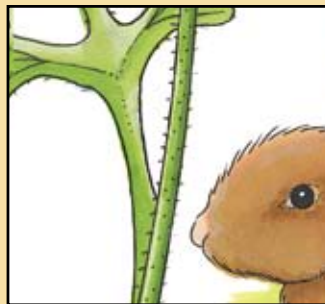
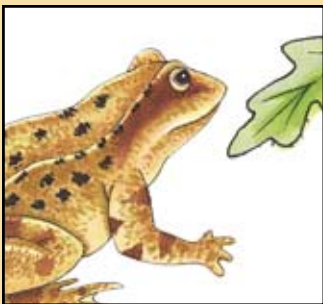
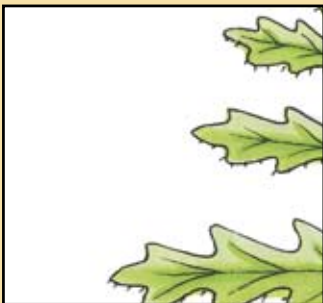
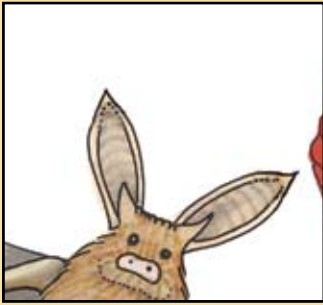


Wild Things at School

A book for Primary School Teachers



by

Éanna Ní Lamhna

Illustrations by Christine Warner

Wild Things at School







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Published by Meath County Council
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in association with
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An Chomhairle Oidhreachta
The Heritage Council



Dedication

I dedicate this book to my father — Peadar Ó Lamhna — who taught me in Fifth, Sixth and Seventh class in St Nicholas' Primary School in Stabannon in Co. Louth.



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Foreword

Counties Laois, Meath and Monaghan have come together to develop this book for Primary School teachers called *Wild Things at School*.

“If only the kids learnt even three plants or animals each year . . .”

This statement from the naturalist, author and broadcaster Éanna Ní Lamhna was picked up by us as the basis for this publication. We are delighted that Éanna agreed to write the book. With her usual style, flair and knack of picking out snippets of information, she has written fabulous thought-provoking accounts of all the plants, animals and creepy-crawlies identified for study in the book.

These accounts are well matched by beautiful illustrations from Christine Warner.

Connie Scanlon and James Fraher of Bogfire have brought it all together with their design.

The County Heritage Plans for each of our counties have actions relating to education and for building awareness of our heritage, including wildlife. The Heritage Council has co-funded this book with Laois, Meath and Monaghan County Councils.

We hope that this book will provide an opportunity for every child in Primary School to participate in a nature studies programme which helps them identify common plants, trees, animals, birds and creepy-crawlies. This will make it easier for them to take up ecology modules in the science programme in Secondary School, and help them to know their own local environment.

Our hope is that *Wild Things at School* will encourage children to develop a respect and love of nature that will stay with them all their lives.

We hope that you find it useful.

Catherine Casey, Heritage Officer, Laois County Council

Shirley Clerkin, Heritage Officer, Monaghan County Council

Loreto Guinan, Heritage Officer, Meath County Council



Acknowledgements

Full credit for this book must go to Catherine Casey of Laois County Council, who put it up to me to write a book which would be used to teach the basic plant and animal species to school children, instead of lamenting the fact that they did not know more than daisies and dandelions in Sixth Class. Thanks, too, to Shirley Clerkin of Monaghan County Council and Loreto Guinan of Meath County Council for enthusiastically supporting this project.

I must also thank the Primary School teachers of Ireland who have invited me into their classrooms over the last 35 years to talk to their pupils under such varied schemes as Heritage in School, the Ringo Project, or judging various school garden projects, or indeed as an inspector for trainee primary teachers. The interaction with their pupils has inspired me during the writing of the book.

I particularly want to thank Christine Warner, whose accurate and beautiful colour illustrations and line drawings have brought life so vividly to the words on each page.

I want to thank Connie Scanlon and James Fraher at Bogfire who have designed and laid out the pages of the book and made such a harmonious whole of the project.

My thanks also go to the sponsors — Laois, Meath and Monaghan County Councils and to the Heritage Council.

Finally, I would like to thank my husband, John Harding, who bore stoically the time filched from days off and weekends together, which I needed to complete the writing and proofreading. His reward will be great!

— Éanna Ní Lamhna, July 2009



Introduction

If you ask pupils in Junior Infants what wild flowers they know, they will tell you “daisies, dandelions and buttercups”. If you go into Sixth Class and ask the same question you will get the same answer. They know three species in infants and they know the same three eight years later. Yet, with no difficulty, they could learn two wild flowers every year, and a tree, and a mammal, and a bird and indeed a creepy-crawly. So, with relatively little effort, each pupil would leave Primary School knowing, recognising and realising the importance of 48 native Irish species. A co-ordinated effort on the part of their teachers would ensure this.

But how to do it? Which species to teach each year, where to find them, and what pupil exercises to carry out? How does the school ensure that each year the wildlife knowledge of each Class is built on and improved? How do the teachers find out themselves all about the chosen species? What practical work can they carry out with the class to ensure that the teaching is carried out to conform with the Living Things Strand of the Science Curriculum?

This book is the answer to such questions. The 48 species that every child should know are outlined in the following pages. Many of them occur in the school grounds (so the pupils can have firsthand experience of them); others are found in the hedgerows which may be round the school field or nearby. None are rare or endangered. The objective is that if pupils and teachers know all about common species, then they will be in a position to appreciate the value and importance of species that are less common and that require different habitats in which to live.

The book is divided into eight sections — one for each year of Primary School from Junior Infants to Sixth Class. The six species to be taught each year are described. The descriptions are all written for the teachers to absorb and then to teach to the class at whatever standard the class can learn. The “To do” section is geared however at the standard of the class being taught. The ideas are given and again the teacher uses these ideas to carry out the practical work in a way that suits their particular class.

When teachers have Planning Days to work out what the teaching schemes for the year will be, this book will be invaluable. Each year the six species listed for that class are taught. The teachers know what their class has been taught in earlier years and can revise and build on this.

So I look forward to the day in eight years time when I ask a Sixth Class what flowers they know and they can rattle off 16 species of wild flowers, complete with details of what they look like, where they grow and what folklore is attached to them.

Bainigí taitheamh as.



*In the end we will conserve only what we love;
we will love only what we understand;
and we will understand only what we are taught.*

—Baba Dioum, 1968

Taken from a speech made in New Delhi by the Senegalese Environmentalist Baba Dioum
to the International Union for the Conservation of Nature (IUCN).



Junior Infants

Daisy

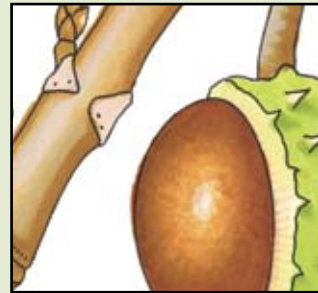
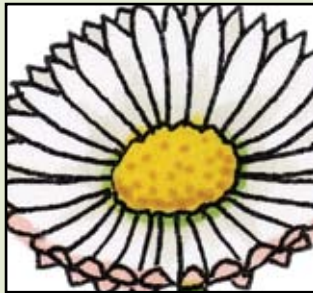
Dandelion

Horse Chestnut

Hedgehog

Robin

Ladybird



Daisy

Latin name – *Bellis perennis*

Irish name – *Nóinín*



Daisy

Daisies are probably the most familiar wild flowers in Ireland. Every lawn or playing field is full of them from March onwards. The English name daisy comes from Day's Eye. This reflects the appearance of the daisy with its yellow centre — the eye, and the ring of white petals — the eyelash. The daisy flower closes at night and opens when daylight comes as if it were waking and sleeping — like real people do.

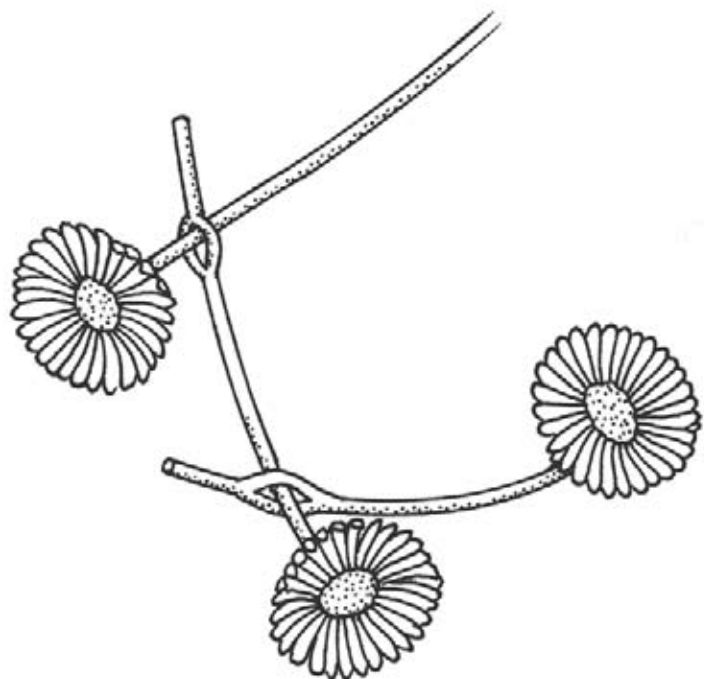
It is considered to be a sign that spring has arrived when daisies appear in numbers. You must be careful not to step on the first one you see for the tradition is that if you do you will be “pushing up daisies” yourself before the end of the year.

The daisy is a perennial flower — it comes up every year without having to set seed. It has a rosette of leaves around the base. Each leaf has an oval shape. One flower grows on each stem and sometimes the white ring of petals has a tinge of pink on the outside. Because the leaves form a rosette the plant is not destroyed by mowing the grass and in fact it thrives in areas where the grass is mowed regularly.

It is a universal custom for children to make daisy chains by making a slit in the stem of one daisy and inserting another daisy stem first into the slit. This continues until the chain is long enough to be worn.

To do with Junior Infants

- Get each pupil to gather one daisy and see if the petals are tinged with pink.
- Put a circle such as a hoop on the grass and get the children to count how many daisies are there.
- Get them to make daisy chains.



Dandelion

Latin name – *Taraxacum officinale*

Irish name – *Caisearbhán*



Dandelion

Dandelions have many common names — pissybeds, wet the bed, clocks and jimmyjoes. It is often thought by children that if you pick the flowers then you will wet the bed later on. This is of course not true. What is true is that the leaves of the dandelion act as a diuretic if eaten. They were used in ancient times as a cure for dropsy — an ailment that caused a limb to swell up. Eating dandelion leaves caused the liquid to move to the bladder and no doubt could cause a bed-wetting incident if the person had fallen into a deep slumber.

The English name dandelion comes from the French — *dent de lion* — and refers to the toothed leaves which must have put someone in mind of lions' teeth. The Irish name is *caisearbhán*, from — *gas searbh* — the bitter stem. The white stem juice is alkaline and was used in ancient times as a cure for warts.

The leaves grow in a rosette from which come the bright yellow flowers on a single stalk. These quickly turn into white seed heads known as clocks and the seeds, each with its parachute of white hairs, are easily blown away in the wind to settle and grow again quickly. A favourite game among children is to collect one and to tell the time by counting how many puffs of breath it takes to blow away all the seeds.

Dandelions have long tap roots which were dug up and dried and roasted in times of poverty to make a type of "coffee" drink. Its flowers do make a good wine if one has the patience to use just the yellow petals and its clean, very young leaves can be eaten in salads in spring.

Dandelions grow in fields, lawns and along roadsides. They are in flower all summer long. They are well able to withstand mowing — indeed, the more a lawn is mowed the more dandelions grow as other competing plants are removed.

To do with Junior Infants

- Get each child to find and gather one dandelion each.
- Get them to collect one with a white seed head and blow away the seeds counting the puffs — i.e. playing clocks.
- Count the number of dandelions inside a hoop placed on the lawn. Are there more daisies than dandelions?



Horse Chestnut

Latin name—*Aesculus hippocastanum*

Irish name—*Crann Cnó Capaill*



Horse Chestnut



Horse Chestnut trees are very common in Ireland and are easily identified at any time of year. They are not native to Ireland, they originate in the Balkan regions, but were introduced in the 1600s — probably as great dignified trees to enhance estates formed during the plantations of that century.

Probably as a result of originating in such a warm part of Europe, they are the very first large tree species to get their leaves in spring. The large brown sticky buds open in March. The leaves are compound — which means that seven leaflets radiate out from one stalk that joins to the twig. By May the tree is covered in large white clumps of flowers that remind people of candles and are beloved of bees, who make very fine honey from the nectar. This work by the bees also results in the flowers being pollinated and the formation of fruits and seeds.

By mid-summer it is easy to see the green prickly fruits which contain the seeds or conkers. These ripen quickly and by late September begin to fall and burst open revealing the brown shiny chestnuts inside. They are the first trees to get leaves in spring and indeed the first to lose them as well. The leaves look decidedly withered and yellow in September and are easily blown away by the winds of late September and early October. The trees are then set to overwinter in this dormant state and we have to wait until spring for the sap to rise and the cycle to begin all over again.

But why are they called “horse” chestnuts? It could be because the word “horse” in biological terms means big and coarse and the nuts are bigger and coarser than those of the edible sweet chestnut. Or it could be because the Turks used to feed conkers to horses to cure them of coughs. But it probably is because of the little horseshoe marks (complete with nails) on each twig, as if a little horse had walked there leaving its footprints behind.

In herb medicine they contain cures for varicose veins.

To do with Junior Infants

- Examine twigs in spring to see sticky buds and horseshoe marks.
- Note when the buds open and encourage the pupils to keep a record each year as they move up through school.
- Collect conkers in autumn and thread them on strings to play at “conkers” — hitting them one off another in turn to see whose breaks first — a traditional game.
- Collect some — keep in a paper bag over the winter and plant in pots in early spring. They are really easy to grow and can be planted out in their second year.

Hedgehog

Latin name—*Erinaceus europaeus*

Irish name—*An Gráinneog*



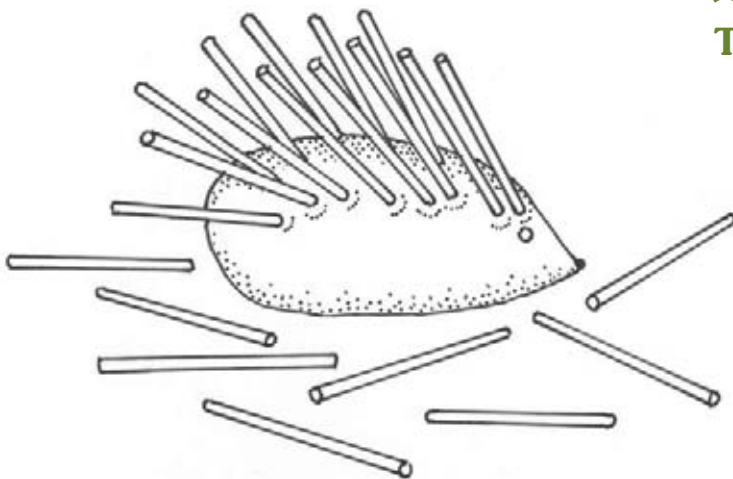
Hedgehog

Hedgehogs were introduced to Ireland by the Danes as a source of food. The country suited them and they quickly became established in hedges, gardens and woodlands. They are carnivorous animals and feed on snails, slugs, beetles, caterpillars, earwigs and earthworms. They visit gardens at night and are often tempted by the contents of the dog's bowl — much to the annoyance of the resident dog. When they feel under threat they roll into a prickly ball which deters all enemies except badgers who are able to attack and eat them.

Hedgehogs breed in May and the young, three or four, are born in June, which gives them a good long summer to grow and put on that vital pound of fat, which they need for hibernation. They go into hibernation at the end of October and stay asleep until April. They do this — not because it is too cold — but because there is no food for them, as snails and other minibeasts are not around in winter and as carnivores hedgehogs must eat meat. Lately however, it seems that hedgehogs are producing a second litter in September. Apparently, climate

change is making our summer nights warmer than they used to be and hedgehogs are coming into season for a second time in midsummer. These poor little late babies are on a hiding to nothing as they can't put on enough fat in time to survive hibernation.

Surviving hibernation is no small feat in itself. If we were to go to sleep in October and stay asleep continuously until April, we'd wake up dead! We'd have died of hunger and thirst. So how do the hedgehogs manage? They must have a body weight of over 450 grams before going into hibernation or they won't have enough fat resources to survive. They also must slow down their metabolic rate. Normally in summer months, hedgehogs maintain a temperature of 34°C and a heartbeat of 190 beats per minute. In order for the pound of fat reserves to last for six months the hedgehog in hibernation drops its heartbeat to 20 a minute and its body temperature can go as low as 5°C.



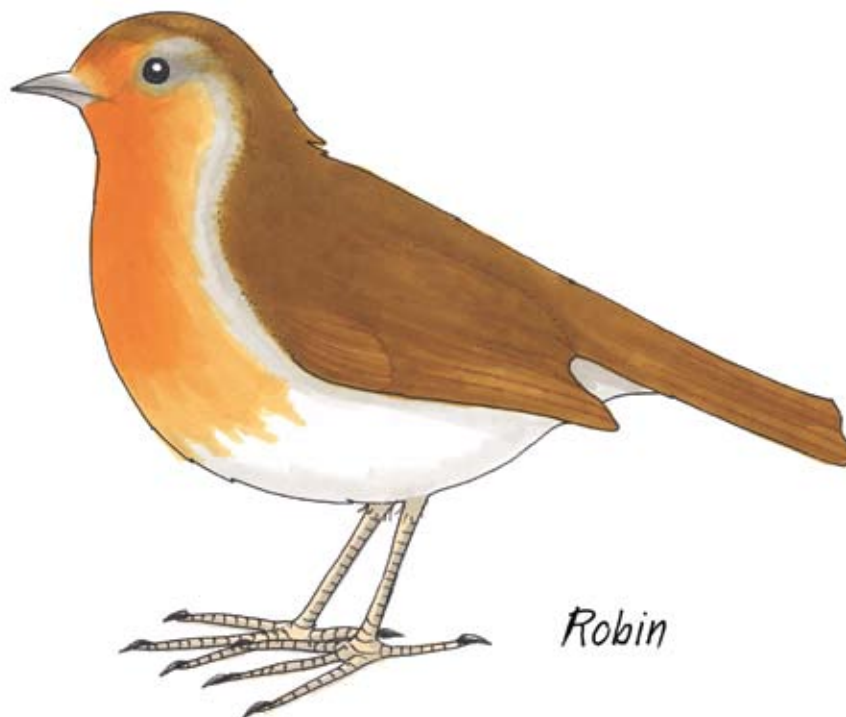
To do with Junior Infants

- Learn the song "Harry the Hedgehog:"
*I'm Harry the hedgehog as everybody knows
And I can feel the frosty wind nip my little nose
So I think it would be best if I found a little nest
Where I could lie and rest until the springtime.*
- Make a model of a hedgehog using plasticine for the body and lollipop sticks for the spikes.

Robin

Latin name—*Erithacus rubecula*

Irish name—*An Spideog*



Let's start off the story of the robin in winter. This is the time when the robin visits the bird table. So, during the winter months, it is very important to put out food such as nuts and seeds, rasher rinds, bits of bread, cakes of fat even, if you are up to it, and most especially water. Come spring, however, with its lengthening days, robins leave the bird table and start to hold territories and attract a mate. They do this by singing. Only the males sing and other males know to stay away as robins are very territorial and can kill other males if they wander into their territory. A female however is tolerated and after a while they set up home together. The male collects nest material from which the female constructs a nest and fashions it to her body shape. Robins can have a clutch of up to six eggs which hatch out after two weeks and are fed by both parents with the creepy-crawly content

of the garden — spiders, woodlice, small caterpillars and the like. In a good year the performance can be repeated twice and even three times over, with the same missus of course.

Baby robins are all brown — they do not develop red feathers until they are fully grown. Once they leave the nest on their first flight, two weeks after they hatch out, they never return to it. They are fed by their parents in the garden for a few days until they learn to fend for themselves. So by the end of the summer, your robins could have had at least ten babies, which together with the original parents come to twelve — a six-fold increase in the robin population. But things don't get to this stage. Most robins don't survive babyhood. They are almost all caught by predators in the inexperienced early days of flying. They are food for the next level in the food chain. It has to be or they would all die of starvation.

By autumn the pairs have broken up and robins no longer hold territory. They will spend the winter in the garden surviving on whatever food they can find. Robins are omnivores, which means that they can digest food of both animal and plant origin. So they can survive the winter in Ireland and do not need to migrate to Africa like the swallow who can only feed on insects. But we can help them by putting out food.



To do with Junior infants

- Make a Christmas card with a robin on it.

Ladybird

Latin name—*Coccinella 7-punctata*

Irish name—*Bóinn Dé*



Ladybirds are very common and recognisable insects. They belong to the beetle group and have the smooth curved shiny back that is typical of beetles. This curved back is made of two hardened wing covers which open to reveal two transparent wings with which the ladybird can fly.

There are eighteen different species of ladybird in Ireland. Some of them are red with black spots such as the seven spot and the much smaller two spot. But we also have yellow ladybirds with black spots, red ladybirds with cream spots and even a pink ladybird with black and yellow-ringed spots. They are all brightly coloured and all are poisonous — to birds that is. All ladybirds are brightly coloured to warn birds not to eat them. They contain formic acid so that if an inexperienced bird were to eat one its tongue would be burnt and it would never eat another one. So the bright colour acts as a warning. In fact, if you catch one and let it walk on your hand it might secrete some of this orange-coloured liquid which — if you were a bird — would burn your tongue and you would spit it out. This is another defence stratagem.

Ladybirds themselves are carnivores and they eat greenflies. They visit gardens where there are roses, in order to feast on the greenflies that are sucking the juices out of the tender rose leaves. In the winter when there are no greenfly to eat, ladybirds will hibernate. You could make a “hotel” for them in the school garden by tying together a bundle of hollow bamboo sticks and leaving them on their side on a shelf or something above the ground. The ladybirds could climb in here and have a safe place over winter.

