and data handling. You might consider:

• The number of species in a given habitat.
• The number of individuals of a species over time and between different habitats.
• Habitat preferences of species.
• Whether populations are increasing or decreasing in a given habitat(s) over time.



Body parts and feather types of a bird for identification

What to look for - Tips for identifying birds

- Size - relative to a common bird (e.g. Sparrow-sized, Starling-sized, Crow-sized etc).
- Colour and patterns, and where they are on the body.
- Size and shape of bill, legs, wings, tail and neck relative to the body size/shape.
- Colour of bill, legs, feet, wings and eyes.
- How the bird flies - (e.g. Kestrel hovering; Swift soaring) and moves on the ground (e.g. waddling Duck, running Starling, hopping Thrush or Blackbird).
- General behaviour and characteristic movements (e.g. tail wagging of Wagtails).
- Calls and songs.
- Where you saw the bird - its habitat.
- Date, time, place, weather, distance from you and what the bird was doing.
- Bird bodies - bird watchers and people who study birds (ornithologists) have special names for different parts of a bird's body.

Background information for activity sheet 15 – Animal tracks and signs

The purpose of this activity is to have the students observing and looking for evidence of animals in their wood. The first part of the activity sheet outlines what tracks and signs animals leave behind them. As many of our animals are nocturnal, you might not see any during the day but this activity will show the students that animals are there even if they don't see them. You might be lucky and see a fox or its droppings.

Dog *Fox* *Badger* *Sika Deer* *Rat*

You will need:

• A Guide to Mammal Tracks and Signs (see section 8 for more details).
• A magnifying glass (if possible).
• A white tray (helps show any materials clearly on the white background).

What to do:

1. Pick a good place to look, possibly beside the hedgerow at trail stop 5 or the woodlands at trail stop 1. If there is nothing there, move on to another area.
2. Divide the students into groups and give them one copy per group of the activity sheets. They must work as a team, looking in the park for evidence of animals such as droppings, a burrow or even the trail a snail makes when moving.
3. When the students have finished recording their findings, compare it with their classmate findings as they may have seen different signs. They can share the experience.
4. Once they have completed this activity congratulate them for becoming Wildlife Trackers.

Note: If you don't know what it is, take a photograph or get the students to draw pictures in their Nature Diaries.

ACTIVITY SHEET 1 - MAKING A NATURE DIARY

A good way to study nature is simply to look and listen! If you write things down that you see and hear, you will remember them afterwards. Make a Nature Diary, and you will soon see how nature changes during the different seasons.

To make your nature diary, you will need:
- A notebook.
- A pencil .
- Colouring pencils/ crayons.

What to do:

1. Every time you visit FitzSimons Wood, you are visiting a variety of habitats. A habitat is where animals and plants live e.g. woods, grassland and stonewalls.

Include the following information:
- Date (e.g. Wednesday 21st June 2010).
- Weather (e.g. cloudy).
- Season (e.g Autumn).
- Habitat (e.g. woodland).

2. Make a list on a different page of all the different types of animals and plants that you see. Each type of animal or plant is called a species. Where do you see the animals? What are they doing?

3. You might see something unusual, like a Smooth Newt in a pond. Write about it, draw it or take a photo. Stick your photos into your Diary.

4. Sometimes you might see an animal or a bird that you do not recognise. Make a drawing of it in your Diary or take a photograph. Then you can identify it with a field guide when you get back to class. Make a note of the different colours and patterns, and write about where you saw it and what it was doing.

Happy Nature Watching!

ACTIVITY SHEET 2 - JOURNEY TO FITZSIMONS WOOD

Before you begin your journey to FitzSimons Wood, try to find a map of the area.

Instructions:

1. Locate your school on the map.

2. What is the distance from your school to FitzSimons Wood in kilometres?

   _____

3. Are you travelling by bus, walking, or getting a lift in a car?

   _____

4. How much time did your journey to FitzSimons Wood take and record the direction travelled, e.g. North, South, East or West?