To do with Junior Infants

- Learn the rhyme:

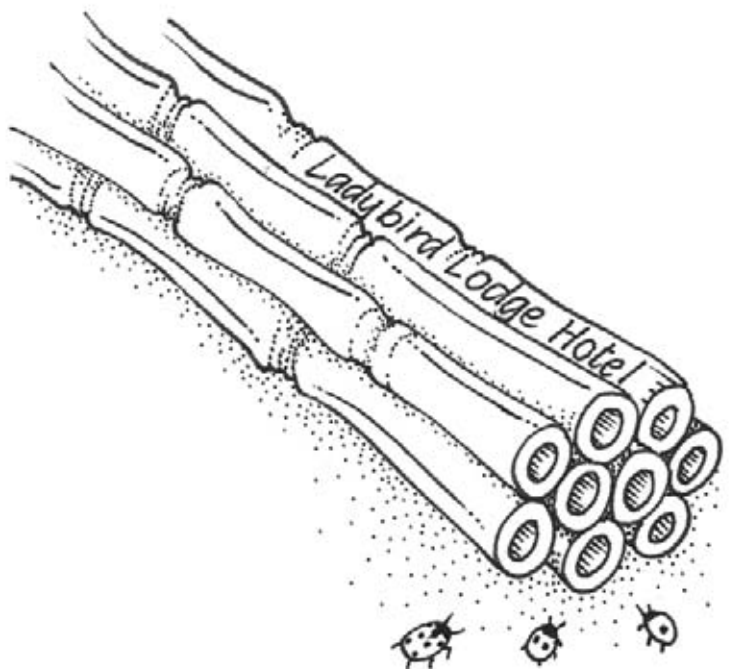
Ladybird, ladybird fly away home

Your house is on fire, your children are gone

All except one and that's little Anne

And she crept under the frying pan.

- Bring the children out to look for ladybirds at the end of May, in June and in September. Places such as rose beds, hedges, low shrubs are all good places to look. You could also shake the branches of a tree into an upturned umbrella and see if any fall down into it.