   _____

5. Do you pass by any public buildings such as a library, a court house, or county council offices? If so, what are they called?

   _____

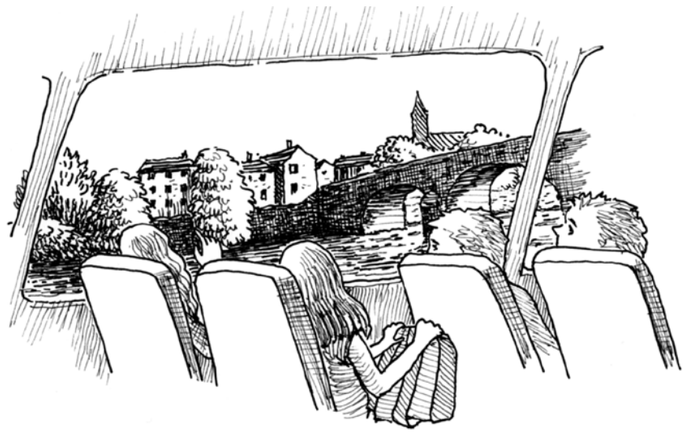
6. Make a list of habitats that you see on your journey in the spaces provided below, e.g. do you pass by a river, a beach, a woodland or a pond?

1. _____

2. _____

3. _____

4. _____



ACTIVITY SHEET 3 - MAKING A MAP

It is important to first get a good idea of your study area by drawing a map of it. Draw a map of your study area in the box provided and include the different nature features such as the grass, trees and man made features such as a car park and paths.

Draw and label any important features. For example, the location of a wildflower meadow.

ACTIVITY SHEET 4 - BE A FITZSIMONS WOOD EXPLORER

Open your Senses - Touch, Listen, Smell

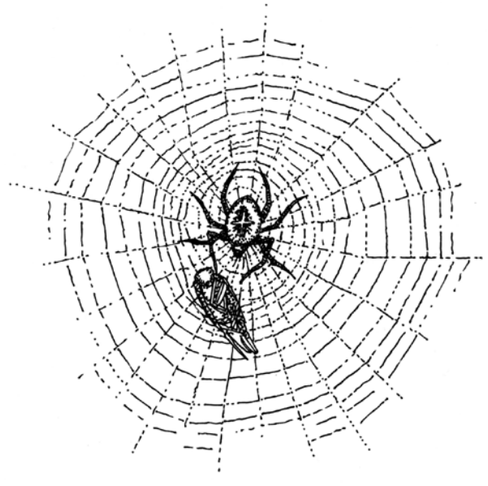
You will need:
- A pencil and Nature Diary.
- A camera (if available).
- A magnifying glass (if available).

What to do:
Follow the instructions 1 - 10 and write the answers to the questions in your Nature Diary:

1. Using your Nature Diary, write down the name of your area, date of your visit and what the weather is like on that day.
2. Jump up and down on the ground. Is the ground hard or soft?
3. What can you smell in the area? Breathe through your nose!
4. Listen for sounds! What do you hear? Make a list of the different sounds.
5. Listen for bird songs. How many do you hear?
6. Feel a patch of grass or a piece of moss. How does it feel to the touch?
7. Feel a patch of lichen or the bark of a tree. How does it feel to the touch?
8. What colours can you find in the area? Make a list of the different colours.
9. How many shapes can you see? Look at the leaves, flowers and trees.
10. Find nature in action, record what you saw in your nature diary.

For Example:
- A Spider trapping a fly in its web.
- A Caterpillar munching a plant leaf.
- A Pond skater tugging a fly
- A bird pulling on a worm in the soil.

Back in class:
Write about your time spent in FitzSimons Wood using the words you learned during the visit.



ACTIVITY SHEET 5 - BE A GRASSLAND DETECTIVE

Following your teacher's instructions, please record the plants you find in the table below for three throws of the quadrat.