Senior Infants

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**Buttercup**  
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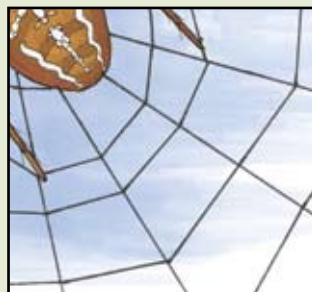
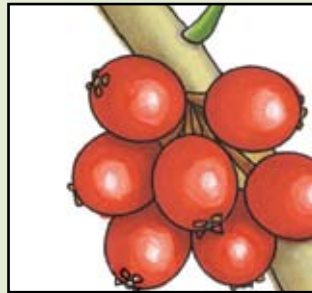
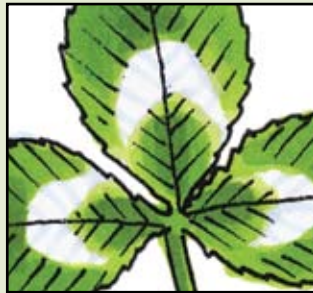
~~~~~  
**White Clover**  
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~~~~~  
**Holly**  
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~~~~~  
**Rabbit**  
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~~~~~  
**Swan**  
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~~~~~  
**Spider**  
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Buttercup

Latin name—*Ranunculus repens*

Irish name—*Fearbán* and also *Cam an Ime*



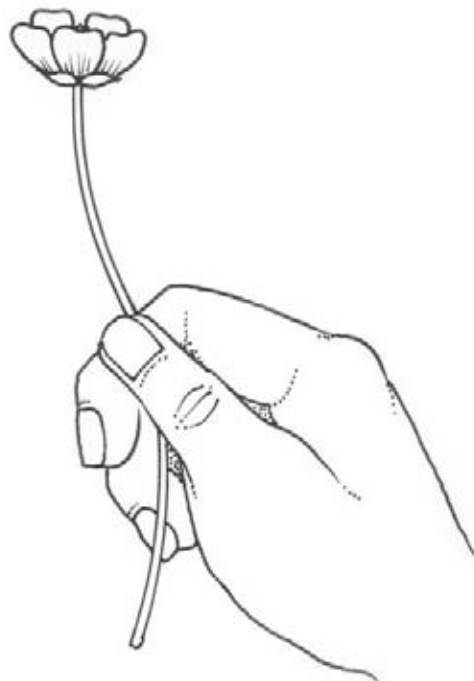
Buttercup

Buttercups are wild flowers that grow in grassy fields that are not mowed. Unlike daisies and dandelions which grow from rosettes and can survive mowing, buttercups will not grow and flower on a continually mowed lawn. So look for them beside the hedge if this is the case in your school — or indeed arrange for a small unmown patch to be left for the buttercups.

Buttercups start to flower by the end of April and continue in flower all summer long right up to September. The flower has five bright yellow petals. There are five sepals on the outside of the petals and a great number of male stamens inside the petals. They contain nectar deep within the flowers to attract insects and are visited particularly by butterflies in summer months.

They are called buttercups in English because it was thought that a pasture full of buttercups eaten by cattle would give a golden colour to the milk and even more so to the butter made from the milk. This is not actually true — buttercups are generally avoided by cattle. They have an acrid taste and one of the Irish names for buttercups, *fearbán*, reflects this.

Children play the game of holding a buttercup under another child's chin to see if they like butter. Butter must have been more popular long ago among children than it is now, as there is invariably a golden glow on the child's skin which of course means "they like butter", which may not actually be the case. Scientifically, any bright yellow object held under the chin of any child of any skin colour — particularly on a bright, sunny day — will give a golden reflection.



To do with Senior Infants

- Bring them out to look for buttercups. Get them to count the petals and see the sepals behind the petals. Get them to check if their companion "likes butter". Then get them to repeat this using a dandelion. What can they conclude from this exercise?

White Clover

Latin name – *Trifolium repens*

Irish name – *Seamair bán*



White Clover

This plant grows commonly in lawns and fields. Early in the year just its leaves are obvious. These are described as trefoil leaves — three leaflets from one stem. These trefoil leaves are easy to find and to recognise. Each leaflet is heart shaped with a pale V-shaped mark. The Irish word for clover is seamair. In spring when there are no flowers out yet, the leaves are young clover — seamair óg or shamrock. There is a tradition that St Patrick used the leaf of the shamrock to illustrate his teachings about the Holy Trinity to the Irish people long ago. Just as there were three leaflets united in one leaf of the shamrock — so were the three deities of the holy trinity united as one God. To commemorate this, Irish people wear a bunch of shamrock in their lapels on March 17th — St Patrick’s Day.

The plant begins to flower in April and there are white clover flowers all summer long until the end of September. The white clover flower head is actually a cluster of small individual flower heads.

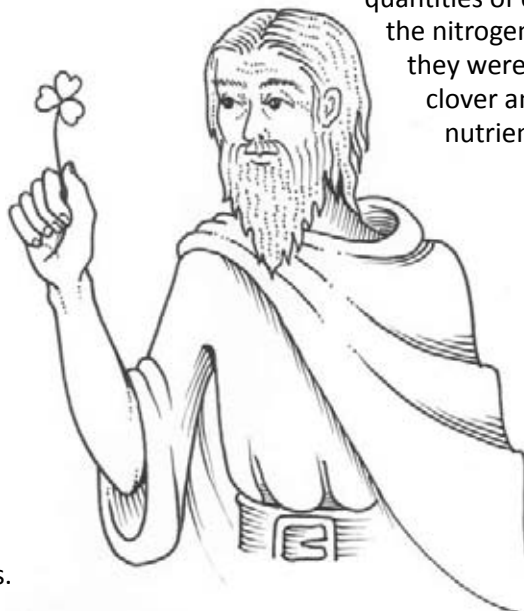
The flowers can be visited by honey bees who gather the nectar to make particularly delicious clover honey. As the clover is a member of the pea family, its seeds are carried in pods.

Clover was planted by farmers in their pastures to improve the fertility of the soil. Plants need nitrogen in order to grow and usually, to get a good crop, the farmer must add nitrogen as a fertiliser to the soil. All members of the pea family — including the clovers — are able to take in the nitrogen from the air and use it to grow. They are able to fix nitrogen in this way because they have special nodules on their roots. These nodules are formed because the plant can form an association with a particular type of nitrogen-fixing bacteria and together the plant and bacteria work in a symbiotic relationship to fix nitrogen from the air. Thus, in the days before farmers had large

quantities of cattle slurry to restore the nitrogen levels in their soil, they were very glad to plant clover and let it improve the nutrient quality of their soil.

To do with Senior Infants

- Around St Patrick’s Day, the class can be brought out to collect shamrock from the school lawn or field. They can be told about the tradition of St Patrick and the shamrock.
- In May or June the class can go out to look for clover in flower. White clover has obvious white flower heads. Pupils may also find red clover which has purple flowers which are larger than those of the white clover. They may also find small yellow clover flowers. These belong to a different species — yellow clover — which grows in the drier parts of grassland areas.



Holly

Latin name—*Ilex aquifolium*

Irish name—*Cuileann*

The Irish name is commonly found in Irish place names such as Moycullen—the plain of the holly, Glencullen—the glen of the holly, Kilcullen—the church of the holly.



To do with Senior Infants

- Bring them out to look at a holly tree — particularly in autumn when there may be berries on it. Collect berries to grow into holly trees. Collect the berries when they are red in October. Remove the flesh and wash the stones. Mix them with 3 or 4 times their volume of 50/50 sand and peat and put into a flower pot with drainage holes. These are left outside for 18 months or two winters — before they germinate. They can then be planted in separate pots until they are big enough to go into the ground.

Holly is a native evergreen tree. It has broad leaves unlike coniferous evergreen trees such as pine trees. It grows naturally as an under layer in an oak woodland. Its dark green leaves can tolerate the lower light levels here. When the oak canopy trees have lost their leaves from the end of October to the end of April, there is plenty of light in the woodland for the holly to grow.

Holly is unusual among Irish trees in that there are male trees and female trees. The female trees have berries and the male trees produce pollen on special male-only flowers. The pollen is blown by the wind to the female trees whose flowers only contain female parts. When these are fertilised by the pollen, berries are then formed which turn red in the autumn. These berries contain a hard stone which is the seed. Thrushes in particular are very fond of holly berries and will guard “their” tree against all invaders. They swallow the berries whole and excrete the hard stones in their droppings, from which new holly trees grow.

Holly has prickly leaves on its lower branches only. If you look higher up in the tree you will notice that the leaves have fewer and then no prickles on the leaves. The prickles are a defence against being eaten by browsing animals such as deer and when the branches are high enough to be out of the reach of foraging deer there is no longer any need for prickles.

In early Irish law the most valuable tree species were called “the nobles of the wood” and there were severe fines for cutting them down or destroying them. There were seven noble trees — holly was one of them because its young soft leaves were used as fodder for animals and its hard timber was used for spears and chariot poles. The word holly in English comes from holy, as the red berries were thought to symbolise drops of Christ’s blood. However, the tradition of bringing holly into the house at Christmas goes back much earlier than Christian times. They were the only trees in leaf in winter in the deciduous forests of old in Ireland and therefore symbolised life and the sun. So, just after midwinter on December 22nd when the sun began to move back up in the sky holly was brought into the house to celebrate and to keep away evil spirits.



Rabbit

Latin name: *Oryctolagus cuniculus*

Irish name: *Coinín*



Rabbits were introduced to Ireland by the Normans as a source of food. The Normans were of Scandinavian origin originally and the name they had for the rabbit was the Danish word Koinin. So the Irish adopted the name — Coinín and indeed called places after it such as Coney Island in Sligo and the Cunnigar in Dungarvan in Waterford.

Rabbits are herbivores and in the wild can live on grasses. They make burrows underground to sleep and breed in and they scamper down these burrows at the least sign of danger. Their short white tail is called a scut and the sight of this moving at speed together with a warning thump of their hind legs warns other rabbits if danger is near.

Rabbits live in colonies and there can be many burrows together in an area where the soil is loose enough to excavate, such as in a sandy area or in a ditch at the end of a field. While they can live perfectly well on grasses, they are particularly fond of softer vegetable leaves and will raid neighbouring gardens in the early morning and eat the owner's prize possessions. Digesting grass is very difficult and

the rabbit has to pass the food through its intestines twice, in order to extract all the food value. So they actually eat their own droppings first time round at night in the burrow and when they are excreted a second time next morning above ground they are completely dry and devoid of any nutritional value. This practice is called coprophagy.

The expression "breeding like a rabbit" is well founded in scientific fact. The female does begin to breed at a year old and there may be up to seven kittens in each litter. The kittens are born 30 days after mating and the mother can mate and conceive the next litter within 24 hours after delivery of the previous one. As a female rabbit can live as long as five years she could give birth to up to 350 babies in her life-time and be a great-great granny many times over before she dies.

Rabbits are food for many other animals in the food chain however. They are eaten by stoats, foxes, badgers and mink as well as birds of prey such as the Donegal golden eagle or the buzzards that are now becoming common in the eastern half of Ireland.



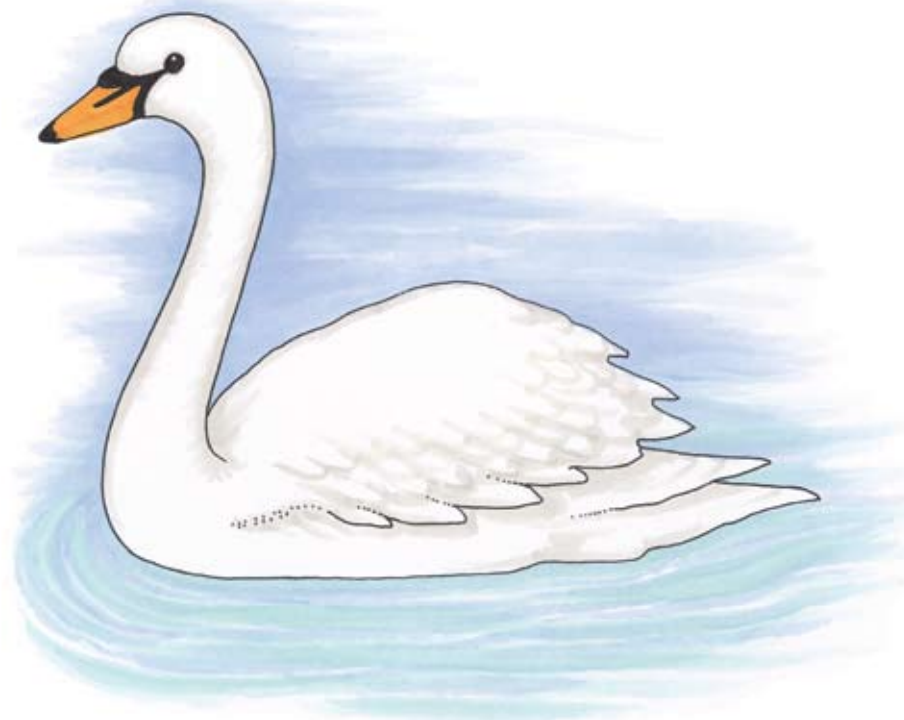
To do with Senior Infants

- The story — *The Adventures of Brer Rabbit* by Julius Lester — could be read to the pupils. These are American stories of how the clever rabbit was able to avoid all efforts to capture him. The story *Watership Down* by Richard Adams is also about rabbits.
- At Easter pupils can make Easter cards with pictures of Easter bunnies and Easter eggs.

Swan

Latin name – *Cygnus*

Irish name – *Eala*



SWAN

The swan is unmistakable. It is a large white bird with a long neck and an orange beak and it lives on ponds, lakes and canals. It is found in ponds in parks, in cities and towns and on rivers and lakes in rural areas. It also can live in estuaries by the sea. Swans are thought to mate for life and a pair will occupy a territory on a pond or river and build a nest each spring. Nests are large affairs made from reeds and sticks, and litter and rubbish can be added in too. Five to seven eggs are laid between March and May and incubation takes about 36 days.

The young are called cygnets and they are able to swim the moment they hatch out. They are minded very well by both parents who will attack intruders by snorting and hissing at them, raising up their feathers in a threatening manner and indeed attacking if pressed. The young are taught to feed on

submerged vegetation which they collect by upending themselves, stretching down with their long necks and pointing their tails up in the air. They will also come to eat bread if they are fed.

Young swans have brownish-grey feathers and they don't get the snowy white feathers until the spring time. At this stage they leave their parents and assemble in large bachelor herds at coastal estuaries or other good feeding grounds. Here they will stay until they are old enough to breed at two or three years of age.

Migratory swans have straight necks and yellow and black bills. These are Whooper swans which come here in winter from Iceland and Bewick's swans who come from Russia and Siberia. These pass the winter in Ireland and return to their northerly breeding quarters when the snow and ice there has melted in mid-April.

Children of Lir



To do with Senior infants

- Tell them the story of the "Children of Lir" and Hans Christian Anderson's "The ugly duckling".
- Take them to the park to feed swans with bread if there are any in the nearby locality.
- On their return get them to draw pictures of swans in their copies and colour in the beaks.

Spider

Latin name—*Araneus diadematus*

Irish name—*Damhán alla*

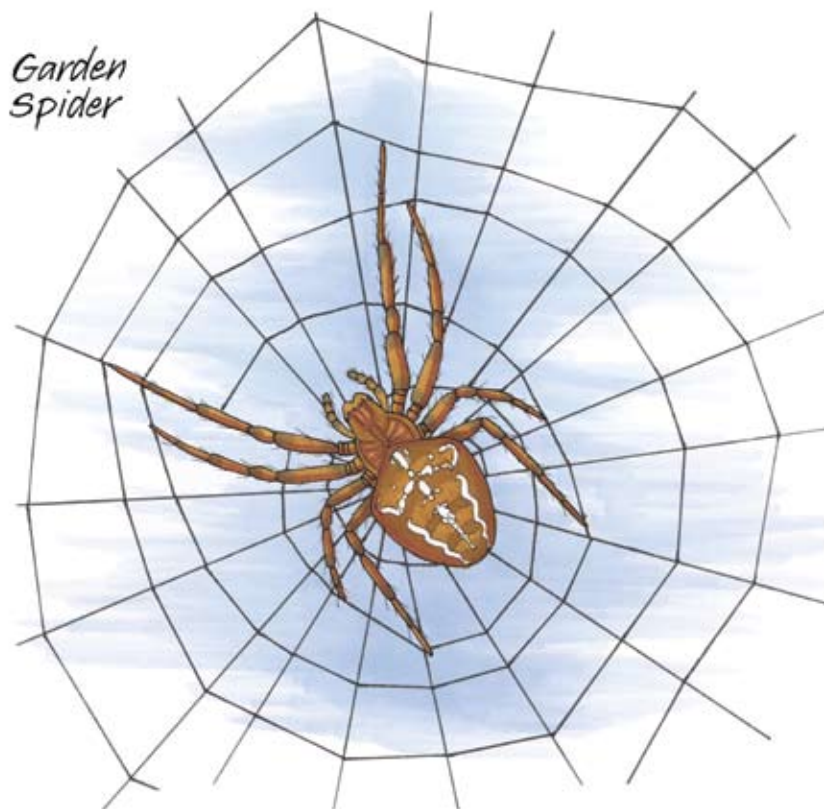
Spiders are not insects but belong to a group called arachnids. All spiders have two parts — a head and a body. All spiders have eight legs — all of which are attached to the head. All spiders have two palps at the top of the head (which they use for smell). Male spiders have longer palps than females. All have eight eyes and two fangs — which are sharp hollow teeth through which they inject venom into their prey to kill them. All spiders have fangs and venom but in Ireland our spiders are too small to be able to penetrate our skin with their fangs. In South America the biggest spiders — tarantulas — are found and their fangs can kill birds and mammals such as mice. They can give humans nasty bites too.

In Ireland we have hunting spiders and web-spinning spiders. The hunting spiders come out at night and run after their prey. They can come into our houses if we leave windows open and can fall into the bath if it is the bathroom window they climb in. They are so big and the bath is so shiny that they cannot climb out again — which is why it is always a huge spider that is in the bath — the small ones can climb up and escape.

Web-spinning spiders make webs from silk produced by spinnerets at the end of their bodies. These sticky traps are positioned to catch unwary flying insects which blunder into them and become enmeshed in the sticky threads. The spider, who is waiting at the centre of the web, rushes in and kills the prey with a bite of its fangs. The spider doesn't get trapped in the sticky web because it has oily feet that do not stick to the web. Having killed the trapped insect, the spider then sucks out all the soft insides as food, leaving hard bits such as wings and legs behind.

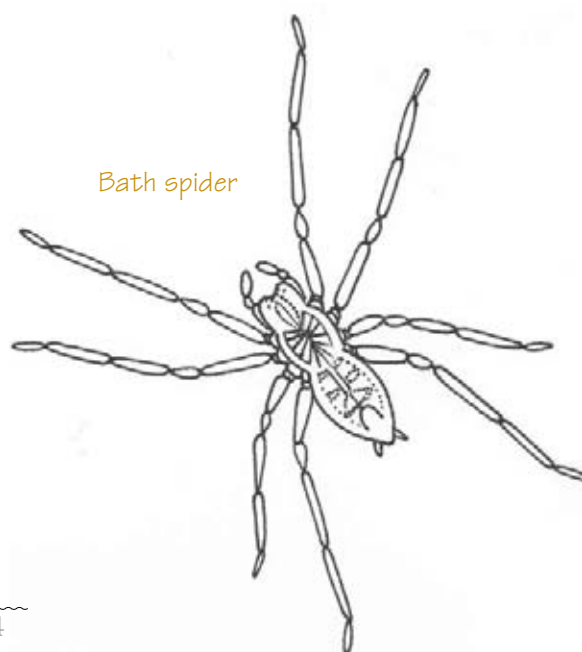
To do with Senior Infants

- Teach them “Incy wincy spider” and “Little Miss Moffat”. Read them *Charlotte's Web* by E B White.
- Go outdoors on a damp, misty morning in late September to look for spiders' webs all outlined with dewdrops. Railings or gorse bushes are good places to look.



Any surplus flies are killed and wrapped up in silk and stored to be eaten later — or indeed to be presented to the female spider when the male goes looking for a mate. Spiders are not only carnivores, they are cannibals and the female will eat the male if given half a chance. So the male presents the female with a well-wrapped fly and mates with her while she is distracted unwrapping it and eating it. In other countries the males are not so lucky — how do you think the Black Widow of North America got its name?

Eggs are then laid in a web of silk and the young are left to their own devices. When they hatch and begin to move towards each other in an effort to eat each other the movement breaks the web nest and the spiderlings are scattered in the wind.



First Class

Primrose

Bluebell

Oak

Fox

Blackbird

Woodlouse

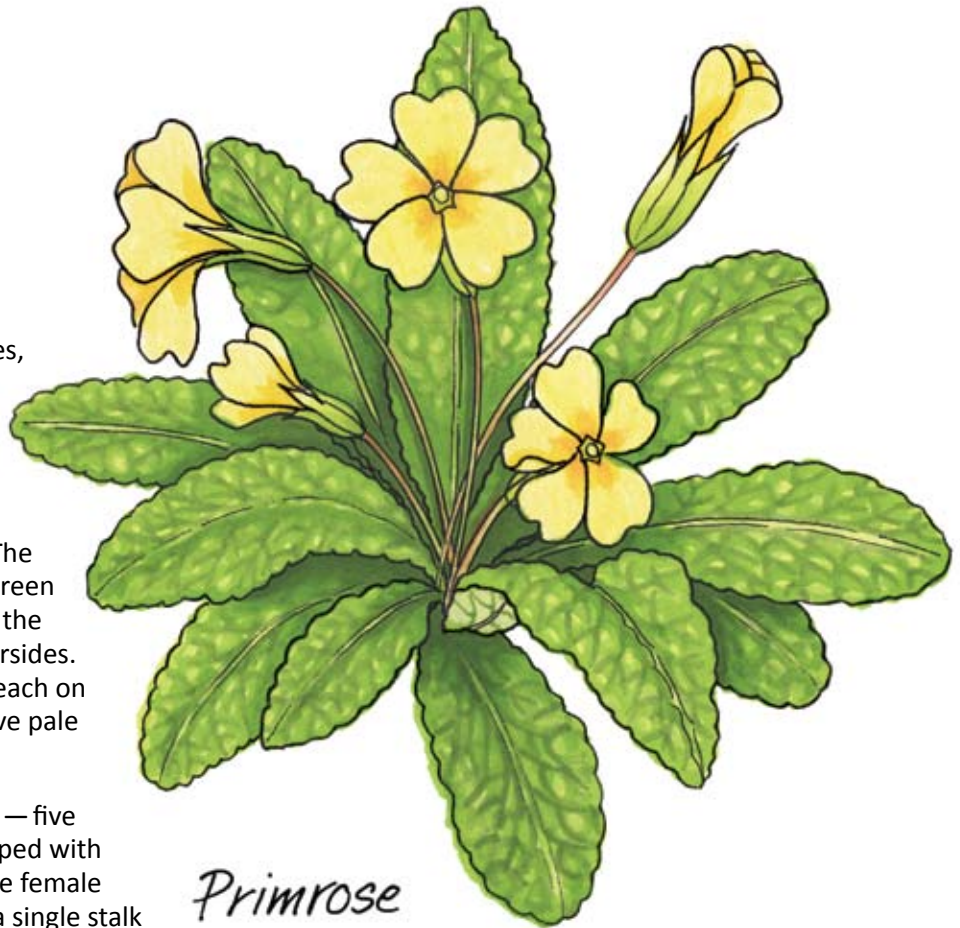


Primrose

Latin name—*Primula vulgaris*

Irish name—*An Sabhaircín*

Primroses are a real harbinger of spring. They grow in hedges, ditches, on banks and along the edges of woodlands. Their pale yellow flowers are very familiar and they have a very cool fragrant perfume. They appear in south-facing banks to begin with (as early as March). The leaves emerge first — a rosette of green crinkly leaves which taper towards the base and are whitish on their undersides. The flowers then begin to appear, each on its own separate stalk. There are five pale petals, each one heart-shaped.



The flowers contain the male parts — five stamens which are small stalks topped with anthers containing pollen — and the female part which is the ovary topped by a single stalk called a style. Pollen from another flower must reach this style to fertilise the ovary and this pollen is carried by insects. To avoid the possibility of self-fertilisation, the stamens and the style are of different lengths. This is of course the case with most species of flowers and indeed the female style is generally longer than the stamens.

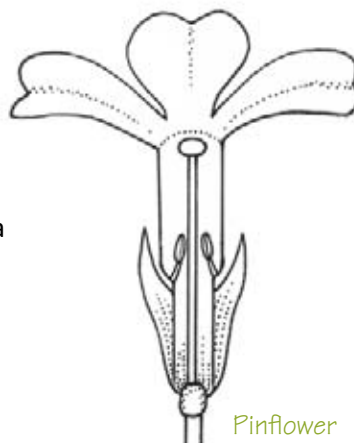
However, if you examine the flowers of primroses you will discover something unusual. In about half of the flowers the female style is longer than the stamens as is normal for flowers and you can see it when you look at the circular area at the centre of the petals. This is called a “pin” flower. In the other

half, however, the stamens are longer than the style and when you look in you will see the tops of the five stamens rather than the single style. This is called a “thrum” flower.

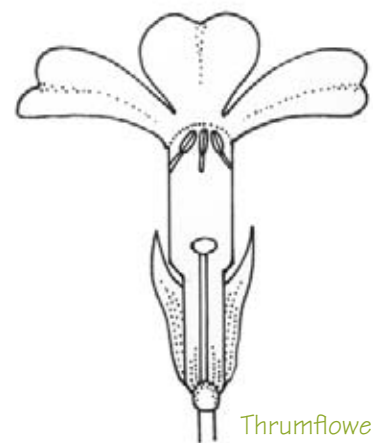
Primroses were very important long ago to people who kept cows. Butter making from the cream of the milk began in May and on May eve they would rub the flowers of the primroses on the udders of the cattle to make sure that they had enough milk for the butter making. In other areas primroses were thrown on the roof of the house before dawn on May Day to protect the butter from the fairies.

To do with First Class

- Go out looking for primroses early in the year and note the date when the first primrose is seen. With climate change, primroses are flowering earlier each year so keeping a record of the first primrose is a way of monitoring this for your area.
- Pupils could count the number of petals and draw the flower and leaves in their workbooks on return from the trip. They could look for pin and thrum flowers.



Pinflower



Thrumflower

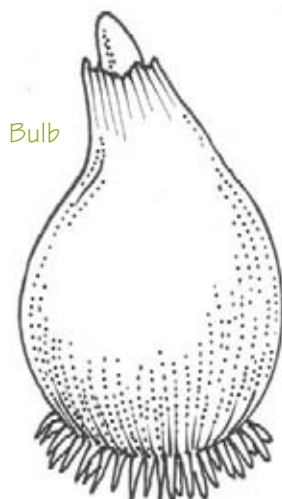
Bluebell

Latin name—*Hyacinthoides non-scripta*

Irish names—*Bú muc, Coinnle corra* and *Cloigín gorm*



Bluebell



Bluebells are woodland flowers that appear in late spring and early summer. A woodland just coming into leaf with a carpet of dark blue bluebells is one of the most beautiful sights of nature. They grow from bulbs that overwinter from year to year in the ground. The long, narrow leaves appear first in April and by May the flowers have opened. Each stalk carries a one-sided line of flowers that droop at the tip. The fruit of the plant is a capsule which splits into three revealing the little seeds inside. These are left on the stalk long after the flowers have gone — right up to July.