Site 1	Site 2	Site 3

1. What type of plant have you seen the most in each site?

   _____

   _____

2. Which plants would you say are abundant (lots of them)

   _____

3. Which plants would you say are scarce (very few of them).

   _____

4. Observing your surroundings in the grassland, do you see any wildlife such as flying insects e.g. Butterflies, Hoverflies or Grasshoppers. Describe what you see.

   _____

   _____

   _____

5. Observing your surroundings in the grassland, has there been any other activity, for example, has the grass been mown. Describe what you see.

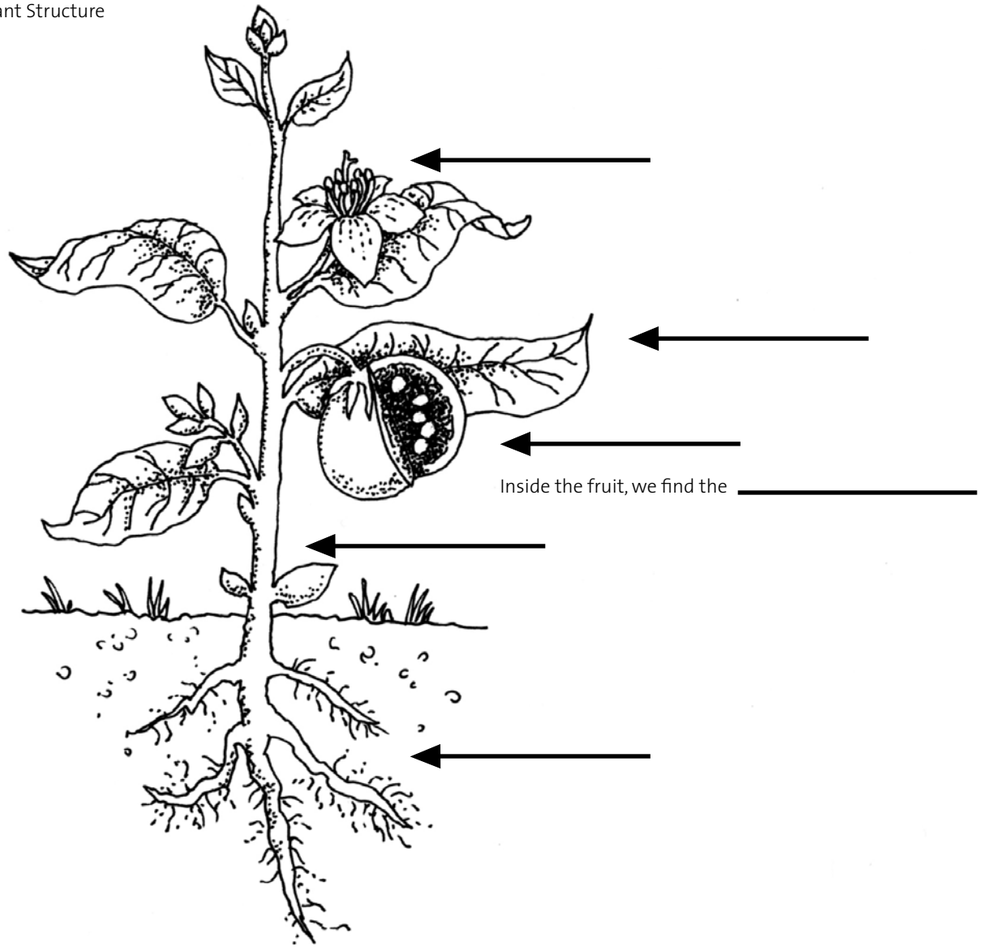
   _____

   _____

   _____

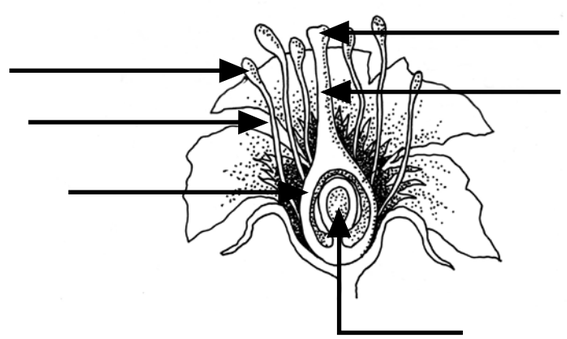
ACTIVITY SHEET 6 - IDENTIFY PARTS OF A PLANT