The stalk carries seven or eight flowers that open from the bottom up. Each flower has six petals that are fused together at the bottom forming a crown as it were. There are six stamens surrounding the pear-shaped ovary topped by a style. The flowers are pollinated by insects and the ovary swells to become a three-sided capsule containing the seeds. By late July the whole plant has died back and is not seen again until the following spring.

Plants that grow on the floor of woodlands get their flowers early in the year before the leaves open fully on the trees and the canopy closes. They do this to avail of the light that is available in April before the leaves fully open on trees such as the oak, birch and finally the ash by the end of April and the middle of May. This is called adaptation and it is how these plants can live in a habitat that is too shady at ground level later on in the year for anything but ivy and ferns.

Bluebells have a gummy sap in the bulbs underground which was used in the old days as a substitute for starch or as a glue for book binding. Its Latin name is hyacinth and it is related to the hyacinth flower considered by ancient Greeks to be a flower of grief and mourning. The classical myth is that Hyacinthus was a youth that was loved both by the sun god Apollo and the god of the west wind Zephyrus. However, Hyacinthus preferred Apollo and one day when he was playing a game called quoits with Apollo, the jealous Zephyrus blew one of the quoits off its course and it struck Hyacinthus and killed him. Apollo caused a purple flower to rise up from Hyacinthus' blood which is known to this day as a hyacinth.

To do with First Class

- Plant bluebells in a shady part of the school grounds. Buy the bulbs in a garden centre in autumn and plant them in October.

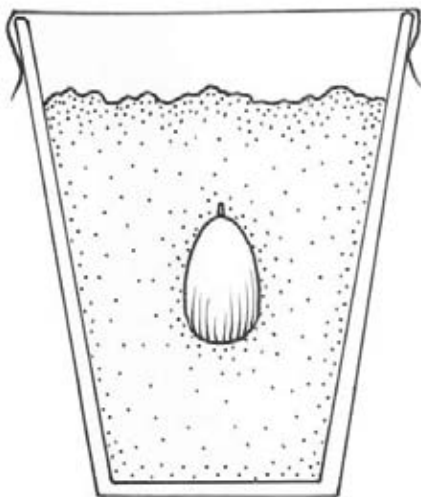
Oak

Latin name: *Quercus*

Irish name: *Dair*

The oak tree is described as the king of the woods. It was greatly valued in olden times in Ireland and was considered to be one of the “nobles of the wood”. It is the canopy tree in our native oak woodlands that have been here since the end of the last Ice Age ten thousand years ago. Oak trees are one of the last trees in Ireland to get their leaves each year — it is usually the end of April before they emerge from their brown buds.

Oak leaves are particularly prized by all sorts of insects who feed on them. The caterpillars of the purple hairstreak butterfly depend on them, as do many species of greenflies, shield bugs, moths etc. In fact it has been estimated that some 286 species of insects and other invertebrates feed on the leaves of the oak. All this eating of fresh oak leaves in May and June leaves the tree somewhat depleted. But the tree fights back, producing a new growth of leaves with lots of unpalatable tannin in them and quite brownish-purple in colour at the end of July. These are called “Lammas Growth”, Lammas being the time of year between July and August.



To do with First Class

- Find an oak tree that the children can be brought to see. Collect leaves and acorns. Back in class get the pupils to draw outlines of the leaves so that they will learn their characteristic shape. The acorns can be sown in pots of compost and planted out the following summer when the seedlings have emerged.



Catkin-like flowers are produced by the tree in early April before the leaves are formed. This is because they are wind pollinated and the presence of leaves would get in the way of the blowing pollen. Acorns are formed from the fertilised flowers and ripen in autumn. These are prized as a source of food by birds such as jays and rooks, squirrels and by mice. Grey squirrels are able to eat unripe acorns, red squirrels must wait until they are fully ripe, by which time if there are grey squirrels in the area the acorns may be all gone, leaving the red squirrel short of food and unable to compete with the grey. New oak trees will emerge from acorns which may have been buried and not retrieved by their owner later in the winter.

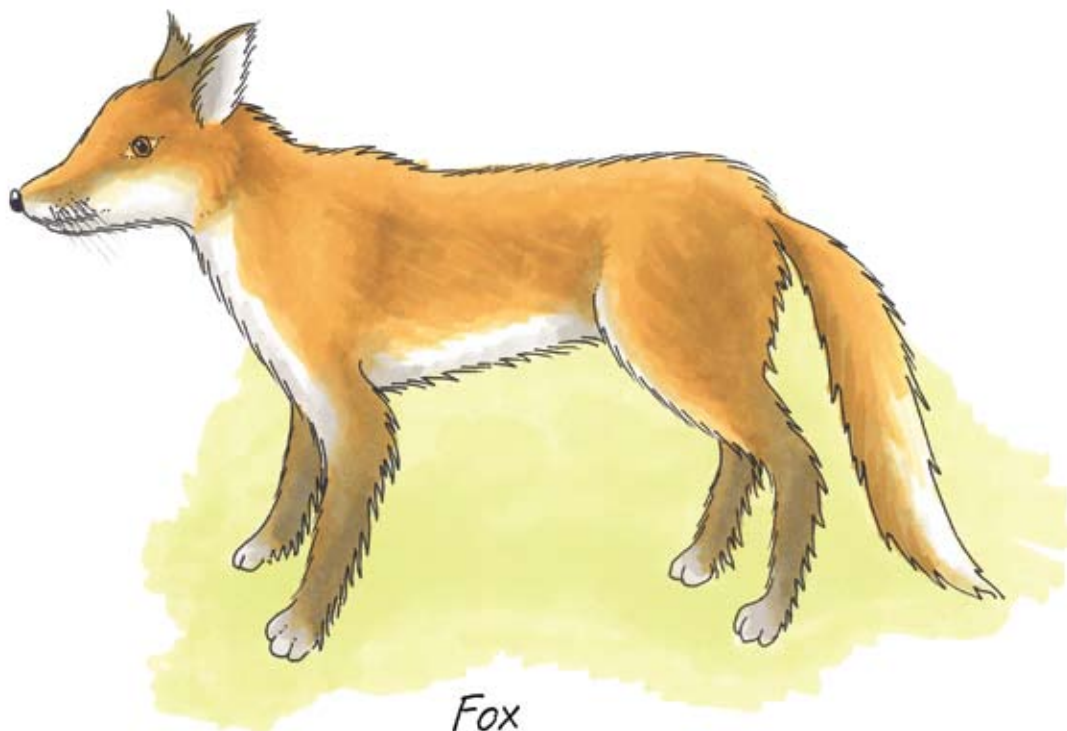
There are two native oak species — the pedunculate oak whose acorns are borne on stalks and the sessile oak whose acorns have no stalks. Both are very long-living trees and can survive for well over five hundred years in ideal circumstances. The Irish name is *dair* and many places in Ireland reflect this. Counties Kildare and Derry are called after the oak as are all the place names beginning with Derry such as Derrynaflan and Derrynane.

Oak trees produce tannins so oak bark was much in demand by the leather tanning industry. Its timber was excellent for shipbuilding and for use as charcoal. So it was no wonder at the time of the plantations — particularly the Cromwellian plantation in the 1650s when soldiers were paid in land rather than money — that the first thing the planter did was strip the land of its timber in case their tenure there didn't last very long.

Fox

Latin name – *Vulpes vulpes*

Irish names – *Sionnach*
or *Madra rua*



The fox is one of our most common and familiar mammals. It is a native Irish species, and probably returned to Ireland after the last Ice Age, 10,000 years ago by crossing a land bridge from Europe. It occurs in every county and estimates reckon that there are up to 200,000 foxes in the country. They can live in farmland, woodland, sand dunes, uplands and most successfully of all in built-up urban areas. They excavate underground dens or earths, where breeding foxes have their cubs. These are easily detected because the entrance will be strewn with food debris, as foxes are very untidy creatures. There will also be a very strong smell of fox.

The breeding season occurs from late December to early February. At this time foxes communicate with each other by sound — the male with a series of barks and the female vixen with bloodcurdling screams. The cubs are born between late February and the end of April. There are normally four or five cubs and it takes up to seven months before they are fully grown.



Many young foxes die in their first year as they are unable to establish territory and can die of hunger or are killed on the roads. If they do succeed they can live up to ten years.

Foxes are omnivores, which means they can eat food of animal and of vegetable origin. They are opportunists and will eat a great variety of food such as rabbits, young hares, brown rats and mice as well as small birds, eggs and nestlings, beetles and earthworms, and coastal foxes eat crabs and fish. They like blackberries and apples too but of course they have a bad reputation because they kill chickens and eat dead lambs, and are not above killing the odd baby lamb or two as well.

In cities people are quite fond of foxes and they often feed the foxes that visit their garden looking for scraps from the dustbin. Fox cubs are often left alone all day while their parents are looking for food and they can come out of the earth and play in the garden in good weather — a sight which pleases homeowners in urban areas.

To do with First Class

- Read Roald Dahl's book *Fantastic Mr. Fox* and *Run with the Wind* by Tom McCaughren.
- There are several fox songs such as "Maidrín rua" and "Little fox" which are great fun to sing. Download the words and tunes from the internet.

Blackbird

Latin name – *Turdus merula*

Irish names – *Lon dubh* (male) *Céirseach* (female)

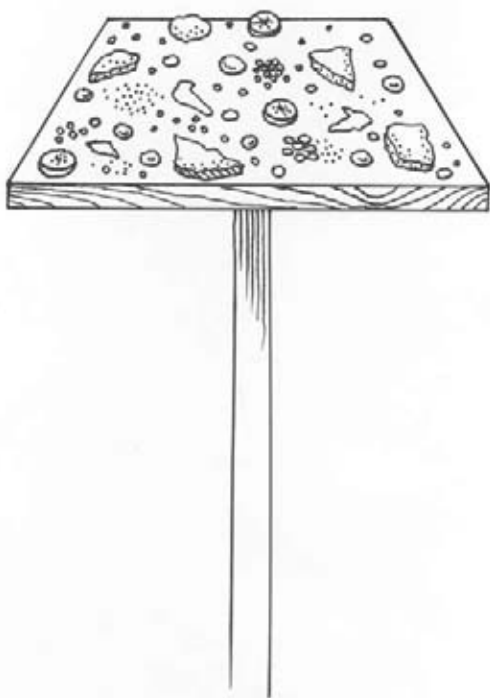
Blackbird



The blackbird is one of the most common birds found in gardens, both in cities and towns and in rural areas. There are nearly two million breeding pairs in Ireland and the song of the male is very familiar — particularly as he is generally the very first to lead off the dawn chorus each morning in early summer. Only males sing — this is true for all birds — and the blackbird is singing to attract a mate and to hold territory. It is not long before he is successful, and himself and his newly acquired mate are building their cup-shaped nest out of plant material lined with a mixture of mud and dead grass. Three to five eggs are laid, which take fifteen days to incubate.

Baby blackbirds are fed by both parents on a mixture of insects and earthworms. By fifteen further days they fledge and leave the nest. However, the baby birds are still dependent on their parents for a further three weeks to teach them how to find food for themselves and at this time baby blackbirds are vulnerable to attacks from cats, magpies and other enemies. Adult blackbirds will rear two and sometimes three broods in a single year.

Adult male blackbirds are jet black with a bright orange bill and orange eye ring. Female blackbirds are dark brown in colour and lack the bright orange beak of the male. Juvenile blackbirds are black with brown speckles. Blackbirds are omnivores, which means they eat high-protein food such as worms and insects when available and indeed feed this to their young — but in winter when such food is not available, they can eat and digest fruit and berries which they swallow whole.



To do with First Class

- It is very important to feed birds during spells of bad weather in winter so the class could set a bird table within view of the classroom window and put out food such as bread, seedcake, seeds and fruit. Half-apples on the ground are particularly popular with them too. It is important to put out fresh water for birds to drink and to bathe in.

Woodlouse

Latin name—*Oniscus ascellus*

Irish name—*Cláirseach*



Woodlouse

Woodlice are very common creatures found in gardens and school grounds. All you have to do is turn over a stone or a flower pot or look under dead leaves and a colony of woodlice will be uncovered. They are not insects — they are members of the group Crustaceae and are related to crabs and lobsters. Insects all have six legs but the woodlouse's body is made up of seven segments with a pair of legs on each segment — giving it fourteen legs in all. Their bodies are different to those of insects too and will dry out if exposed to light for too long. So woodlice come out at night and hide away during the day to avoid drying out.

Woodlice feed on dead plant material such as dead leaves, rotten wood and dead plant roots. They play a very important role in the food chain as the nutrients locked in the plants are broken down and released by their activities. This is why they are so abundant in the leaf litter at the bottom of a hedge or in woodland.

They in turn are part of the food chain, being eaten by spiders, pygmy shrews, hedgehogs and any bird sharp-eyed enough to see them. We have over 20 different species of woodlouse in Ireland — one called the pill bug is able to roll itself into a sphere when disturbed and this helps it to evade capture.

To do with First Class

Because they occur in such numbers it is easy to collect a dozen or so. In the class you can set up simple behaviour tests with them.

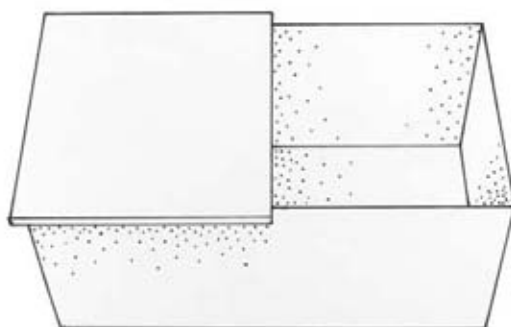
Do woodlice prefer light or darkness?

- Get a shoebox. Have half the box covered with a lid. Put six of the woodlice into this box. Have a second similar shoebox with no lid as a control to show that you are doing a fair test, and put the other six in there.

Come back later and observe where the woodlice are. They will all be in the shady side of the box.

Do woodlice prefer damp or dry?

- You can set up a similar experiment with the two boxes only this time no lids on either but a damp sponge in one section of one of the boxes and a dry sponge in a different section. Put two dry sponges in the second box. Put six woodlice in each and observe what happens. Are there more woodlice at the damp sponge than at the dry sponge?



Second Class

Self-heal

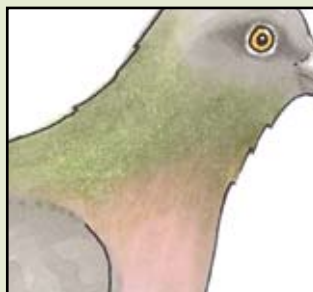
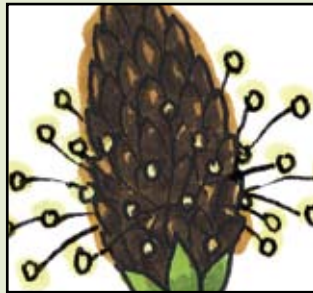
Ribwort

Ash

Squirrel

Pigeon

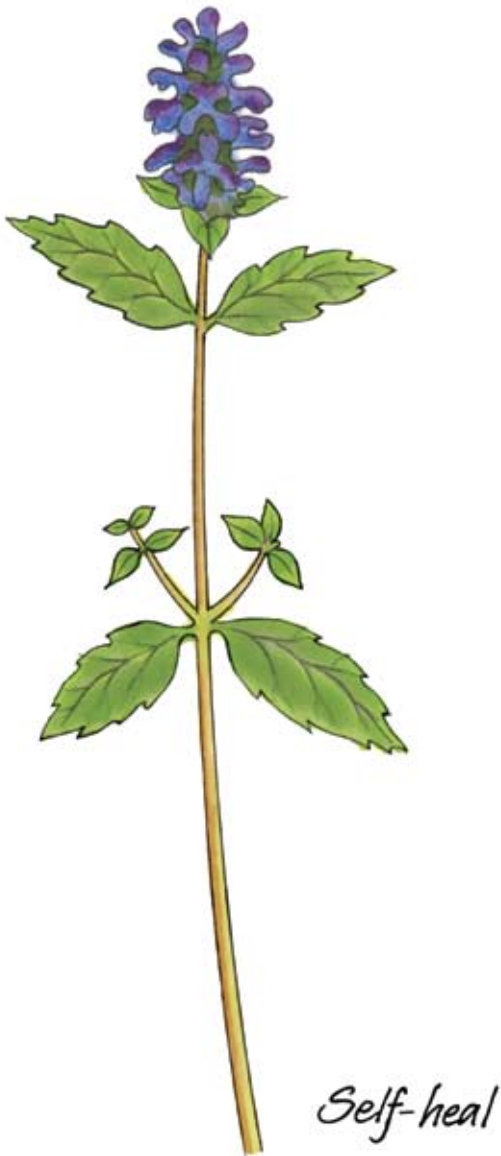
Bee



Self-heal

Latin name—*Prunella vulgaris*

Irish name—*Duán Ceannchosach*



Self-heal

To do with Second Class

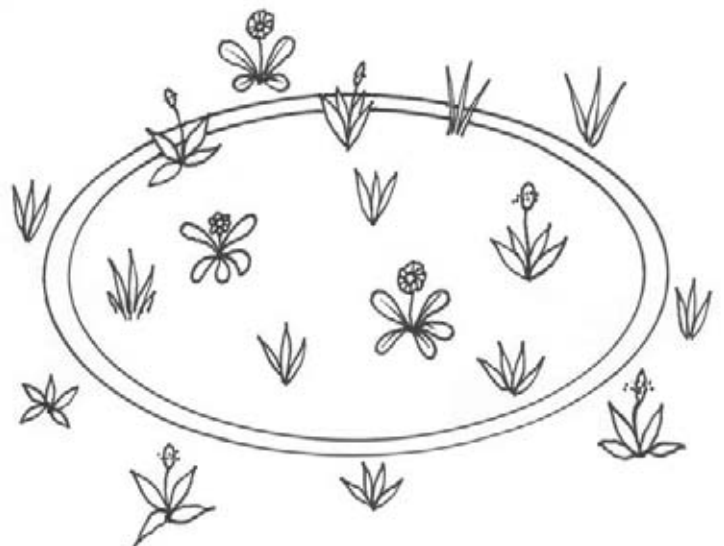
- A field trip to the grassy area near the school should be carried out in September and again in June to find all the wild flowers they know so far. The self-heal will be a new one to the list and should be easy to find on close inspection. One way to do this is to throw a hoop on the ground and examine all the plants within it. Which is the most abundant? How many different species of plants are there within the hoop?

Self-heal is a very common purple flower found in lawns and grassland. It is a perennial and grows from year to year, emerging in spring once the temperature begins to rise. It is a small plant with a creeping stem and slightly hairy oval leaves. It has a square stem which makes it easy to identify. The flowers emerge at the end of May and last until the end of September. These flowers are carried in a loose head at the top of each stem.

Each flower is purple in colour and is described as being an irregular flower. This means that there is a top and a bottom to the flower as you look at it. The flower has two lips — the top lip is slightly hooded and the bottom lip is three-lobed with the centre lobe the largest of the three.

By Second Class the pupils have already learnt about the daisy, dandelion, white clover and buttercup that grow in the grassy area of the school grounds so it is an exercise in observation sending them to find the purple self-heal flower when they are out of doors on a field trip.

The English name self-heal tells us that this plant played a very important role in the days when people had to get all their medicines from the plants they could gather. This plant was one of the best to heal wounds and so it got the name self-heal from the fact that it was easy for a person to gather it and heal themselves. It was also used for heart complaints — a tea was made from the plant and drunk to cure palpitations of the heart. It was given to children to rid them of worms and it was also thought to cure fevers and, surprisingly, to cure tuberculosis — something that it did not actually do.



Ribwort

Latin name—*Plantago lanceolata*

Irish name—*Slánlus*

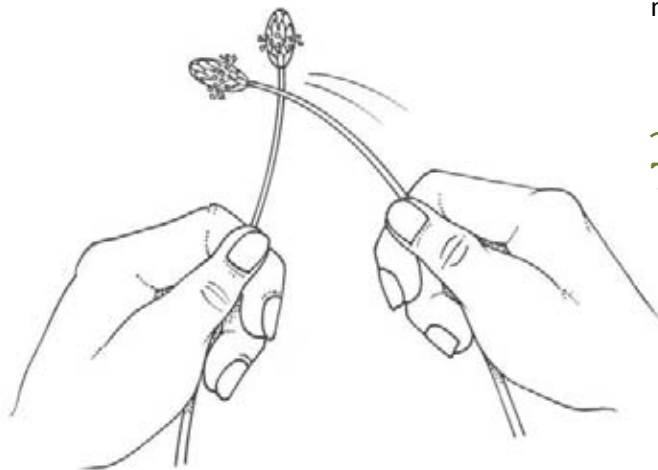


Ribwort is a rosette-leaved plant that can grow and survive in lawns that are constantly mown, so it should be easily found in the grassy areas of the school grounds. Plants other than grass that grow on lawns are commonly referred to as weeds. However, no plant is actually a weed as such — a weed is a plant in the wrong place. Gardeners and farmers who encounter plants they didn't sow among their crops are entitled to call these weeds as they take from the crop they have sown. However, on a grassy area in school, wild flowers are likely to grow among the grass and they add to the biodiversity and educational value of the area.

Rosette-leaved flowers such as daisies, dandelions and ribwort grow from a bud buried deep in the rosette of leaves. Thus, mowing the grass does not kill them — rather it kills their competitors such as buttercups and self-heal and therefore favours them. This plant has a rosette of lanceolate-shaped leaves with ribs going lengthwise along them. The flowers are carried singly on the top of furrowed stems — maybe three or four per plant. There are no obvious coloured petals — the flowers carry their many stamens with the yellow anthers containing pollen, prominently so that the wind can blow the pollen from flower to flower. These can be seen all summer long from May until September.

This plant has several common names — plantain, ribwort, soldiers. Ribwort comes from the five ridges on its leaves which look like ribs and, according to one theory (the Doctrine of Signatures) which said that God left clues in the plants as to what they were good for, was said to cure ailments of the ribs. The name “soldiers” comes from a game played by children who took it in turns to try and knock the heads off each other's plants with their own flower head or soldier.

It was valued long ago for its use in stopping bleeding from external wounds and cuts. The leaves were macerated, applied to the wound and covered with a bandage. Its Irish name slánlus reflects this.



To do with Second Class

- This is one to look for when going on a field trip in early summer. Grass that is unmowed will have the flower heads present on plants. These can be collected by the children — one each — and a game of soldiers can be played.

Ash

Latin name – *Fraxinus excelsior*

Irish name – *Fuinseog*



St Patrick is said to have driven the snakes out of Ireland with an ash stick and it has had a special place in Ireland ever since. Whether or not this is true, it is certainly true that hurleys are made from ash and these definitely have a special Irish significance, ever since Setanta drove a ball down the throat of Culann's hound with one and had to replace him himself, thus acquiring the name Cúchulainn.

Ash is a canopy tree which can grow very tall and it once formed great woodlands together with elm on good limestone soil in Ireland long ago. These woodlands were cleared for agriculture over the centuries and the ash is now mainly found as a hedgerow tree and as a tall tree in parks in cities and towns. It is the very last tree to get its leaves, usually waiting until the month of May for the characteristic black buds to open. The leaves are compound leaves with up to thirteen leaflets on each leaf.

The flowers are wind-pollinated so these appear from the flower buds in early April before the leaves appear. The pollen can thus be dispersed by the wind without being hindered by leaves. The seeds are known as keys. They occur in bunches on the tree, remain there long after the leaves have fallen and as they each have a "wing" they are dispersed by the wind.

Ash is a native species that supports 41 different insect species. A good way to examine these is to shake a well leaved bough in mid June or in early September into an upturned umbrella and see what emerges.

In ancient Irish tradition the ash was a very valued tree and was considered to be one of the seven nobles of the woods as its valuable timber could be used for building, and making furniture.

To do with Second Class

- Find an ash tree near to the school and bring the class out to see it in each of the four seasons. In spring they can make a drawing of the twigs with black buds. In April they can find one with flowers open. In May they can note the date when the large terminal bud opens revealing the leaves. By the end of May they should be able to add a drawing of the leaf to their account of the ash tree. In September they can observe the seeds. These can be planted immediately and some of them at least will germinate the following spring. In winter they can make a bark rubbing with paper and a soft pencil. Mature ash trees have a very rough bark.



Squirrel

Latin names—*Sciurus vulgaris* (red)
Sciurus carolinensis (grey)

Irish names — *lora rua*
lora glas



Red Squirrel



Grey Squirrel



We have two species of squirrel in Ireland — the red squirrel which is our native Irish species and the grey squirrel — an American species which was introduced here to Castleforbes in Co. Longford in 1911. Both squirrels are herbivores and live in woodlands and in parks where there are sufficient numbers of trees to support them. *Neither* species hibernates for the winter in Ireland (despite what was once taught in schools). Squirrels collect nuts in autumn in order to have them to eat in the winter when there is no food available for them (if they were hibernating, like say hedgehogs or bats, they would be fast asleep from October to April and would require no food).

Squirrels build a nest out of sticks called a drey. This may be in the fork of a tree or more likely in a large hole in the tree and here they live during the winter. If it is too wet to forage they can draw on their stores of nuts but on fine bright winter days they will scamper down the tree and feed on the ground — grey squirrels in particular — and in fact they are easier to see in winter as there are no leaves on the trees.

They can have one or two litters per year depending on the availability of food — one in spring and one in summer with up to three or four in each litter. They are weaned nine weeks after birth and the second litter in the year may spend the winter with the mother in the drey.

Grey squirrels are bigger than red and they tend to oust the red squirrels when they come into an area. Thirty years ago only red squirrels were found in the Dublin area but now except for one colony in St Anne's Park in Raheny they have all been replaced by grey. The grey squirrel has spread south and east from Co. Longford but the red is holding on west of the Shannon. Greys do enormous damage to trees as they feed on bark and buds and this can cause small branches to wilt and snap. They also eat hazelnuts and acorns and can digest unripe acorns, something the reds cannot do. Red squirrels like to feed on the seeds of pine cones as well as fungi which they collect from the forest floor. Red squirrels like to live in woodlands where there are evergreen trees with cones. Grey squirrels can live in the wooded areas of town parks as well as in deciduous and mixed forests.

To do with Second Class

- It is quite easy to see grey squirrels if you live in an area where they are known to occur. Early in the day is the best time to go to the park or woodland and the pupils must be quiet and patient.

Pigeon

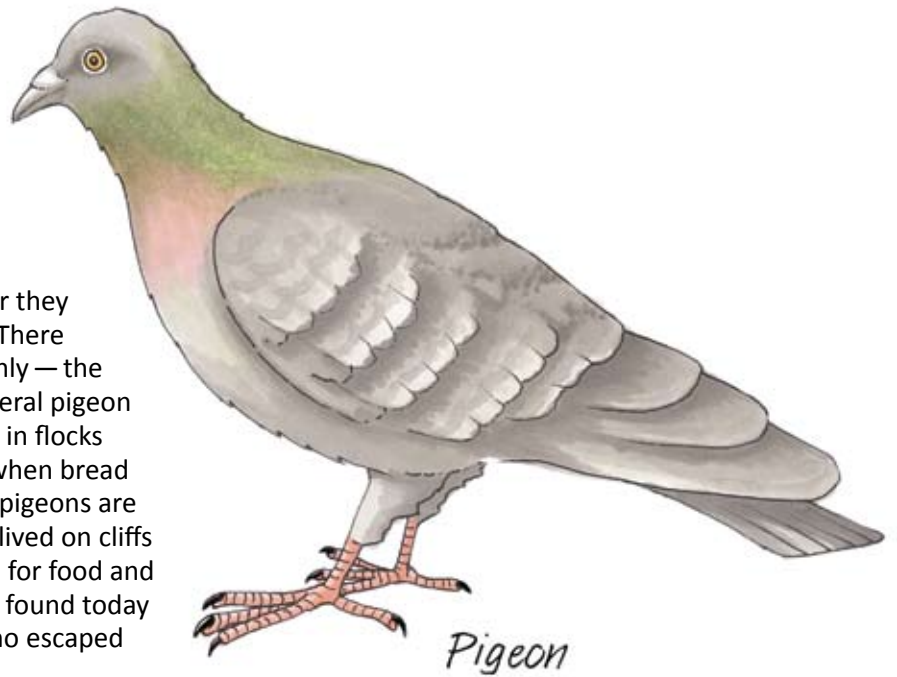
Latin names—*Columba livia* and
Columba palumbus

Irish names—*Colm aille* and *Colm coille*

Pigeons are familiar to everyone whether they live in cities and towns or in rural areas. There are two species that occur most commonly — the feral pigeon and the wood pigeon. The feral pigeon occurs mainly in towns and cities. It lives in flocks and is the species that comes to be fed when bread is scattered in the park or square. These pigeons are the descendants of wild rock doves that lived on cliffs in rocky areas. These were domesticated for food and reared in dovecotes and the populations found today in cities are the descendants of those who escaped and settled in the wild.

Pigeons nest on ledges in derelict buildings and warehouses. Their nests are made of twigs and any other plant material they can find. Two white eggs are laid and are incubated by both parents for nineteen days. As pigeons are strictly vegetarian birds they feed their young with a type of “milk” that they produce in their crop — a storage area for food at the base of their throat. When the birds fledge 33 days later they are taught by their parents to find food such as seeds, berries and buds and of course bread put out for them by humans. They can rear between three and five broods per year. Their behaviour is very characteristic — the male preens and puffs up his feathers and walks purposefully after the nearest female. She walks away just too fast for him to catch up but she doesn't fly away either and he obviously catches up enough times to ensure the five broods.

Wood pigeons are larger birds with a distinctive call — “coo-coooo-coo coo-coo” — described as sounding like “take two John, take two”. They build solitary, large, untidy nests of sticks in trees, especially in trees along the street or in hedgerow trees in rural areas. They also lay two eggs per clutch, which hatch out to a male and a female. Woodpigeons are also strictly vegetarian and feed their young on nutritious milk produced in their crops. The adults are particularly fond of green crows and many's the garden of cabbage has been ravaged by hungry pigeons in the early morning when no one is around to deter them. They can attack farmers' crops in winter when their numbers in rural areas are augmented by migrants in from Britain and mainland Europe. They can cause serious damage to crops of kale and turnips. They are also particularly fond of elderberries and their droppings in autumn can destroy the roof of any car parked by an unwary owner under a roosting woodpigeon.



Racing pigeons are exactly the same species as the feral pigeon and if they are blown off course will often join a group of wild city pigeons. They are able to navigate by using starlight and the earth's navigation force but they do the last bit home by memory. They were very useful during wartime to carry messages in small tubes attached to their leg.



To do with Second Class

- Pigeons are very easily seen — even by a large group of children. So this is a good opportunity to get the pupils to observe the flock and note similarities and differences between individual pigeons.

Bee

Latin names: *Apis mellifera* (honey bee)
Bombus (bumble bee)

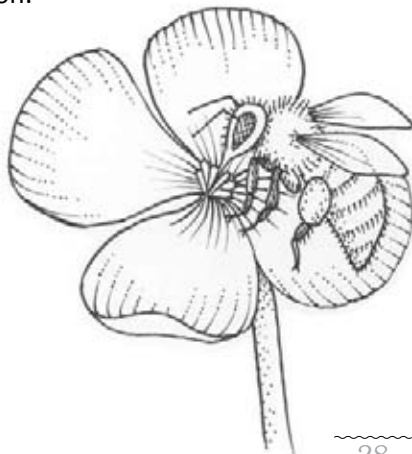
Irish names: *Beach mheala*
Bumbóg



Bumble Bee

Bees are insects that belong to two main groups — social bees which live in communities with a queen, i.e. honey bees and bumble bees, and solitary bees who lay their own eggs and rear their own young as individuals, for example miner bees. Bumble bees are native to Ireland and their queens hibernate for the winter. Honey bees originated in warmer climes and do not hibernate in the winter in Ireland. They cluster around their queen and feed on the stores of honey gathered by them during the summer for the winter months. Therefore, it was the honey bee that was domesticated in the olden times as they were the ones who produced honey in sufficient quantity for humans to harvest.

Honey bees live in a hive with their queen. All the eggs are laid by the queen and for most of the year these are all female. The babies are fed by their older sisters — the worker bees — who gather pollen in special baskets on their back legs especially for this job. Adult bees however do not eat pollen — they eat honey, so this has to be manufactured in the hive from nectar brought back by other bees in their nectar sacs. Worker bees do not do both jobs simultaneously. They spend three weeks gathering pollen, three weeks collecting nectar for honey and then they die of exhaustion.



Honey Bee

The queen lays eggs in great numbers during late April and early May and the hive can become overcrowded. When the workers sense this they build bigger and different shaped cells for the queen to lay in and the resulting eggs are nourished for longer to become queens, and some males are also produced at this time. The first young queen to hatch out goes around and stings all the other younger queens to death. She then leaves the hive on her marriage flight. When she is gone the old queen with a large group of her supporters leaves the nest as a swarm and looks for somewhere else to live. The new mated queen returns to the hive and takes over where the old queen left off. Thus honey bees nests can last for many years and build up enormous supplies of honey if left undisturbed.

Bumble bees' nests are annual affairs. The queen bumble bee comes out of hibernation and builds a nest in an abandoned mouse-hole in a hedge or field. She lays and feeds the first group of young and then they take over the duties of feeding the next batch laid by the queen. They gather pollen and nectar too like the honey bees and also have stings to defend their nest and queen. But numbers never get huge. The new queen mates when it emerges in late summer and then goes off to hibernate. The old queen and the workers die away with the onset of winter and the whole procedure must start again next spring.

To do with Second Class

- Go out and observe a flower bed and see if the class can tell the difference between the honey bees and the bumble bees that are visiting the flowers. Make sure they do not stand in the flight path of the bee and encourage them to observe quietly instead of screaming and panicking. Flowers to encourage bees and butterflies such as lavender, mint, wild thyme, flowering currant and broom can be planted in the school grounds.

Third Class

Robin-run-the-hedge

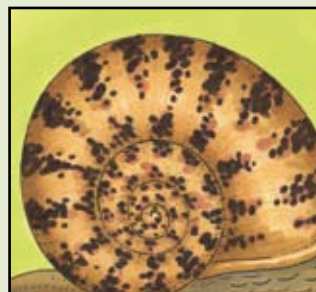
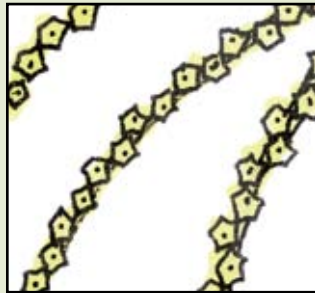
Nettle

Hawthorn

Frog

Swallow

Snail



Robin-run-the-hedge

Latin name—*Galium aparine*

Irish name—*Garbhhlus*



Robin-run-the-hedge

This is a very common hedgerow plant and one that children like very much when they become aware of it. It is an annual plant and grows anew from seeds shed the previous year. It springs up in April and thrives in shady places because it is able to climb up to the light. It can grow up to 2 metres high in the right conditions. It is able to do this because it is covered with minute hooks all over its stem and leaves and these allow it to stick to anything close by and climb up using it as support.

The stems carry the leaves in whorls of six to eight at regular intervals all along the stem. In June the flowers appear. These occur in tiny white clusters both at the top of the stem and at the leafy whorls along the stem. The seeds are carried in pairs of rounded green balls which occur where the flowers were. These little balls are covered in hook-like bristles that stick to anything that brushes against them. Any passing mouse, fox, bird — not to speak of humans in long trousers — gets thoroughly covered in these sticky balls which are groomed off later, thus spreading the plant.

This method of seed dispersal is particularly effective in wooded areas where there would be very little wind to disperse them. Close examination of the seeds or indeed the leaves with a magnifying glass is well worthwhile as the hooks can be seen. A Swiss naturalist — George de Mestral — did exactly that in 1948 when he noticed that these were all stuck to his clothes after a walk. He noticed the sharp hooks and decided that a fastener to rival a zip could be invented from this. After much trial and error he manufactured the hooks on a nylon strip and they connected to a soft fabric — and so Velcro was invented. The fastener was patented in 1955 — the name is a cross between *crochet* and *velour*.

The plant has many common names, goosegrass because it was fed to geese long ago, cleavers because it stuck — from the old verb to cleave — robin-run-the-hedge from the English magician Robin Goodfellow, sticky backs etc. All these folk names show how well known it was. The seeds were roasted to make “coffee” in the eighteenth century and the whole plant could be eaten — well boiled — as a form of spinach in early spring when fresh greens were scarce.



Seeds with hooks

To do with Third Class

- Bring the class out to look for robin-run-the-hedge in the hedge or in rough neglected areas. It should be there from April till the end of September. Show how it can stick to its surroundings and indeed to the pupils' clothes. Gather the seeds when they form and plant in yoghurt pots in the window of the class and watch how quickly they grow as compared to flowers that are desired. Weeds always grow faster to get a competitive edge and this plant can be a scourge in cultivated gardens.

Nettle

Latin name—*Urtica dioica*

Irish name—*Neantóg*



Nettle

To do with Third Class

- Read them the fairy tale — “The wild swans”.
- Collect nettles and make nettle soup early in May. It is made exactly as spinach soup except well-washed, finely chopped young nettles are used instead. Go out and look for nettles in June or in September. Sweep a net on a long pole through them to sweep off whatever creatures are feeding on them. In June there should be lots of caterpillars, in September hordes of greenflies.

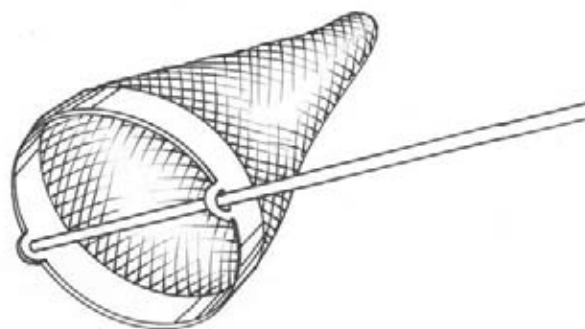
The nettle is a familiar plant to everyone — sometimes alas from the experience of getting stung by it. However it is a plant that has been highly valued in this country for hundreds of years. It first appears in early spring when the fresh green shoots are seen to emerge in ditches, hedges and waste places. It grows where the soil is rich in phosphate as it needs lots of this nutrient for growth. It can grow up to 100 cm high and can occur in dense clumps.

The leaves are opposite each other on a square stem and are covered with stinging hairs. The flowers are small and green and they hang down from the leaf axils in long spikes from June to September. There are separate male and female flowers and they are borne on different plants. There are no petals to attract insects nor indeed is there nectar to lure them in. The plant is pollinated by the wind which shakes the flowers and blows the pollen to other flowers. Seeds are formed singly and are shaken from the plants to germinate nearby, thus making the clump larger.

They are unpopular among the unwary because of their sting. This happens when they are touched lightly. The tip of the hair breaks off leaving a sharp spike that penetrates the skin and injects an irritating mixture of histamine and formic acid. It is widely believe that a dock leaf will cure the sting. Dock leaves usually grow nearby as they like soil rich in phosphate too but the relief they offer is because a large cool leaf is being applied to the stung area — a large damp tissue would give the same ease. If you grasp a nettle firmly however the hair is completely flattened and cannot sting. However, it was believed that nettle stings were good for rheumatism and inflamed joints.

They are edible early in the year and were traditionally gathered (while wearing gloves!) to make a soup full of vitamins at a time of year when native vegetables were scarce. The stings disappear entirely in the cooking. The stalks contain strong fibre which used to be gathered, extracted and woven into cloth in Ireland since Bronze Age times. In the Hans Anderson fairy tale “The wild swans”, the princess had to weave shirts from nettle fibre to restore her brothers from swans to humans.

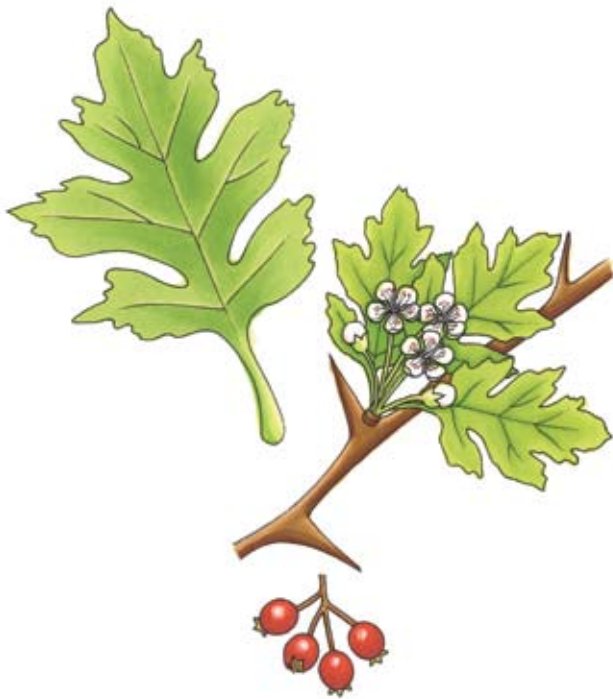
They are wonderful food for insects as well. The caterpillars of small tortoiseshell and peacock butterflies love them as do lots of types of aphids.



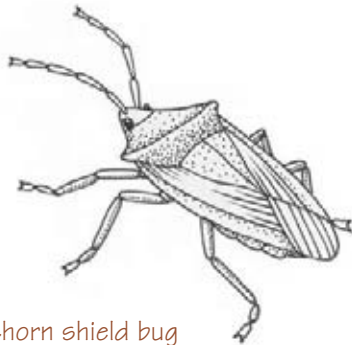
Hawthorn

Latin name—*Crataegus monogyna*

Irish name—*Sceach gheal*



Hawthorn



Hawthorn shield bug

The hawthorn is also known as the whitethorn or the May bush. It is a native Irish tree and is found commonly in hedges all over Ireland. Leaves come on the hawthorn tree in the month of April. This is followed by bunches of creamy white, musky smelling flowers in May — the May blossom. These lovely flowers attract copious numbers of insects. The bees gather pollen and nectar from them and in doing so fertilise the flowers. By late summer the berries are beginning to form.

The berries are called haws and are bright red when ripe. Each berry contains a hard stone which is the seed. Hawthorns rely on birds to eat their berries in order that new hawthorn trees can grow. Birds, who have no teeth, must swallow the berries whole. They can digest the soft berry food surrounding the stone but the stone itself is too hard to be digested. They excrete the stone in their droppings and it then can germinate and a new hawthorn tree can grow.

Hawthorns are small trees, which rarely grow taller than 15 metres high. Because they have thorny branches and adapt well to being trimmed and lopped, they are very frequently planted as hedge boundaries along the edges of fields. When kept trimmed and bushy they are good stock boundaries so many of our Irish fields are bounded with hawthorn hedges, and May blossom is a glorious sight at that time of year.

Hawthorn will also grow as lone trees too and there is a great deal of superstition attached to such trees. It is said that such trees were beloved of the fairies and that very bad luck would befall anyone who chopped one down. People believe this to this very day and are very reluctant to remove lone hawthorns. This bad luck also attaches itself to the flowers — it is believed that death will follow if they are brought indoors. The smell of the blossoms indoors is associated with the smell of dead tissue because actually the same chemical is present in both cases — so maybe the old wives' tale had something going for it! Hawthorn trees are also associated with holy wells. Offerings are often left on the trees and the water in the well taken for cures. Such customs go right back to pagan times two millennia ago.

Being native trees, hawthorns contain a great variety of insect life. In particular, the hawthorn shield bug is a common inhabitant and can easily be dislodged by shaking the tree into an upturned umbrella.

To do with Third Class

- Read the book *Under the Hawthorn Tree* by Marita Conlon-McKenna.
- Bring the class out to find hawthorn trees in the local hedge. Study the tree throughout the year — noting when the leaves open, when the blossoms are out and what the haws are like. Gather haws and plant the stones to germinate new trees.

Frog

Latin name—*Rana temporaria*

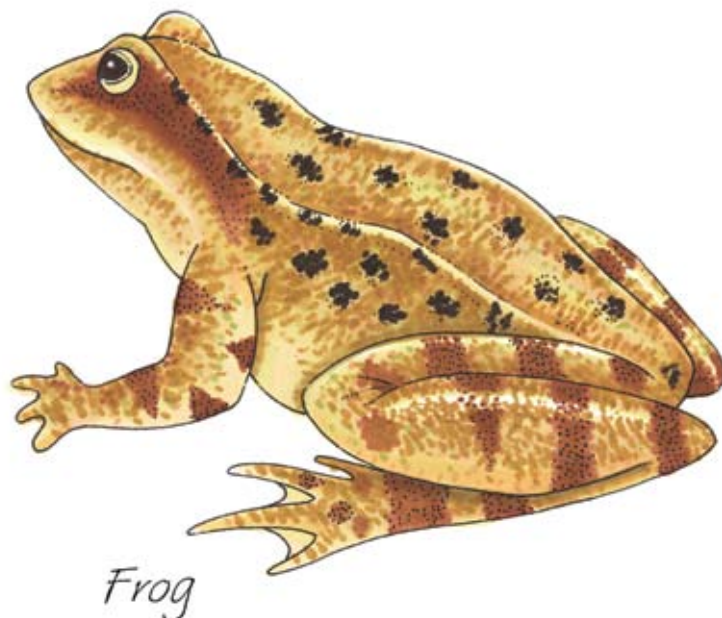
Irish name—*Frog*

(No Irish name as frogs were introduced to Ireland around 1600)

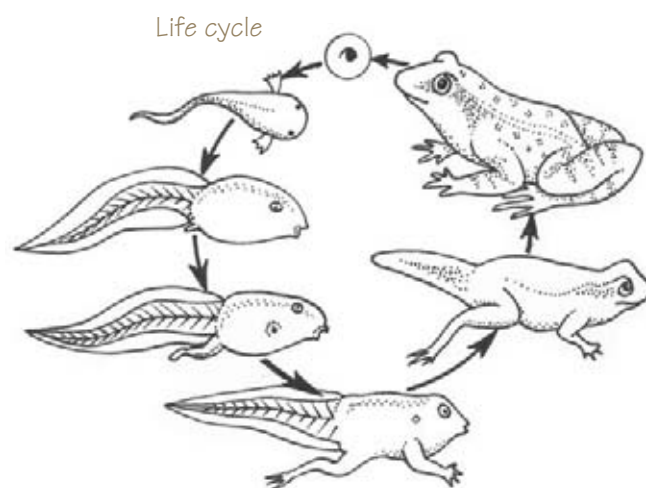
Frogs belong to the animal group amphibians. These are cold-blooded creatures that cannot control their own body temperature but are affected by environmental temperatures. Another distinguishing characteristic is that they are able to take in oxygen in two separate ways. They have lungs, which they fill with air which they inhale from the atmosphere. However when they are hibernating at the bottom of ponds in winter, they are able to absorb enough oxygen from the water through their skins to keep them going.

In February frogs wake from hibernation. Males hibernate at the bottom of ponds and females hibernate in separate quarters at the bottom of wet ditches around fields. These female frogs, upon waking, hurry to the ponds where the males are encouraging their arrival with loud croaking. The females and males both enter the water where mating takes place. The male climbs on to the back of the female and holds her with his nuptial pad — a very well developed thumb. When she produces her eggs in a cloud into the water, he immediately squirts sperm all over them and fertilisation takes place in the water. The fertilised eggs swell up and float in a jelly-like mass called frogspawn. The couple then disengages and they go their separate ways. Frogs spend the rest of the year in wet fields and meadows and in gardens feeding on flies which they catch with their long sticky tongues. They never go back to the pond until hibernation time in October when the males return. The eggs are left to fend for themselves.