Plant Structure



Inside the fruit, we find the _____

Male and Female parts of plant of plant



ACTIVITY SHEET 7 - GETTING TO KNOW A TREE

You will need:
- A pencil.
- A Tree Name Identification Guide.
- A bag (paper or plastic) for collecting samples from your tree.

1. Choose a tree to study in your wood.

2. Collect a leaf from your tree and if available, some seeds and fruit (late Summer/ Autumn), from the same tree on the ground layer. Place what ever you have collected in your bag.

3. What is the name of your tree? _____

   (Use a Tree Identification Guide to identify your tree from the leaves, bark or seeds). Trees are divided into two main groups. A flattened and wide broadleaf tree loses its leaves every autumn and is called deciduous, but a conifer is evergreen and keeps its needle like leaves all year round.

4. Is your tree a broadleaf or a conifer? _____

5. Draw and label two things from your tree that you have found. (e.g. leaf, fruit, cone, flower)

ACTIVITY SHEET 8 - WOODLAND STRUCTURE

A woodland has four layers that make up its structure. Not all woodlands have every layer. It depends on how much light can reach through to the woodland floor.

1. **Canopy Layer:** You can find older, taller trees such as Oak, Yew, Ash, Birch, Beech, Sycamore and Scots Pine.

2. **Shrub Layer:** You can find younger trees or smaller trees and shrubs such as Hazel, Hawthorn, Honeysuckle, Holly and Elder.

3. **Herb Layer:** You will find ferns and woodland plants in the herb layer. Their presence depends on the amount of light that is able to get through so that they can grow. If the canopy or shrub layer is very thick and dark, there will not be many plants in the herb layer (e.g. Beech woodland).

4. **Ground Layer:** You can find dead leaves, natural debris, rotting logs and mosses.

Student Instructions:
Take a walk through the trees. Mark an area 10 x 10 metres with string or sticks using your measuring tape. Study the woodland structure within this area. In your study area, identify what trees, plants and other vegetation are in your woodland.

List two trees in the canopy layer:

_____

List two shrubs in the shrub layer:

_____

List two plants in the herb layer:

_____

List two things in the ground layer:

_____

Observe your study area. It is very important how much light the trees and plants get from the sun. Some need more light than others and that is why some trees grow really tall and others don't. Plants and trees use the light from the sun to make their own food as part of a process called photosynthesis. The plants are eaten by animals. Therefore, the sun is an indirect source of food for all living organisms on the planet.

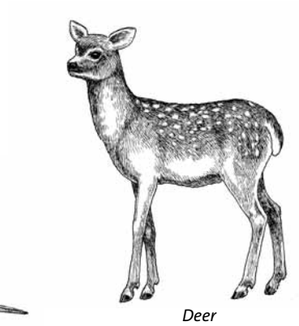
Is your study area dark or bright?

_____

ACTIVITY SHEET 9 - CREATE A FOOD WEB

Draw lines to connect the animals and plants together. Start with the plant, what eats plants? Then connect the smaller animals to other animals that eat them. For example, Snails eat plants, Badgers eats the Snail. What else do Badgers eat?

Bird



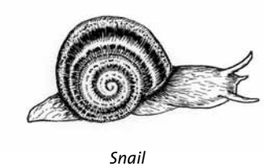
Deer

Wildflower

Oak Tree

Bee

Badger



Snail

Caterpillar

ACTIVITY SHEET 10 - BARK RUBBING

You will need:

- Greaseproof paper or ordinary white paper.
- Crayons.
- Sellotape.

Student instructions:

1. Sellotape the greaseproof paper securely onto the trunk.

2. Use the crayon to rub firmly over the whole sheet. You will see how the bark pattern begins to show on the paper. Do not try to fill the blank spaces as they make up part of the pattern.