Meanwhile back in the pond, the black eggs in the transparent jelly become larger until they finally hatch out into tadpoles. These are completely aquatic creatures, with gills on their long tails and they get all their oxygen requirements from the water through these gills. They are carnivorous creatures and indeed if they are short of food will even eat each other as many the owner of a tank of frogspawn will testify. Frogs are protected under European legislation because they are scarce in Europe in general. However, they are not endangered in Ireland so a general licence has been issued to all Centres of Education in Ireland to collect and study frogspawn in class in tanks, etc., without individually having to apply for a licence to the National Parks and Wildlife Service.



Tadpoles slowly develop into small frogs, growing first their legs and then finally losing their tails. If they are kept in a tank the water must be changed regularly as a buildup of enzymes from the tadpoles prevents them from developing into frogs. They can be fed with fish food — daphnia — which is sold for goldfish. When they have all four legs and lose their tails, they will leave their watery environment and hop around grassy meadows catching food for themselves. In turn, they are food for birds such as herons.



To do with Third Class

- Note the date when first frogspawn is seen, to build up a series of records over the years. Bring in frogspawn to class (or into the school pond) and observe the stages of growth. Release the frogs back to the wild when fully grown.

Swallow

Latin name—*Hirundo rustica*

Irish name—*Fáinleog*



Swallows are Irish birds because they are born here in Ireland in summer. The nests are built from mud which both parents scoop up in flight as they fly over muddy ground in rural areas. They are lined with feathers which the swallows pluck from themselves. The cup-shaped nests are always built indoors in sheds and barns. (Mud nests fixed to the outsides of houses and on gables are built by a different bird — the house martin, swallows' nests are always indoors.)

The female lays three to six white eggs with red-brown speckles and they hatch after fifteen days. The nestlings are fed by both parents and are able to fly after 20 more days. They then fledge, leave the nest and don't return to it again. Swallows are carnivores. They feed on aerial insects which they catch in their large gaping mouths. They cannot eat anything else so as the days shorten after the equinox in September, they gather in colonies on telegraph wires and suddenly all fly south to Africa to spend the winter. Irish swallows spend the winter in South Africa where it is warm enough to have sufficient aerial insects to feed them. Long ago, people didn't know that they migrated to Africa in winter. When

they couldn't see them flying around they were sure that they hibernated in the mud at the bottom of ponds. This of course doesn't happen.

When the days lengthen in March they set out once more for Ireland as the longer days in Ireland in summer means that they have up to eighteen hours of daylight to catch insects to feed their young — something that couldn't happen in Africa as summer days there are much shorter. Their arrival in Ireland depends on weather and prevailing winds — in 2009 the first swallows were recorded here on 16 March. But one swallow doesn't make a summer and usually the main group do not arrive until April.

There is a lot of folklore associated with swallows. Long ago there was a belief that ailments could be cured by treating them with something that resembled the ailment. Thus, because swallows twittered (rather than sang) they could be used as a treatment for stuttering and for epilepsy. This involved eating the flesh of the swallow, something we wouldn't dream of doing now as swallows are a protected species. Swallows are seen as birds of good luck. It will bring good fortune if they nest on your property. Or it is a sign of good weather if they are flying high in the sky. They are also considered specially favoured by God so it is really unlucky to kill one.



Swallow's nest

To do with Third Class

- Record the date when the first swallow is seen. Over the years this will give an indication of whether they are arriving earlier each year because of climate change. Go out in May to look for swallows flying in the sky. Ask the pupils to look inside sheds and barns to see if there are swallows nesting.

Snail

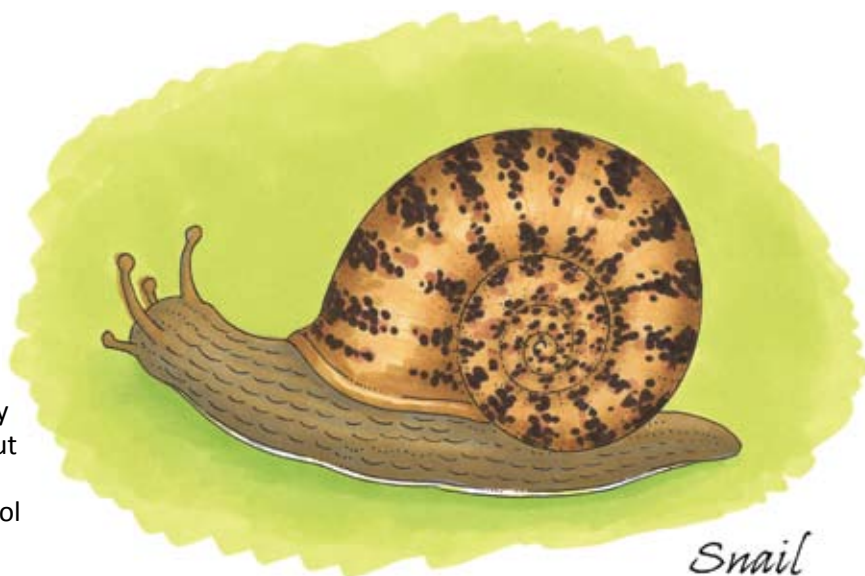
Latin name—*Helix aspersa*

Irish name—*Seilide garraí*

Snails belong to a group of minibeasts called Molluscs. They all carry a shell made of calcium, which is part of their body. They cannot be detached from their shell without fatal injury. A very common snail found in fields, gardens, parks, hedgerows and school grounds is the garden snail.

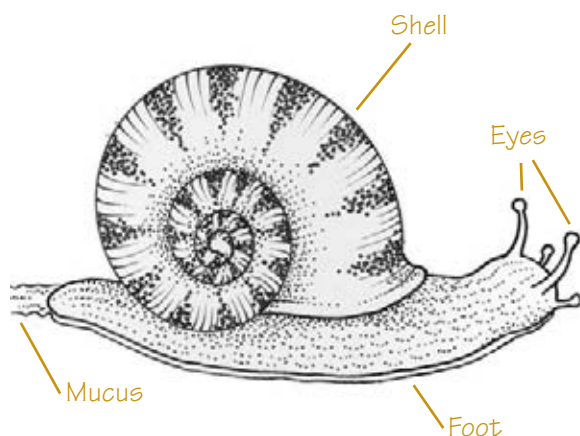
This is a large snail, with a shell up to 40 mm across. The shell is yellowish brown in colour with up to five spiral bands. The snail inside has a dark brown body which it can extend so that its head stretches forward, with four horns visible. The two large horns carry the snail's eyes and it is able to sense and smell with the two smaller lower horns. It secretes mucus though the flat underside of its body — known as the foot and it slides along on this mucus. It needs lots of water to keep its soft body from drying out and to manufacture enough mucus to slide along. Therefore, when the weather is hot and dry for a time the snail becomes dormant to save energy, goes right back into its shell and seals the entrance with quick-drying mucus.

It prefers warm, wet nights when it can emerge and slide around gardens and parks looking for food. Snails are herbivores and they really love to feast on small delicate garden plants such as newly planted seedlings, strawberries and courgettes. They have teeth all over their tongue — which is called a radula, and each one can do considerable damage at night in a newly-planted garden. When morning comes they hide away from danger and to protect themselves from drying out — often in communal roosts at the bottom of walls or under the overhang of window sills.



Snails are all hermaphrodite, which means that they carry both male and female organs — there are no separate males or females. However, one must meet another one to mate with, before they both go off to lay eggs. Each snail can lay up to a hundred white pearly eggs in the soil. No wonder there are so many of them during wet summers. They hibernate when winter comes, retreating into their shells and sealing off the entrance.

They are a favourite food of hedgehogs. Thrushes are able to eat them by bashing open their shells against a stone (called a thrush's anvil) and gobbling the contents. Magpies are very good at finding them and crunching them whole. The garden snail is edible for humans as long as they are kept fasting for a while before cooking so that they excrete anything they may have eaten that would be poisonous to humans — such as ivy. Poisoning them with blue pellets is very bad for the environment as birds and hedgehogs that eat snails poisoned in this way will be adversely affected. Beer on the other hand kills snails but does not affect creatures higher up on the food chain.



To do with Third Class

- Go out to the school grounds and look for snails. Search in the usual places. Mark each snail with a small dab of nail varnish. Repeat the exercise a week later and see how many of the new batch found is marked. By putting out sheets of old carpet or such like areas of cover, the chances of finding snails are increased.

Fourth Class

Lords and Ladies

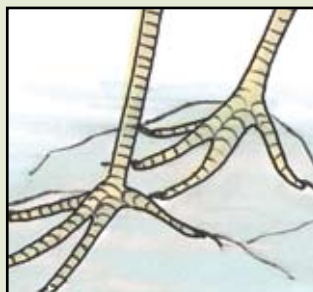
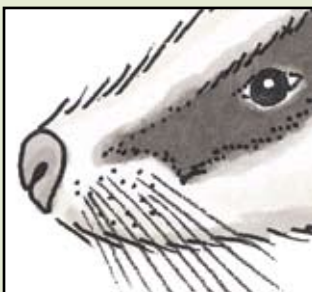
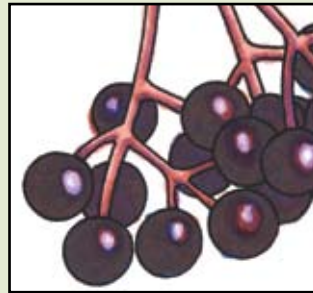
Vetch

Elder

Badger

Heron

Butterfly



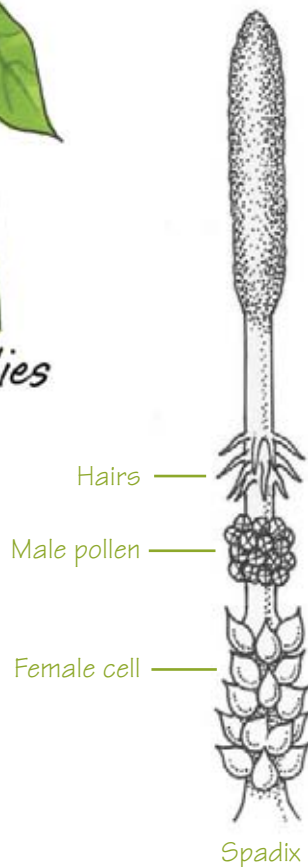
Lords and Ladies

Latin name—*Arum maculatum*

Irish name—*Cluas chaoin* (among others)



Lords and Ladies



Lords and Ladies is one of the many names given to the arum lily — a most unusual lily-like flower that appears in our hedgerows and woodlands in April and May. Plants need light in order to grow and in woodlands the canopy of the trees captures most of the available light. So, many woodland plants flower early, before the canopy closes and Lords and Ladies is one of these.

The arrow-shaped large green leaves appear first and then these unroll to reveal a most peculiar-looking flower. It consists of a yellow hood called a spathe with a pointed fleshy swollen brown or purple stalk called a spadix inside. This spadix is the top of the complicated flower arrangement that this lily has. When ripe, the fleshy spadix, gives off a smell like rotten meat. This attracts flies which come along expecting food.

They buzz around and try to find the food which seems to them to be hidden in the depths of the spathe. Down they go into an opening that is guarded by a defence of hairs that only bend one way — downwards. Once the flies enter, they are trapped in a chamber where the top layer is of stamens containing pollen while below in the bottom of the same chamber are the female parts. These are ripe and are waiting to be fertilised — not by the pollen of their own flower, but by that of another. Eventually a fly arrives covered with pollen from a different lily. This fertilises the waiting cells. Following this the male parts produce their pollen, the guard hair cells collapse and the flies can escape — all now thoroughly dusted on the way out by the pollen of the flower in which they have been trapped.

And indeed some of them enter another lily, fertilise the female cells there and so contrive the escape of the foolish flies there. The whole spathe and spadix then collapse, their purpose having been served and the fertilised female cells swell and ripen into red berries. Indeed the stalk with a cap of red berries is a familiar sight in autumn, the berries poisonous to us humans but not to the wild creatures that eat them and spread the seeds by way of their droppings. The pointed spadix reminded people of earthier things in earlier times as the names cuckoo pint or the Irish Bod Gadhair, reveal.

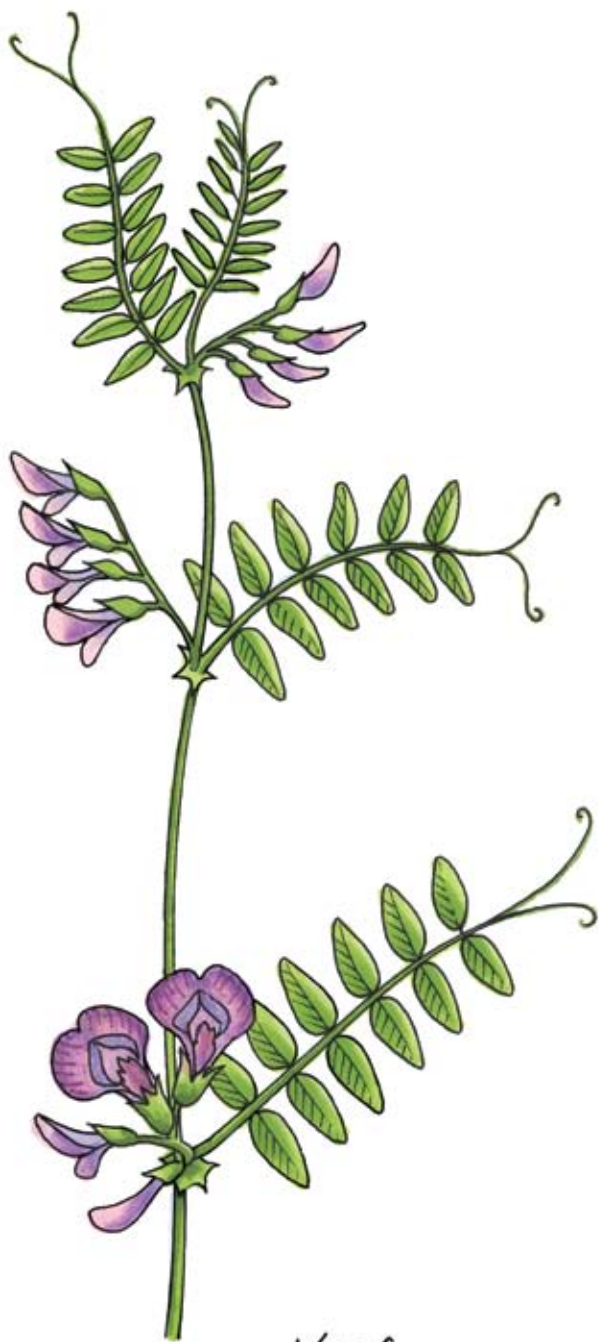
To do with Fourth Class

- Bring them out to the school hedge to look for these plants in late April. Check how many can smell the spadix as it is an inherited ability and not everyone can. Open the spathe to observe the hairs and the trapped flies. Look for the stalk with the red berries in autumn but do not pull it or touch it — just observe.

Vetch

Latin name – *Vicia*

Irish name – *Peasair capaill*



Vetch

The vetch is also a plant that grows in shady areas. It uses a different strategy to survive in a habitat where light is restricted — it can climb up towards available light. It is a member of the pea family — the legumes. Like the sweet pea that flowers in gardens, it produces tendrils at the end of its leaves. The leaves are positioned alternately along the stem and each leaf consists of a number of opposite pairs of leaflets. At the end of each leaf however, is a set of stringy tendrils which seek for something to catch onto. In the wild hedge this is usually other plants such as brambles, or grasses. With this support, the plant is able to assist its passage upwards towards the light.

As a result, it can flower later than hedge flowers with no such support and the purple flowers of the vetch can be seen in hedges right up to the end of July. As it is a member of the pea family, the flower is typical of this family. It is described as being irregular — the petals are not symmetrical around a centre but are of different sizes and shapes and form a closed hood over the male and female parts. As a result, the flower is self-fertile and pollination occurs inside the closed flower.

The seeds are carried in pods similar to those of a pea but much smaller and these turn black when ripe. The pods then split open suddenly and the seeds inside are shot out by the force. They settle further away and a new plant can then germinate.

All members of the legume family including vetches are, unusually among plants, able to fix nitrogen directly from the air. Plants need nitrogen for growth and cell formation, and normally plants absorb it from the soil in the form of nitrate. Vetches however have nodules on their roots which are formed in conjunction with special soil dwelling bacteria and these nodules are able to absorb nitrogen in a gaseous form directly from the air around the roots. When the plants rot back into the soil after death, the nitrogen is released as nitrate and thus leguminous plants enrich the soil in which they grow for other plants. This is why gorse can grow so well on poor soil or why farmers used to plant clover — another member of the legume family — in their pastures to improve conditions for grass growth.



To do with Fourth Class

- Go out to hedges in May and June and look for this plant. Observe its tendrils holding on to other plants. Grow vegetable peas and sweet peas in the school garden or in pots in the classroom window and watch how they grow and climb.

Elder

Latin name—*Sambucus nigra*

Irish name—*Trom*

(The town of Trim in Co. Meath is Beal Atha Trom)

The elder is a very common native tree. It grows naturally in hedges and in neglected city gardens. It is a small tree, not exceeding 15 metres in stature. A deciduous tree, it gets its new leaves early in the year, usually at the start of April. These are compound leaves. Each leaf has between five and nine oval leaflets in opposite pairs with one terminal one. The lovely creamy bunches of elderflowers open in June and attract myriads of insects. In their efforts to collect nectar these insects pollinate the flowers. The bunches of purple elderberries are formed in September. These are feasted upon by many species of birds — in particular, the woodpigeon. They void the hard seeds in their droppings and these quickly germinate into new fast-growing elder trees again.

The timber of the elder tree is very soft — the centre of the twigs and branches is composed of pith, so that it does not have much value as timber. Because of its hollow twigs it is called the boo-tree or bore-tree in the Ulster Scots dialect and the word is used commonly in Co. Monaghan for elder trees.

There is a huge amount of superstition associated with this tree. It was considered to be the tree on which Judas hanged himself and so has been cursed by God. This is why the leaves smell so horribly rank (try them) and the timber lacks strength (so no one would ever hang themselves from this tree again). It would be exceedingly unlucky to use the timber



when making a cradle or a boat as very bad luck would befall the occupants. It was also believed that if a child was struck with an elder stick, they wouldn't grow any more.

This bad luck did not extend to the blossoms from which beautiful sparkling white wine can be made, or to the berries which can be made into red wine. The tree itself is full of insect life all summer long and these can be easily dislodged and examined.

To do with Fourth Class

- Bring them out to find an elder tree and study it with them through the four seasons — leaf burst, leaf smell, leaf shape, blossoms, berries, bark rubbings, examination of foliage for insect life. Look for associated fungi at the base of elder trees — a jelly-like rubbery one known as *Jew's Ear* is quite common.



Badger

Latin name—*Meles meles*

Irish name—*Broc*

Many Irish place names are called after them i.e. Clonbrock, Pollbrock



Badger

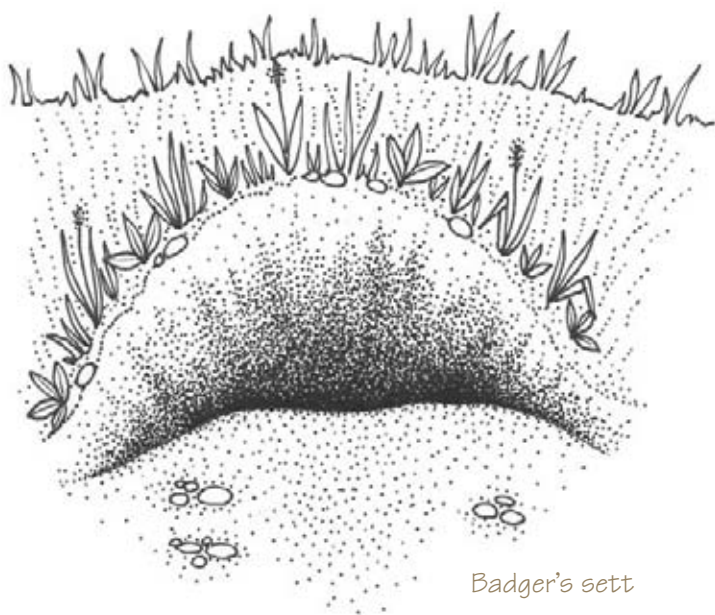
The badger is a large nocturnal mammal. It is very common in Ireland, but is rarely seen as it is nocturnal. It has a white head with a black nose and two broad black stripes running down its face. The rest of its body is grey. It is a native Irish species — earliest records are from a wedge grave at Lough Gur in Co. Limerick.

Badgers live in setts which they excavate underground. These may be very old indeed and consist of many tunnels underground with several entrances. A family group will live here and defend its territory against neighbouring badger groups. There is usually a dominant male in each group and several females. Mating takes place in April and May but because of delayed implantation of the fertilised egg the young are not born until the following February or March. Pregnant females prepare a birth chamber by removing all the old bedding and airing it up in the open air and then it is returned together with fresh material to make the new bedding material. After birth the three to five cubs stay underground for eight weeks. They then venture above ground, but their mothers will continue to nurse them for another

three months. By the end of the year they are fully independent. Young males then disperse widely, whereas young females stay close to home.

Badgers are omnivores — which means that they can digest both plant and animal food. The most common item in their diet is the earthworm and they will eat up to 200 earthworms in a single night. They often dig up lawns and fields to get at the earthworms. They also eat beetles, slugs, snails, frogs, rabbits, mice, rats and hedgehogs. They are also partial to blackberries, elderberries, apples, acorns and fungi. With such a wide range of food no wonder they are so abundant. It is estimated that there are up to 250,000 badgers in Ireland.

Badgers suffer from tuberculosis, which they pick up from cattle and indeed can pass on to cattle. A vaccine to eradicate this disease in badgers is currently being developed. They are a totally protected species under Irish and European legislation, so it is completely illegal to hunt them, trap them, block up their setts or interfere with them in any way.



Badger's sett

To do with Fourth Class

- Contact the local wildlife ranger for the county and ask where the nearest badger sett is. Bring the class on a visit to see this. (Local knowledge may also provide this information.)

Heron

Latin name—*Ardea cinerea*

Irish name—*Corr réisc*

(also *Máire Fhada, Nóra na bportach, Síle an phortaigh*)



The heron is Ireland's tallest bird. Standing up to 98 cm tall, it waits patiently all day in areas of fresh water, waiting for a fish to pass so that it can pounce on it for a meal. It has a long, yellow bill; long, narrow legs and a grey and white body with black wing tips. In flight it is unmistakable as it flies with its head drawn back and its long legs trailing behind.

Remarkably, for a bird that stands all day by shallow water, it builds its nest at the top of a tall tree in a colony called a heronry. There are usually less than fifty nests per colony, made from sticks or reeds by the female and three to five light blue eggs are laid. After 25 days incubation the young are fed by both parents with fish, beetles, frogs and rats. One parent always stays on guard while the other is away feeding and catching food for the young.

They are not able to swim so they must stand patiently until an unwary fish swims over their feet. If the fish is small they can swallow it whole, taking care of course to swallow it head first so that the scales do not get stuck in its throat. If the fish is too large for this, they will kill it with repeated stabs of the beak and then bring it to the bank to pick off the flesh. They are one of very few creatures to eat frogs, as most creatures find them distasteful. Even the heron doesn't like the ovaries of the female frog and will cough these up on the bank where they swell most amazingly in the rain and present a mystery to nature watchers who find them and are not in the know.

Hérons were very familiar in Ireland long ago as was a larger wading bird — the Crane — which is now extinct here because of habitat destruction. So our grey heron is sometimes called the crane as it resembles this earlier bird. The wealth of names in Irish that exist for it show how well known it was (place names such as Corlough mean the lake of the heron). It was thought that a heron flying south is a sign of good weather.

To do with Fourth Class

- Make out a food chain — or indeed a meal menu for a heron. As there are up to 10,000 breeding pairs in Ireland an expedition to a river/lake/wetland/town park with pond should bring a sighting.
- Use the internet to look up the delightful poem — “The herons on Bo Island” — which could then be learned as part of a poetry anthology.



Butterfly

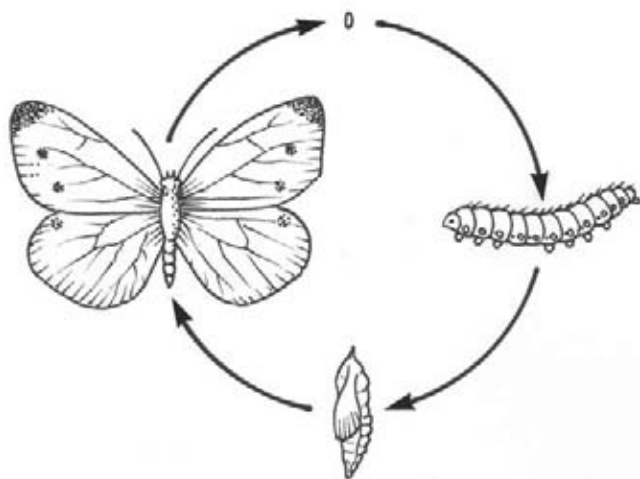
Latin name—*Aglais urticae*

Irish name—*Ruán beag* (Small tortoiseshell)

Butterflies are members of a group of insects known as Lepidoptera — which means wings with scales. There are 32 species in Ireland — some very common indeed. The colourful adults fly during periods of sunshine in summer. They meet members of the opposite sex, mate and then the females lay their eggs on very specific food plants. For example, the cabbage white will lay its eggs on cabbages, the small tortoiseshell and the peacock will lay their eggs on nettles.

The eggs hatch out into caterpillars which feed voraciously on the food plant. As they have all their soft parts on the inside surrounded by a tough skin, they must burst this skin in order to grow. Each time they burst, the new, bigger, caterpillar emerges with a hairier, spikier skin. By the time they have burst for the fourth time they are very spiny indeed and are distasteful to birds.

These “hairy mollies” then crawl away from the food plant to spin a chrysalis around themselves and change into a fully formed butterfly. Wings and reproductive parts are formed. The newly-formed butterfly emerges from the chrysalis with four beautiful wings, six legs, two antennae on top of its head and a long tongue, which is normally coiled up, and which it extends to take a sip of nectar when it visits flowers. All the energy they need as an adult, they got while feeding as a caterpillar so they will never eat again — the adult butterfly has no intestines and never excretes again.



Life cycle of the small white butterfly



These adults then fly around looking for a partner with which to mate. Once this has happened and the female has laid the eggs, both adults will die and the cycle continues through the eggs. Adult butterflies can live for several weeks in Ireland but the larger species in tropical areas, who expend much more energy in flight, might only live for one day as a beautiful, glorious adult.

Irish butterflies hibernate during the winter. Mostly, they hibernate in the chrysalis stage. However, the rare brown hairstreak overwinters as an egg, while the common small tortoiseshell comes indoors as an adult just when it emerges from its chrysalis in autumn. It hibernates in corners, in curtains, in the hot press — anywhere in fact it feels that it will not be disturbed.

Butterflies are eaten by birds, who catch them and strip off their wings and by spiders if they blunder into their webs.

To do with Fourth Class

- Rear butterflies in class. Collect the eggs or caterpillars of cabbage white butterflies from cabbage plants in the garden. Put them with the cabbage leaves into an empty fish tank or some such and cover. Change the leaves and clean out the droppings as required. Watch the eggs hatching and the caterpillar's bursts, then put in a few sticks so that they can climb up and pupate. Do let them go when they finally turn into butterflies.

Fifth Class

Poppy

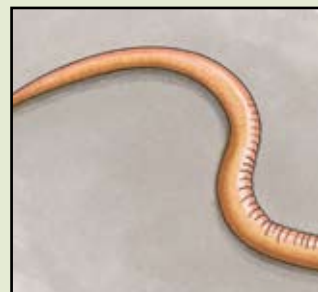
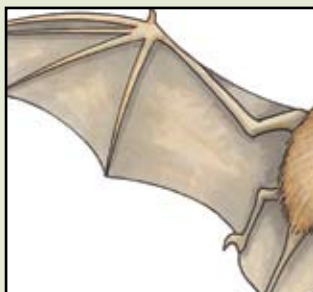
Speedwell

Hazel

Bat

Kestrel

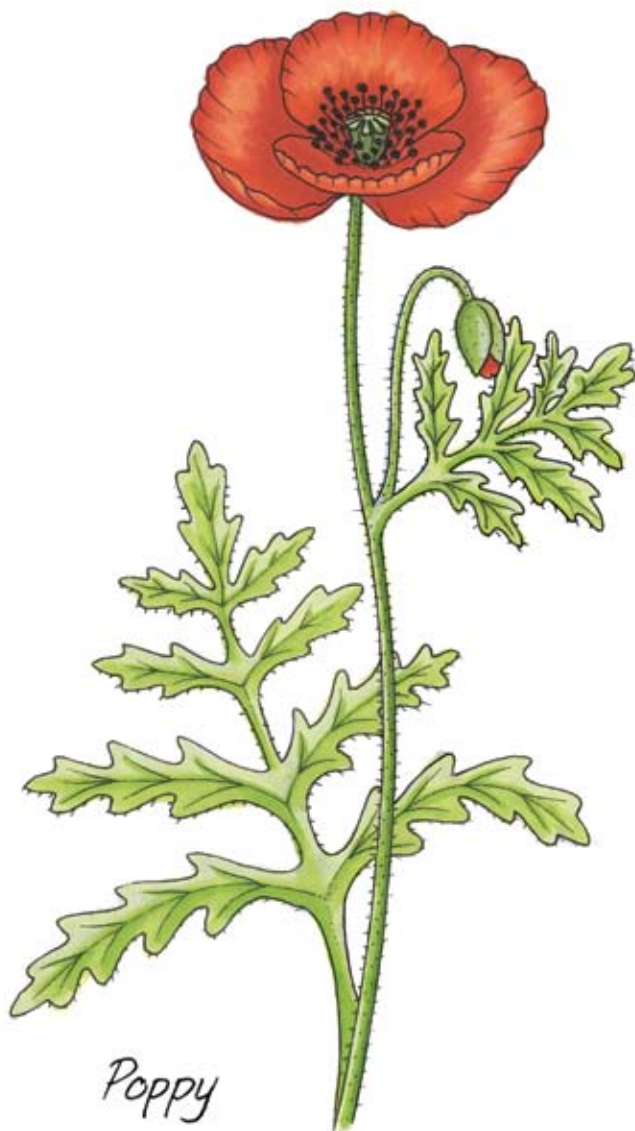
Earthworm



Poppy

Latin name—*Papaver rhoeas*

Irish name—*Caithleach dearg*



The poppy is a large, red wild flower that grows where soil has been disturbed. It flourishes along the sides of motorways for a year or two when the motorway is new, before other plants become established. It was a common weed of grain fields, as the seeds germinated when the soil was ploughed to plant the grain. Careful management of grain crops and spraying with selective weed killers has meant the cornfield full of poppies is no longer a common sight in the cereal-growing regions of rural Ireland.

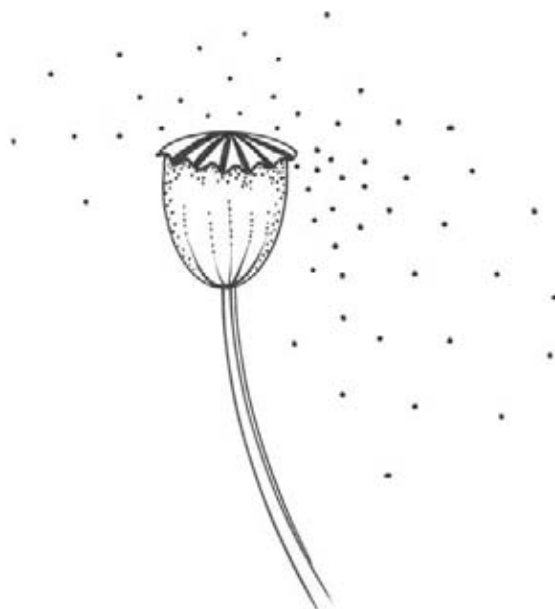
The poppy flowers from June till August. It carries a red flower and red flowers are really uncommon among naturally occurring wild flowers — hence their popularity with gardeners. The colour red signals danger and the poppy itself carries substances which makes its leaves unpalatable to herbivorous insects. The colour thus acts as warning to keep away. The plant carries its flower in a green bud formed by two closed sepals. The four red petals emerge from this and the green sepals immediately fall off when the flower opens. It thus seems that the flower has four petals and no sepals. The seeds are carried in a grey-brown cannister-like capsule with holes near the top, through which the seeds are shaken by the wind for distribution.

Because the seeds of the poppy can lie dormant in the soil for up to 40 years, a crop of red poppies grows when the soil is dug up after a long period of undisturbed grassland. So when, during the First World War the numerous casualties were buried in plots newly-dug for graves, the poppies flowered because the soil was now disturbed. "In Flanders fields the poppies blow, /Between the crosses, row on row". So the poppy as a remembrance of the horror of war was in the first place an ecological consequence.

The opium poppy is a different plant — it has purple petals. It is a native of Turkey and was grown originally in Ireland since the Bronze Age because it contains the narcotic and sedative opium. It is no longer cultivated here for this purpose but the odd wild plant still grows on sandy soils in the central part of the east coast.

To do with Fifth Class

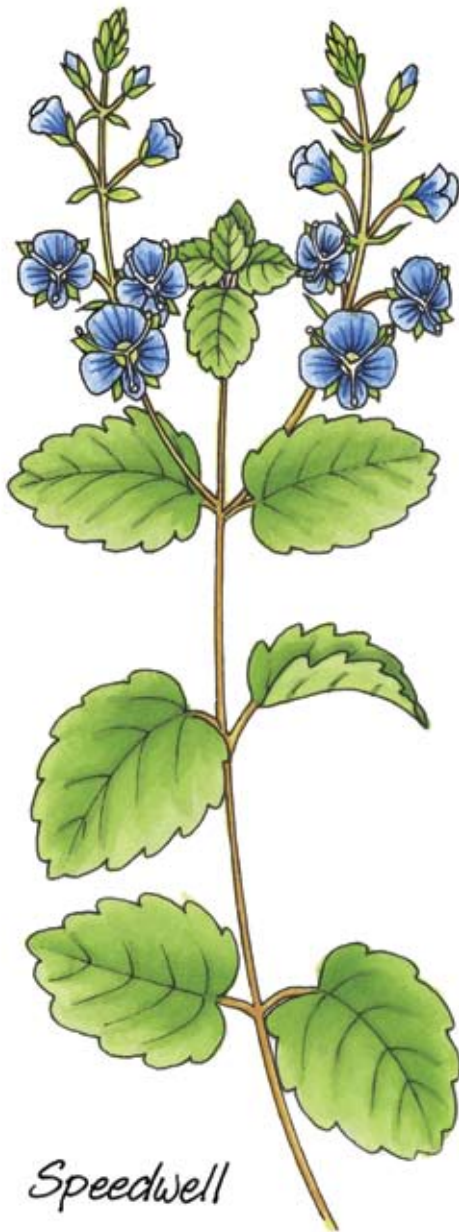
- Discuss with the class where poppies might occur in the local area. Where is there recently opened ground — roadside, field, building site, waste ground? Bring the class out to look for poppies following this brainstorming session. Try digging a piece of the school field or lawn which hasn't been disturbed for years and see what plants germinate and grow in the disturbed soil. If this is done in mid-May the new plants will be up before the school holidays at the end of June.



Speedwell

Latin name – *Veronica chamaedrys*

Irish name – *Lus cré*



The speedwell is a very common bright blue flower that occurs in unmowed parts of the school lawn or the school field. There are quite a few Irish species of speedwell but one of the most obvious ones is the one illustrated here – the germander speedwell. It is a perennial plant, which means that it grows up each year in spring and summer, dies back in autumn and re-appears the following year without having to be re-sown.

It is a low, straggling plant — reaching 50 cm at maximum length and often much lower than this. The stems are often reddish brown and have two distinct lines of hairs. The leaves are oval with a toothed edge. It is the flowers that attract the eye. These can appear as early as April and the plants flower all summer long until September. The pretty flowers are bright blue in colour and can be up to 12 mm across. There are four petals — three the same size and one slightly smaller. There are two stamens displayed prominently and the pollen is formed in the white anthers at the ends. The petals are all joined together at the base and if one is pulled they all come off together in a crown with the stamens attached. Examined carefully, the female part can be seen sticking up from the centre of the flower. Later in the year seeds will form in a flattened capsule on the stem.

Pupils in school will be familiar with the rosette-leaved flowers of the school lawn such as daisies, dandelions and ribwort since their junior classes. They now must seek out a flower that grows there under slightly different management conditions and realise that the very technique of mowing determines what wild flowers will exist in an area of grassland. A good diversity of wild flowers is important so that there is a good biodiversity of insect life as well. Thus, by leaving perhaps just a small area unmown, the variety of flowers in the school's grassy areas can be increased enormously.

This plant was familiar to Irish people in olden times and it was important in folk medicine. It was used by nursing mothers to soothe sore breasts. It was boiled with other herbs and the resultant liquor fed to cows with calves to protect them from ill luck and it was traditionally sewn into the garments of people going on a journey to protect them from accidents.

To do with Fifth Class

- Observing, noticing, describing are all important skills that scientists must have. Having spoken about this plant in class, send out the pupils to find and bring in specimens. They must then write a scientific description of their plant with reference to flowers, petals, stamens, stem, hairs, leaves, where found and perhaps why. Writing this description requires that the pupils examine the plant for the scientific detail required. Use of a magnifying glass may be helpful.



Hazel

Latin name—*Corylus avellana*

Irish name—*Coll*

Many Irish place names such as *Collon* are called after the hazel tree.

The hazel tree is the tree of wisdom. It is a native Irish tree and grows particularly in limestone soils. It is a low tree with a trunk consisting of many stems. Very early in the year, in February and March, before the leaves come on the tree, the catkins appear on the twigs. These are the flowers of the tree and they are wind-pollinated. There are two sorts of catkins. The male ones are long and pendulous and contain lots of pollen. The pollen is blown by the wind to the female catkins which have no stalks and are very small and budlike.

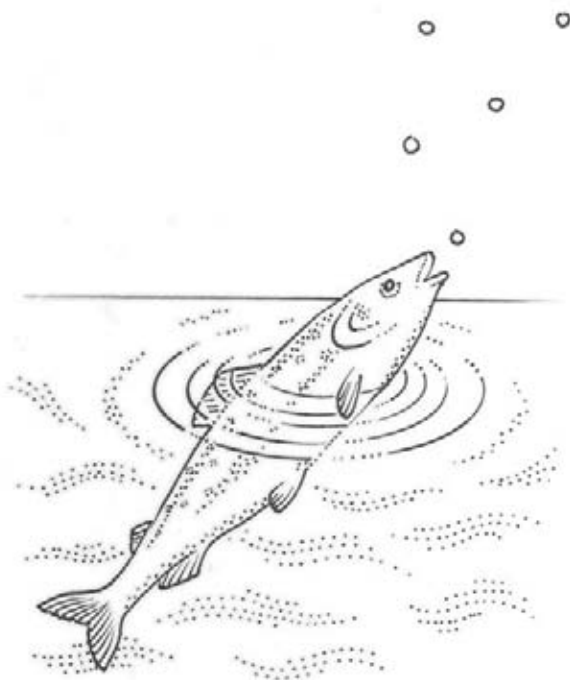
The leaves burst open in April and are particularly soft and downy. In August the hazel nuts are formed and they are ripe by early September. They are a great source of food for a variety of animals and birds such as squirrels, mice, jays and rooks. Squirrels hide them away to eat later on in winter, but if any are dropped they will germinate into new hazel trees.



Hazel

Tradition has it that the hazel is the tree of wisdom and that the Salmon of Knowledge got his wisdom from eating the nuts that fell into the water from the hazel trees that grew on the banks of the River Boyne. Certainly the hazel tree was one of the most useful trees for householders long ago. Apart from eating the nuts as food, they used small forked branches — known as *scoilbs* — to hold down the thatch on a roof. These would have to be repaired from time to time hence the *seanfhocail* “ní hé lá na gaoithe lá na scoilbe”. Larger forked branches are used to this day to divine water.

The straight poles formed by the many stemmed trunks were very valuable for building walls, they were woven together and plastered with clay plaster — clay and wattle walls. To be sure of a continual supply of such hazel rods, the trees were coppiced — which means cut across the stems so that new poles would grow. In such a way the life of a hazel wood could be prolonged indefinitely.



The Salmon of Knowledge

To do with Fifth Class

- Find a hazel tree in the vicinity of the school which can be studied throughout the year — catkins, leaves, nuts, buds, bark etc. If there are no hazel trees, one should be acquired for the school grounds and planted and cared for.

Bat

Latin name—They all belong to the order *Chiroptera*

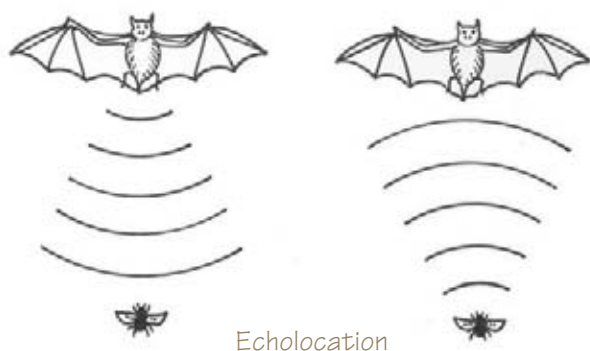
Irish name—*laltóg* or *Sciathán leathair*



Bats are a much maligned group of mammals. They are not blind. They will not fly into your hair. They will not suck your blood. They are not in league with the devil. Because they can fly so expertly at night without crashing into things, it was thought that they must be in league with the forces of darkness. Science, of course, has revealed the true picture.

Bats are not blind; they are perfectly well able to see. However as they fly at night and catch aerial prey, they have a special means of detecting this flying prey — echolocation. They emit very high-pitched sound waves which bounce off whatever object they hit and are reflected back to the bat at a slower speed. This is translated as a drop in sound frequency, so the bat can build up a picture of where all the objects are in front of it. These high pitched sounds are above our hearing range (30–140 kHz) although children can hear some of them, as they can hear higher sounds than adults.

Bats catch insects that fly at night. They are particularly fond of moths, midges and mosquitoes. A small pipistrelle bat can catch up to 3000 midges of a night. Each species emits a particular type of ultrasound that allows them to specialise in particular types and sizes of insects so that several species can co-exist in the same area.



In Ireland we have ten different bat species — all of which are highly protected under Irish and European law. Ireland holds the largest European populations of the Lesser Horseshoe Bat — a bat that only occurs in limestone areas in Mayo, Galway, Clare, Kerry and Cork. Other species such as the Pipistrelles and the Long-eared Bat are widely distributed over the whole country.

Bats go into hibernation in caves or in hollow trees from mid-November till the end of March because there is no insect food available for them to feed on. During hibernation their body temperature drops to as low as 5 degrees Celsius from a normal summer high of 35 to 40 degrees. They need a lot of energy to raise up their temperature again, so if their hibernating roosts are disturbed they may not have enough energy to survive the rest of the winter. In April they wake and move to summer roosts in roof spaces and attics and here their young are born in June or July — one baby per female. These remain in the nursery roost while the mother is out hunting at night and she returns to suckle them. By three weeks of age they can fly and by six weeks they can hunt independently. By the end of August they are weaned. They can live for up to fifteen years.

To do with Fifth Class

- Using school books on mammals, the school or local library or indeed the internet, find out the names of all ten bat species that occur in Ireland. Invite an expert into school under the Heritage in School scheme to demonstrate bat detectors. Erect bat boxes in the school grounds. These will provide summer roosts for bats and should be placed high on trees in a hedge or wooded area. A bat box has a slit for an opening rather than a hole as in a bird box.

Kestrel

Latin name—*Falco tinnunculus*

Irish name—*Pocaire gaoithe*



The kestrel is our most common and abundant bird of prey. It flies by day and is very easy to see and identify. It hovers in the air with fast-beating wings surveying the ground below for prey. It has really good vision and when it spots a large insect or a mouse, a pygmy shrew or indeed — in Counties Tipperary and Limerick — a white-toothed shrew — it drops like a stone on the unsuspecting prey. It hovers quite a lot looking for prey so it is easy to see high up in the air. No other Irish bird of prey behaves like this.

Modern road development has actually resulted in an increase in kestrels. This is because the roadside verges and roundabouts are habitat for the rodents and the shrews that it feeds on. These areas are not disturbed by humans, and are mowed infrequently and the kestrels of course are not at all disturbed by traffic. Thus, any journey along a motorway will yield at least one sighting of a kestrel.

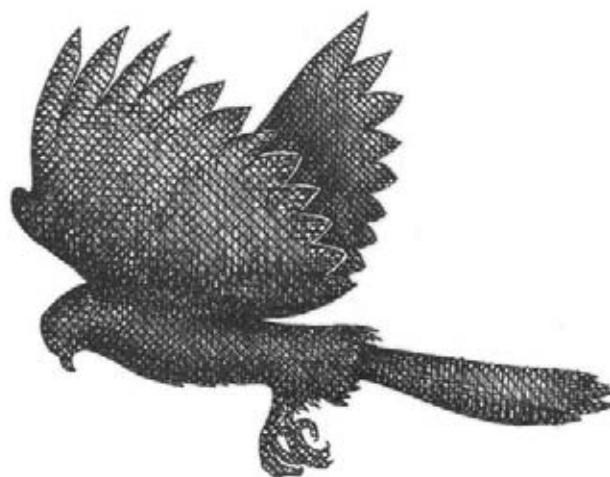
They do not build a nest of their own but the female will lay three to five eggs on a cliff ledge, a high building or indeed an abandoned nest of a hooded crow. The nestlings are fed by both parents and fledge 30 days after hatching. Males and females are different in colour — males have a grey head and a grey tail, whereas females have a streaked brown head and dark stripes on a brown tail.

Birds of prey gobble their food whole and later (usually at the roost site), cough up undigested bits in the form of a pellet. By collecting these pellets and analysing them, scientists can work out what food the bird has been eating. Recent work on kestrel pellets in Co. Tipperary revealed that the birds had been eating white-toothed shrews — a species not known until then to occur in Ireland. The nearest record until then of these shrews had been Alderney in the Channel Islands.

Kestrels were often kept near dovecotes in medieval times as it was known they kept away sparrowhawks but would not attack the doves themselves.

To do with Fifth Class

- A project on the Irish birds of prey — kestrel, sparrowhawk, merlin, peregrine falcon, buzzard, hen harrier and marsh harrier — and the re-introduced golden eagle, red kite and sea eagle. Their importance at the top of the food chain should be emphasised. If their prey is poisoned then the poisons spread right up the food chain, harming those at the top. So a healthy population of kestrels means that the whole biodiversity of its food chain is in place.



Hovering kestrel

Earthworm

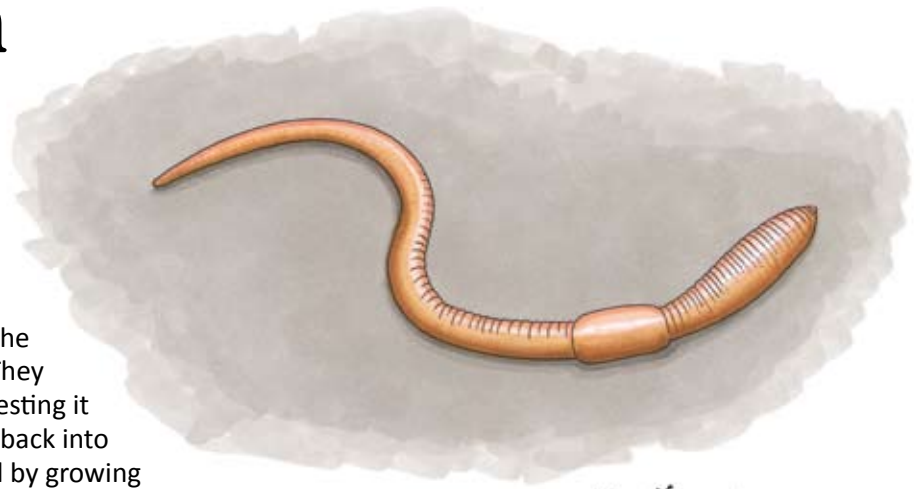
Latin name—*Lumbricus terrestris*

Irish name—*Péist talún*

The earthworm is one of our most valuable creepy-crawlies. They live in the soil and feed on dead plant material. They recycle this dead plant material by digesting it and returning the nutrients contained back into the soil in a form that can be absorbed by growing plants. As they tunnel through the soil, they form small tunnels which aerate and drain the soil and add to its fertility. Farming and gardening would be next to impossible without earthworms.

The common earthworm is 30 cm long and is pink in colour. Its body is composed of segments — up to 150 of them and it has stiff hairs called chaetae on the underside of its body which help it to move. They have no eyes so they cannot see, which doesn't matter as they live surrounded by soil which contains their food. They swallow soil through their mouth and as it passes through their body they digest any organic material in it. The undigested soil itself passes through their body and is deposited as a worm cast.

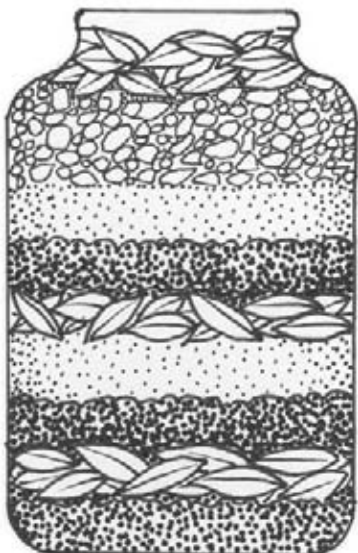