3. Write your name and the species (type) of the tree, e.g. Oak, Elm, Chestnut on the top of the bark rubbing

4. Describe the bark of your tree

_____

_____

5. Look at your friends' bark rubbings. Are they different? (Tick the correct answer)

Yes ☐ No ☐

6. Describe how they are different. (Hint: Look at the shapes. Are they straight lines, diamond or circular?)

_____

_____

ACTIVITY SHEET 11 - HOW TALL IS YOUR TREE?

You will need:
- A pencil.
- A measuring tape.
- A stick.

Student instructions:
1. Get into a team of two people.

2. Stand in a place where you have a good view of your tree.

3. Hold your pencil upwards and at arm's length.

4. Walk backwards until the pencil seems to be the same height as the tree. Keep one eye closed while you do this. Ask your friend to watch you so that you don't walk into anything or fall over!

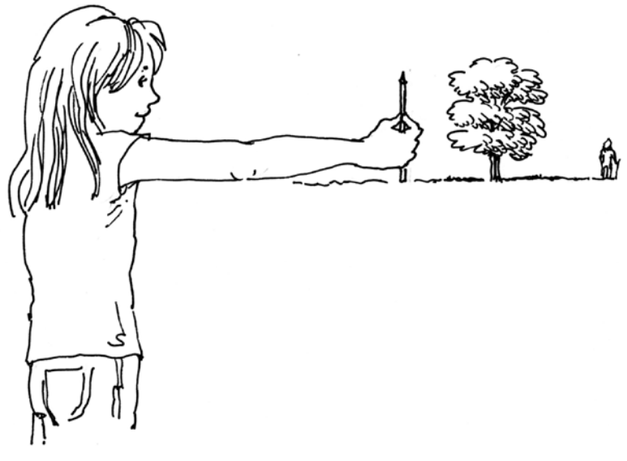
5. Do not move from this spot. Turn your pencil sideways, positioning one end of it so that it looks like it is against one side of the tree.

6. Ask your friend to walk to that side of the tree with the stick.

7. Shout 'STOP!' when your friend reaches the end of the pencil. Ask them to mark the spot with the stick.

8. Measure the distance from the tree to the stick. This is the approximate height of the tree. Repeat the exercise to make sure that you did it correctly.

9. The height of our tree is _____metres.



ACTIVITY SHEET 12 - HOW OLD IS YOUR TREE?

You will need:
- A measuring tape.
- A pencil.

Trees found in open spaces: If the tree is in an open space, then its girth (width) will have increased by about 2.5 cms every year. For example, if the girth is 30 cm, then divide 30 by 2.5 to get the approximate age.

Trees found in Wooded Areas: If your tree is growing in a wooded area, then its girth (width) will have increased by approximately 1.25 cms every year. If your tree girth is 30 cm, then divide 30 by 1.25 to get the approximate age. (Your teacher can help you with the maths).

Student Instructions:
1. Looking at your tree, how many years old do you think it is? _____

2. Measure the girth (which is the measurement around the whole trunk) by placing a tape around the trunk and measuring the girth in centimetres (cms).

3. Record your findings here:
   Our tree grows in an open space _____ (yes/no).

   Our tree grows in a wooded area _____ (yes/no).

   The girth of our tree is _____ cms.

   Our tree is _____ years old.

4. Is your answer the same as you wrote for question 1?_____

5. Now look for an older or younger tree of the same species and measure its age.

   The girth of the second tree is _____ cms.

   The second tree is _____ years old.

ACTIVITY SHEET 13 - WHAT LIVES IN YOUR TREE?

Ants have six legs and 3 body parts (head, thorax, abdomen). Spiders have 8 legs. Woodlice usually have 14 legs. Worms have no legs! There any many different types of bugs living in just one tree or one patch of soil so get investigating! Small creatures like some type of trees better than others. Find out what likes to live in your tree.

You will need:
- Tweezers.
- A magnifying glass (if available).
- A pencil.
- A large white sheet of paper or a sheet.
- One long stick.
- An Insect Identification Guide.

Student instructions:
1. Place your large white piece of paper or sheet directly under your tree.

2. Use your long stick to shake the branches of the tree overhead. Be gentle with the tree and the creatures living in it.

3. Count the number of creatures that fall onto the white sheet.

   How many different types are there?_____

4. Use the Tweezers to pick up one insect to study with your magnifying glass. Using the Insect Field Guide, try to identify your creature:

   Type of creature: _____

   How many legs does it have? _____

   Does it have wings to fly? _____

   What colour is it?_____

Note: You can also search the bark for bugs. Look into the cracks in the bark or on the ground under dead leaves and rocks.

Spider

Shield Bug

Caterpillar

Aphid

Millipede

Woodlouse

ACTIVITY SHEET 14 - BECOME A FITZSIMONS WOOD BIRDER!

Discover the different birds living in FitzSimons Wood.
When you see one of the following birds, tick it off on your record sheet below.

Date of Visit: _____ Season: _____

Birds Sighting List: Insert Tick
- ☐ Blackbird
- ☐ Blackcap
- ☐ Blue Tit
- ☐ Bullfinch
- ☐ Chaffinch
- ☐ Chiffchaff
- ☐ Coal Tit
- ☐ Goldfinch
- ☐ Great Tit
- ☐ Greenfinch
- ☐ House Martin
- ☐ Jackdaw
- ☐ Jay
- ☐ Kestrel
- ☐ Long-Eared Owl
- ☐ Long-Tailed Tit
- ☐ Magpie
- ☐ Peregrine Falcon
- ☐ Pigeon
- ☐ Redpoll
- ☐ Robin
- ☐ Song Thrush
- ☐ Sparrowhawk
- ☐ Swallow
- ☐ Swift
- ☐ Whitethroat
- ☐ Willow Warbler
- ☐ Wren
- ☐ Any new ones?

ACTIVITY SHEET 15 - ANIMAL TRACKS AND SIGNS

While visiting your park, there are many clues to look out for that show that animals have been near, even if you have not seen them. They leave evidence behind them.

Footprints: When the ground is soft or muddy, animals often leave their foot impression. You can tell what animal it is by the shape of their footprint.

Dog *Fox* *Badger* *Sika Deer* *Rat*

Droppings: An animal's droppings can tell you which animal it is, what the animal eats and where you find them. A Fox's droppings can be found in many settings and you can see bone and feather remains in it. Look at them with a white background as they will show up better.

Signs of feeding: We can often see where an animal has been eating by feathers or bones that are left behind.

Nests and burrows: These show us where animals live. Most burrows have a muddy path leading to them with footprints at the entrance. Nests can be seen in hedgerows or trees. Never try to touch a nest, as this can harm baby birds or scare the mother away.

Other signs: Many animals leave scratches and other signs behind, e.g. fur caught on a fence, feathers that have fallen out of a bird or scratches on the bark of a tree.

Record your findings

Where are you in FitzSimons Wood?

_____

Date: _____

What have you found?
Fill in your findings in the boxes below. Compare with your classmates, what did they find?

Droppings				
Footprints				
Signs of Feeding				
Nests or Burrow				
Trails				
Other Signs				

Finding out about animals is about observing and looking for evidence. We can track their movements and find out more about their behaviour.

A. SCAVENGER HUNT

Take this list with you to FitzSimons Wood. Identify all the things that are listed below.

A leaf.
Something wet.
A berry.
A wind-dispersed seed.
An animal from the bark of a tree.
A feather.
Something with a strong smell.
Three pieces of litter (do not touch the litter).
A fungus.
A smooth stone.
A lichen from the trunk of a tree.
A leaf that's not green.
Something red.
A wildflower.
Something unusual.

Hawthorn Leaf

Feather

Fungus

B. PREDATOR PREY GAME

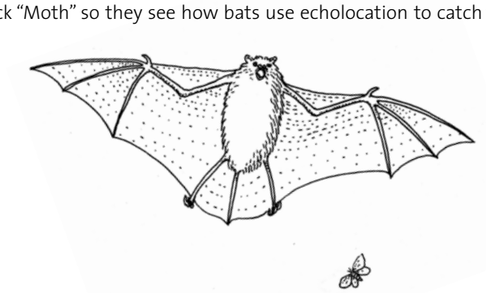
You will need: 2 different coloured balls.

Instructions:
The group needs to stand in a circle. The leader hands out two different balls, which represent a fox and a squirrel. Everyone is a tree. The fox can only be passed to the person standing next to you but the squirrel is a flying squirrel and can be thrown to anybody in a circle. If you have both fox and squirrel in your hands at the same time, you're out!

C. BAT AND MOTHS

You will need: a blind fold and A rolled up newspaper.

Instructions:
Blind fold one person. They will be the "Bat". Give them the rolled up newspaper which will act as the detecting device. Please advise the Bat to use this rolled up newspaper carefully and not hit the Moths too hard. They should swing gently to mimic the Bat's echolocation or sound waves. The others in the group form a circle around them. Two others take the role of the Moths inside the circle, which tries not to get caught by the Bat. Every time the bat shouts out "Bat" the Moths must shout back "Moth" so they see how bats use echolocation to catch their prey by tipping them with the newspaper.



Echolocation: Bat use echolocation to navigate and forage. Bats echolocate by sending out high frequency calls that bounce off objects and return as an echo. Bats locate small prey by judging the length of time it takes the echo to return.

D. CALLS OF THE WILD

You will need: blindfolds for everyone.

Instructions:
Divide group into pairs. Each pair must decide on an animal sound for themselves. Blindfold everyone and separate the pairs. Each pair must try and find the other by listening out for the others animal sound.

E. MEET A TREE

You will need: blindfolds for half the group.

Instructions:
Mention how many insect species depend on an oak tree (350 – the largest amount of any tree) compared to a Sitka Spruce (10 or so). Talk about native trees versus non-natives trees and the importance of native trees for wildlife. Divide the group into pairs and blindfold one of each pair. The other must lead the blind child in a "round-about" way to a tree and "introduce them" to that tree, making them feel the bark, the leaves, the smell, the girth of the trunk, etc. Then they must lead them back (again in a "round about" way to where they started). Taking the blindfold off the child must find the tree they were introduced to.

8 Identification guides and information sources

There are many different books, guides and websites available to help you identify our native species in the field. Here are a few suggestions but feel free to try others.

Your local library is a good place to start, drop in and check out what they have in their natural history section.

IWT: The Irish Wildlife Trust has information packs available on our native animals. Just contact them and ask for "Factfiles on Nature".

ENFO: The Centre for Information on the Environment is an online resource with loads of information on Ireland's biodiversity. Look at their poster and leaflets' section for great information on specific habitat types and the flora and fauna you can expect to find there.

Websites
http://www.iwt.ie - The Irish Wildlife Trust
http://www.enfo.ie - ENFO Website
http://www.iwdg.ie - The Irish Whale and Dolphin Group
http://www.batconservationireland.org - Bat Conservation Ireland
http://www.birdwatchireland.ie - Birdwatch Ireland
http://www.noticenature.ie
http://www.biodiversityireland.ie

Books

Habitats - Fossitt, J. (2000). *"A Guide to Habitats in Ireland"*. The Heritage Council.

General - Mooney, D. & Sterry, P. (2004). *"Complete Irish Wildlife: Photoguide"*. HarperCollins Publisher Ltd.

Tracks and signs - Preben B. & Preben D. (2006). *"Animal Tracks and Signs"*. Oxford University Press.

Birds - Svensson, L., Grant, P.J., Mullarney, J. & Zetterstrom, D. (1999). *"The Most Complete Guide to the Birds of Britain and Europe"*. HarperCollins Publisher Ltd.

- Caboy, D. (2004). *"Irish Birds"*. HarperCollins Publisher Ltd.

Plants - Johnson, O. (2006). *"Tree Guide"*. HarperCollins Publisher Ltd.

- Blamey, M., Fitter, R. & Fitter, A. (2003). *"The Wildflowers of Britain and Ireland"*. A & C Black Publishers Ltd.

- Rose, F. & O'Reilly, C. (2006). *"The Wild Flower Key: How to identify wild plants, trees and shrubs in Britain and Ireland"*. Penguin Group.

Invertebrates - Chinery, M. (2004). *"Butterflies"*. HarperCollins Publisher Ltd.

- Chinery, M. (1993). *"Insects of Britain and Northern Europe"* HarperCollins Publisher Ltd.

Field Charts
The Field Studies Council (FSC) is a British organisation that publishes a wide range of well illustrated identification guides. Most of these will be useful for Irish species too, for example;

1. A guide to mammal tracks and signs.
2. Butterflies.
3. British land mammals.
4. Day flying moths.
5. Bugs on bushes.
6. The woodland name trail.
7. Tree name trail.
8. Urban lichens on stone and soil.
9. Urban lichens on trees and wood.
10. A guide to hedgerows.
11. A key to the major groups of freshwater invertebrates.
12. The rocky shore name trail.
13. Common seaweeds.

They can be bought directly from their website at the following address:
http://field-studies-council.org/publications/foldout.aspx

Outdoor safety guidelines 9

1. Please advise students to wear appropriate footwear, i.e. runners or waterproof footwear. If it has been raining, advise Wellingtons.
2. Ask students to wear clothing that is appropriate, i.e. school tracksuit or otherwise just in case they dirty their clothes.
3. Please ask the students to bring their coats or rain gear to school especially as the weather can be unpredictable.
4. Please instruct the students to not run away from the group and to stay in eye sight of their teacher or an instructor and listen to the instructions at all times.
5. Students must stay behind their teacher or instructor at all times on the site visit as they know the way.
6. If the students see something outside of the immediate area, they must seek permission and let it be known where they are going.
7. Bring a first aid kit with you for any cuts or stings.
8. Let them enjoy themselves and learn lots about nature.

Curriculum Title	Social, Environmental, Scientific, Education					Arts Education (Visual Arts)	
	Skills and concept Developments	Strands				Skills and concept Developments	Strand
Activity sheet	Geographical investigation skills including questioning, observing, recording and communicating	Natural environments including the local environment	Environmental awareness and care	Living things including plants and animals	Human environment including natural environmental features and people, settlements including homes and other buildings	An awareness of form, texture, pattern and rhythm	Drawing including making a drawing, looking and responding
1	√	√	√	√		√	√
2	√	√			√		
3	√	√	√	√	√	√	√
4	√	√	√	√		√	
5	√	√	√	√			
6	√	√	√	√		√	
7	√	√	√	√		√	√
8	√	√	√	√			
9	√	√	√	√			
10	√	√	√	√		√	√
11	√	√	√	√			
12	√	√	√	√			
13	√	√	√	√			
14	√	√	√	√			
15	√	√	√	√	√	√	
16	√	√	√	√	√	√	

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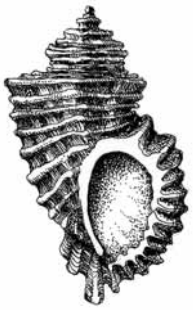


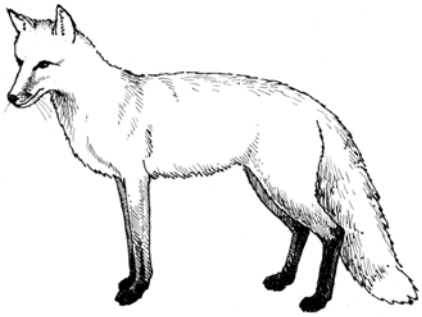


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An Chomhairle Oidhreachta
The Heritage Council