On warm nights worms will come up to the surface of the soil and pull down dead leaves into their burrows for digestion. They will also often use the opportunity to find another worm with which to mate. As worms are very abundant in Irish soils this does not present too much of a difficulty although each worm makes sure to keep its tail in its own burrow so that it can conduct a speedy retreat if danger threatens. Like



Earthworm

snails and slugs, worms are hermaphrodites — each has male and female organs — but they must mate and exchange sperm before each can lay eggs. During cold winter months worms burrow deeply into the ground and become dormant.

They are food for many creatures higher up the food chain. Birds such as thrushes and blackbirds love them, they form up to 40% of the diet of badgers, and rooks and jackdaws are expert at finding them in grassy fields. It is not true that if you cut a worm in half you will have two worms. Worms have a head with a rudimentary nervous system and seven hearts at one end and just a tail at the other. If you cut one in half you have a live, foreshortened worm and a wriggling tail that soon stops wriggling as the nerve endings die. So this cruel practice should not be carried out. Earthworms work in compost bins, but another species, the tiger worm (brandling worm) is even more effective.



Wormery

To do with Fifth Class

- Set up a wormery. Get a large transparent jar such as a large sweet jar. Make layers in it of soil, leaves, soil, sand, leaves, soil, sand, a white chalk layer perhaps, right up to the top. Put a final layer of leaves on top. Dampen the whole. Put in some earthworms and close the jar. Cover with black plastic to exclude light and leave for a week. When uncovered the tunnels of the earthworms may be seen. Do not leave uncovered however, as earthworms will move into the centre away from the light. Keep dampened and uncover every few days or so, to see how the layers get mixed up as the worms move about.

Sixth Class

Herb Robert

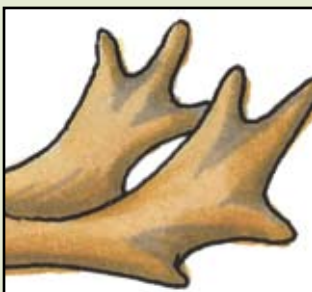
Cow Parsley

Birch

Deer

Crows

Wasp



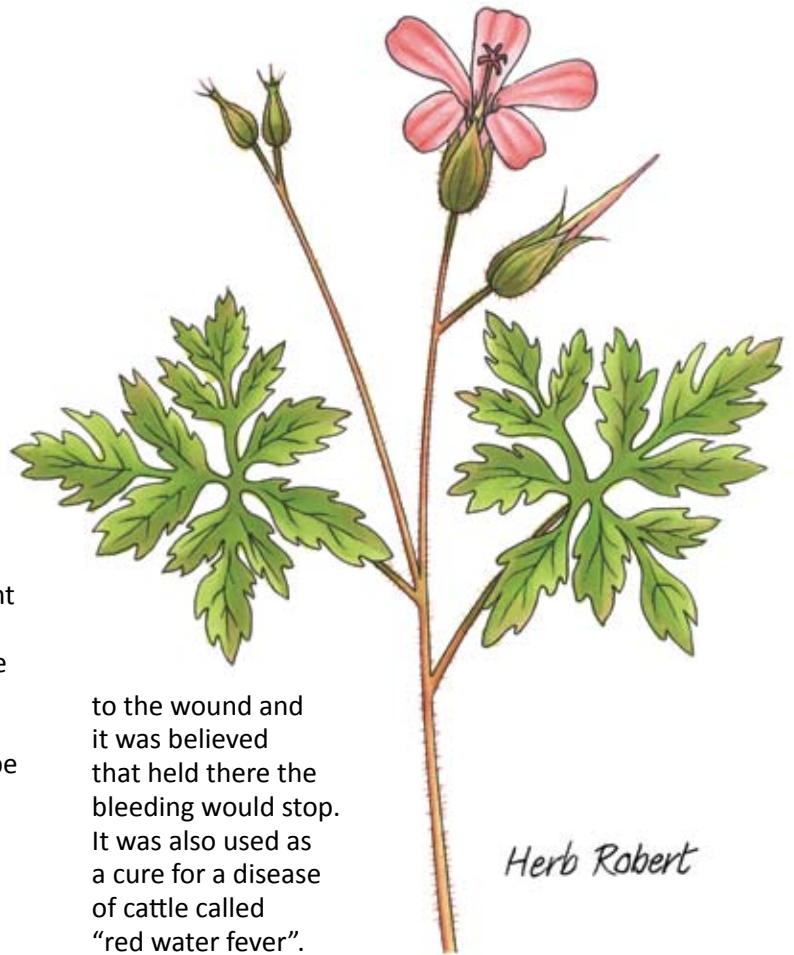
Herb Robert

Latin name—*Geranium robertianum*

Irish name—*Ruitheal Rí*

Herb Robert is a pinkish flower that grows in well-established hedges or at the edges of a deciduous woodland. It has five pinkish-purple petals which emerge in May and the plant continues to flower right through to the end of September. The flowers are borne in pairs and the whole plant has a pungent smell not unlike that of a fox. It is a member of the Geranium or Cranesbill family. It is so called because its seeds reminded viewers of the sharp pointed bill of a crane. Held upright it actually resembles a birthday candle in a holder that might be about to be inserted into a birthday cake. The leaves are three-lobed on long straggling stems and they turn bright red in autumn.

Where does the name “Herb Robert” come from? Who was Robert? Tradition has it that the name was brought to Ireland by the Normans (although the plant was always a native here, established in woody places ever since the woods developed after the Ice Age). The Normans would have been familiar with stories of a powerful wizard in English folklore called Robin Goodfellow and as the name Robin is a diminutive of Robert, this plant was obviously one used by the said magician for his spells. In Ireland the plant was widely used to staunch bleeding, especially in the east of the country. The leaves were applied



to the wound and it was believed that held there the bleeding would stop. It was also used as a cure for a disease of cattle called “red water fever”.

Obviously it was believed that there was a connection between the fiery red leaves of the plant in autumn and blood.

This plant is part of the plant community that grows in hedges and woodland edges. It is able to tolerate the lower intensities of light that occur here because of shading when the canopy of deciduous trees gets its leaves. It should be easily found on any field trip to a hedge or woodland area in June or September.



Robin Goodfellow

To do with Sixth Class

- Bring the class on a fieldtrip to a local hedge or woodland to look for all the plants that they have learned during their eight years in school. Herb Robert will be an easily recognised member of the flora seen.

Cow Parsley

Latin name—*Anthriscus sylvestris*

Irish name—*Peirsil Bhó*



This flower turns the roadside verges white during May and early June. It is a member of the Umbelliferae family, which means that the flowers are carried on flower heads that resemble small umbrellas. Each individual flower is very small. It has five tiny petals — the whole flower is only 2 mm across. They are carried in clusters 6 cm across at the ends of the large umbrella-shaped rays of the plant which itself can be up to a metre tall. The stems are furrowed and hollow. The leaves are finely divided and appear before the flowers. At this early stage it is quite possible to mistake them for ferns but of course they have no spores on the backs of the leaves as ferns do.

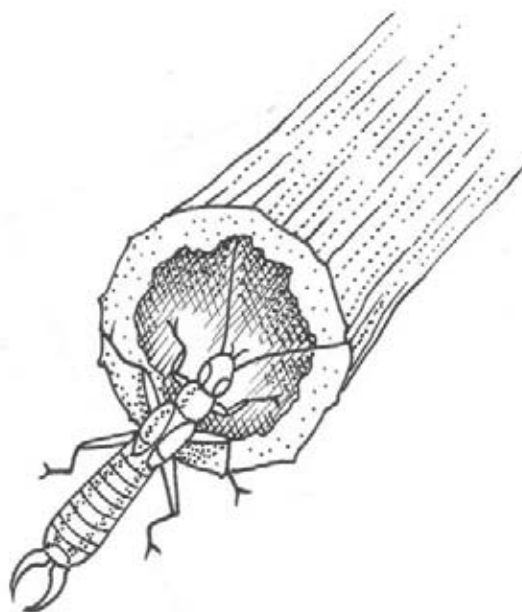
They are called cow parsley because of their finely divided leaves, but in Co. Tipperary they are known by the old name of “Queen Anne’s lace” because of the exquisiteness of the flower heads. The plant emits a spicy odour when crushed. It is attractive to insects as it contains nectar and if the flower heads are examined, flies can be seen sipping the nectar.

The flowers die back in July but the long withered hollow stalks can remain all winter. If examined and opened at this time you may find that they are providing hibernation quarters for earwigs or other insect larvae. They contribute greatly to the wildlife biodiversity of the hedge verge.

Unbellifers — the family group to which cow parsley belongs — are a large group which contain poisonous members such as hemlock (which is fatal if eaten). The cow parsley was confused with this fatal plant or perhaps it was considered wise to give all such shaped plants a wide berth, because it was said that picking cow parsley and bringing it into the house would cause the death of one’s mother. That would discourage such a practice right enough.

To do with Sixth Class

- Make sure that the class is brought out on a fieldtrip to a hedge during May and early June when this plant is in flower. Pupils should become familiar with its flowers and leaves so that they do not mix it up with other flowers of the same family. The flower heads should be examined for insects and pooters used to collect any that might be sitting on them.



Birch

Latin name—*Betula pendula*

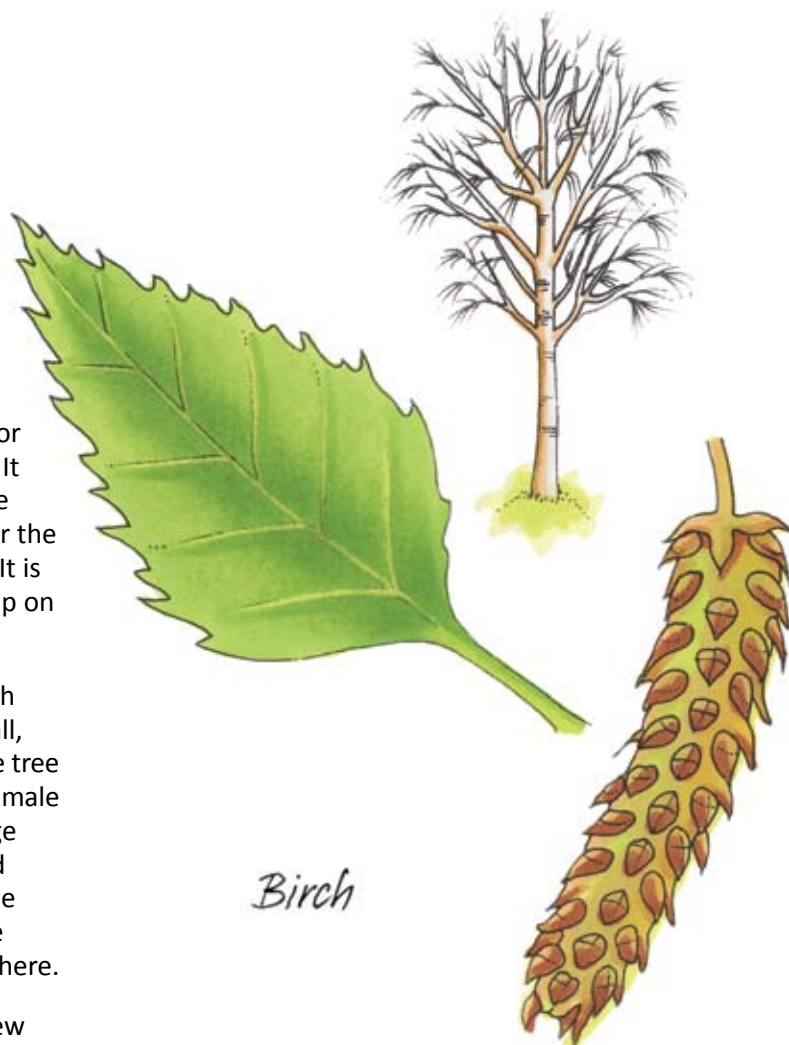
Irish name—*Beith gheal*

The silver birch is a tall, elegant tree, renowned for its beauty and known as “the lady of the wood”. It is a native Irish tree, being here since after the Ice Age. In fact as forests came back into Ireland after the ice had cleared, the first coloniser was the birch. It is able to grow in open ground and can grow high up on mountains, right up to the tree line.

It has a very pale cream-coloured bark from which it gets its name — silver birch. The leaves are small, toothed and triangular in shape. They open on the tree towards the end of April. Its flowers are catkins — male and female catkins are separate and these emerge with the leaves. The female catkins are pollinated by the wind which blows the pollen from the male catkins to them. The seeds are very small and are blown by the wind to re-seed and colonise elsewhere.

The bark of the silver birch peels. It can thus renew itself and get rid of any pollution that may have attached itself to it. Because of this and because it is a pioneer tree that can withstand harsh conditions, it is commonly planted on the streets of towns and villages where its beauty enhances the whole area.

It is also commonly seen on the margins of bogs, lakes and rivers and it can grow on poorer soil than other native species can. It is the first to colonise an open area. The leaves which fall from it in autumn

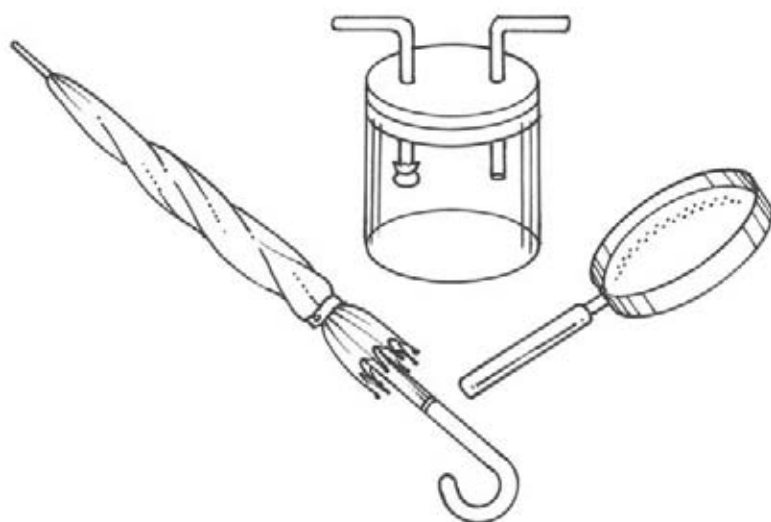


decompose and nourish the soil making it suitable for other forest trees such as oak which will replace it over time if left undisturbed.

A common tree — its Irish name beith is found in quite a few place names such as Ballybay in Monaghan and Glenbeigh in Co. Kerry.

To do with Sixth Class

- Birches are native deciduous trees and there are 229 insect species that are associated with them. Sixth Class should find a silver birch near to the school or preferably in the school grounds and over a year from September to June conduct a weekly survey to find out what insects are there. They need an upturned umbrella to shake the tree into and pooters to lift out the insects for examination. A magnifying glass or a bug box will magnify the captured creature and the pupils should create a class list for the year, of insects or indeed general creepy-crawlies including spiders that fall into their umbrella.



Deer

Latin name—*Cervus elapus*

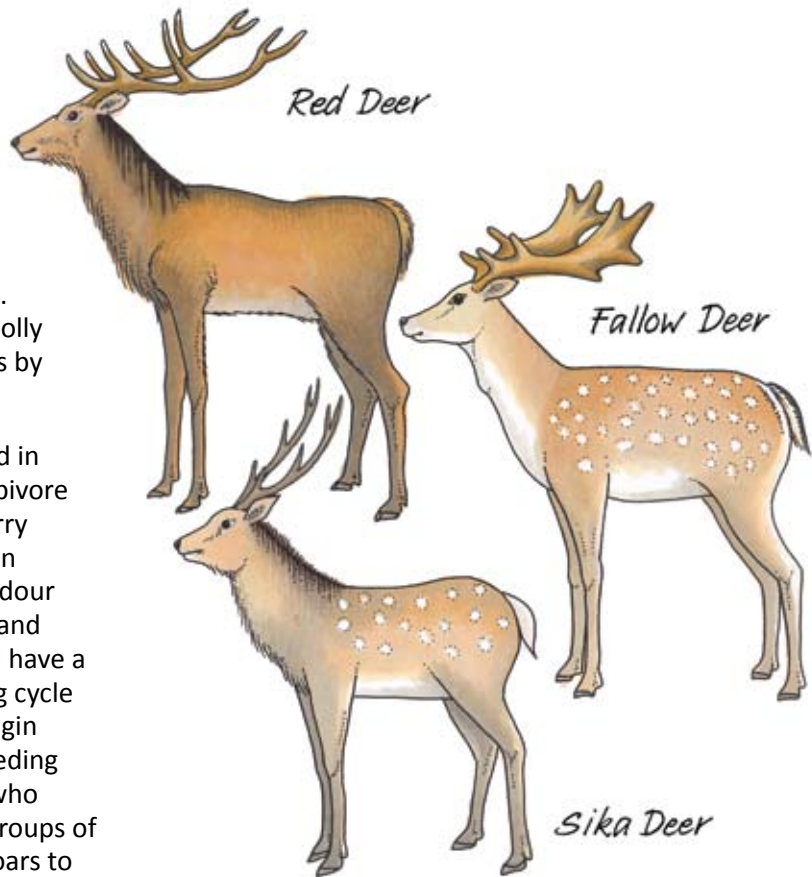
Irish name—*Fia rua*

Deer are even-hoofed mammals that are entirely herbivorous. They live in woodland, grassland and open mountain and moorland. They eat grass, leaves of trees such as oak, holly and ivy while some of them do harm to trees by eating shoots and stripping bark.

There are three species that occur in the wild in Ireland. The Red Deer is our largest wild herbivore and the only native species of deer. Stags carry branching antlers which are shed each year in March and April and grow again to full splendour by August. Antlers generally increase in size and weight each year and a fully mature stag will have a very impressive set of antlers. Their breeding cycle is controlled by day length, so as the days begin to shorten by the end of September the breeding season known as the rut begins. The stags, who have been living apart all summer, join the groups of females (known as hinds). They emit deep roars to assert their supremacy and fight with other stags by locking antlers and pushing. Whichever one is pushed backwards loses.

Successful stags gather harems containing many hinds and father all the calves that are born to the mothers by the end of the following May. Competition among stags is fierce — they are five years old before they are mature and although stags can live for twelve years, the older ones are not so successful in their fights for hinds.

Native Irish Red Deer now only occur in and around the Killarney National park region of Co. Kerry and on Inishvickillane of the Blasket Islands. Another similar smaller species — the Sika Deer — was introduced to Ireland from Japan in 1860 by Lord Powerscourt initially to his estate in Wicklow. These interbred with the Red Deer that were at the time common in



Wicklow and Donegal, so that the deer seen in these areas today are all hybrids between Red and Sika. There is a herd of pure Sika Deer in the Killarney area as well as the herd of Red, but no hybridisation has occurred here and the two species are distinct.

Fallow deer were introduced to Ireland by the Normans in 1244. They were kept in deer parks from which some escaped and they too have become established in the wild. They occur in most tracts of woodland in lowland areas. Male Fallow Deer — known as bucks — have broad, flattened antlers. Females — called does — have just one fawn each in June. There are well known herds in the Phoenix Park in Dublin, in Doneraile Park in Cork and in Lough Fea estate in Co. Monaghan. They are also commonly farmed.

To do with Sixth Class

- Wolves were the natural predators of deer in the food chain. These were made extinct in Ireland in the 1700s. Deer now have no natural enemy to control numbers and can expand their herd size enormously causing damage to forestry and leaping out on roads endangering themselves and passing traffic.
- Debate with the class how deer should be managed to be sustainable in the environment. Include such ideas as culling, (which should be culled and how), removal of fawns after birth, hunting as a tourist attraction, visiting and watching them as a tourist attraction, accidents on roads caused by deer, etc.



Debate

Crows

Latin names—*Corvus* (crow)

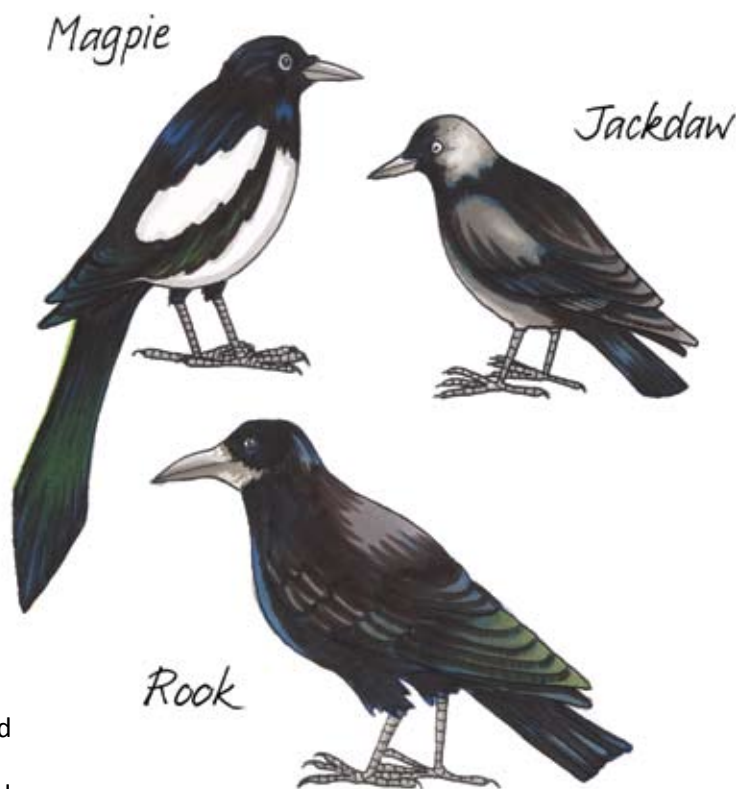
Irish names – *Cág*: (jackdaw)

Préachán: (rook)

Snag Breac: (magpie)

A crow is the common name given to the large black birds that walk around the school field pecking at the grass, but the truth is that crow is the name of the bird family to which these birds belong. In the school field two species of crow are abundant. The smaller neat one with the charcoal grey head is the jackdaw — which nests in chimneys. The larger glossy black one with completely feathered legs is the rook — which nests in colonies at the tops of tall trees nearby. Both birds are enormously common and no child should leave school without realising that there are two different species and that they look and behave differently.

There are in fact seven members of the crow family in Ireland. The magpie is an instantly recognisable bird. It builds a large untidy nest at the top of tall trees in suburban areas and surveys the territory all around for songbirds to harry and eggs and nestlings on which to feed. It is this behaviour which it carries out so publicly that has made it such an unpopular bird. But from an ecological point of view, songbirds will raise at least six young each year in each nest. There is not space or food for them all in suburban areas and despite how unpleasant it is to us — the magpie is the next stage in the food chain. They do not get all the songbirds — the strongest and cleverest survive — the survival of the fittest.



The hooded crow, also known as a grey crow or a scald crow, also makes infrequent visits into school grounds. Like the others it will scavenge at bins left open or poke for worms on the short sward of the playing field. These grey crows are larger than the others and have quite a distinct grey head and black back. They do immense harm to sheep as they can pick out their eyes leaving them blind. This means that farmers can shoot them under licence.

The other three Irish crow species are: the largest one — the raven — which occurs on open mountainsides; the jay — unmistakable with its brown feathers and intense blue flash on the wing and the chough, a jackdaw-sized black crow with a vivid red bill and legs which only occurs in areas of short grass sand dunes in the west and south of Ireland.

Crows are among the most intelligent of birds. Experiments show that they are able to learn new things and quickly adapt to changing circumstances which is why they are so successful as a species.

To do with Sixth Class

- This class could carry out a scientific count of the number and species of crows seen in the school grounds over a given period. The number might be co-related with weather, breeding time, abundance of food elsewhere i.e. recently harvested grain field nearby, etc.

Wasp

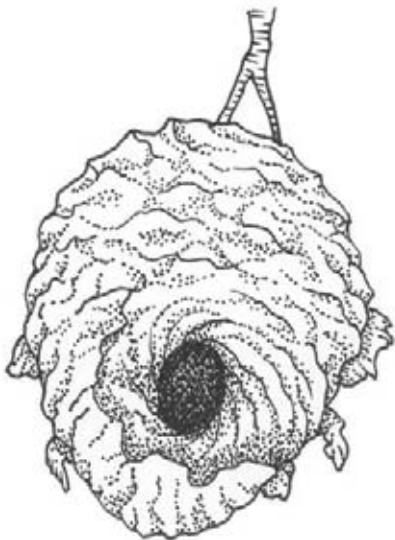
Latin name – *Vespula vulgaris*

Irish name – *Foiche*

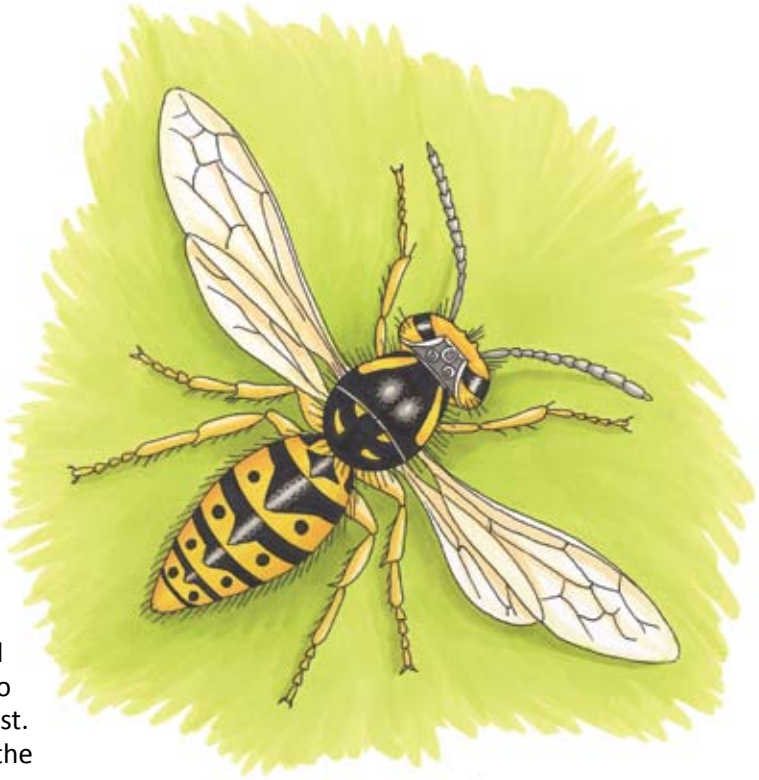
The wasp is a much maligned insect. It actually does not spend its time going round looking for humans to sting (more than once too if it can). The life cycle of the wasp actually plays a very important role in our natural environment.

Wasps are native social insects. This means that there is a queen and a colony of workers that live together in a nest. The queen hibernates for winter and in March wakes up. She emerges, chooses a nest site and begins to build a paper-like nest from chewed up timber. This nest can be in a hedge, in an attic or roof space, or in a disused shed. She lays eight eggs and when these grow into worker wasps they take over the running of the nest. The queen goes into egg production full time and the workers build six-sided cells for the eggs. The workers are all female and they feed the baby wasps with chewed up greenflies, aphids and other insect garden pests. The adult wasps, on the other hand, feed on a sweet substance excreted by the grubs in the nest.

So all summer long from April to August, wasps do a great deal of good, keeping down the numbers of harmful plant pests. By the end of August the queen will have laid up to 40,000 eggs and is beginning to tire. The nest can be the size of a football by now. The workers build different shaped cells in which eggs are laid that go on to be queens, while different shaped cells again cause her to lay eggs that produce drones. These all leave the nest when mature, mate with those from other nests and the newly fertilised queens go into hibernation at once and emerge to start the cycle all over again next March.



Wasps' nest



Wasp

The old queen back at the original nest lays a last round of eggs and dies by the end of August. This last round of worker wasps have no younger babies to feed with insects, nor indeed any grubs to lick sweet-tasting liquid from. It is these last wasps during the months of September and October, for the six weeks lifespan that they have, that have to hunt everywhere for sweet food. They can eat nectar from flowers, or suck the juices of fallen apples and blackberries. But many of them do come into our homes seeking sugar there. Of course they will sting if assaulted by an angry or terrified human. But they don't seek us out deliberately to sting us. By the end of October they will all have died. The nest is empty and won't be used by next year's queen. The whole cycle will begin again the following March.

About their sting — the sting of a wasp is like a needle and can be withdrawn after it is used in order to sting again. The bee has a sting with a serrated edge which gets stuck in our thick skin and cannot be withdrawn so a bee is torn apart as it tries to withdraw it from a human and will later die.

To do with Sixth Class

- Get hold of a disused, empty wasps' nest. Spray it with hair spray to render it less brittle. Bring into school and let the class examine the nest in detail. It can be cut in half in due course so that the intricate cell structure can be appreciated.

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Éanna Ní Lamhna

Éanna Ní Lamhna is best known for her environmental expertise as a broadcaster on the radio programme *Mooney Goes Wild*. Her Co. Louth accent gives her one of the most instantly recognisable voices on radio. Her ability to bring her subject to life is legendary and her no-nonsense approach to romantic views about wildlife is well known.

She is first and foremost a botanist with degrees in both botany and ecology from University College Dublin. Her interest in the environment has expanded with her work over the years, to include birds, mammals and in particular creepy-crawlies whose doings hold a particular fascination for her. Her ability to awaken enthusiasm for these creatures in her listeners is exemplified by the remark made to her lately, “Whenever I see a spider I always think of you and put it outside instead of stamping on it.”

She began work in 1974 in the Biological Records Centre — in its first incarnation in An Foras Forbartha. She quickly realised that if she was to receive any biological records from the Irish public she would first have to go and teach them about Irish wildlife. So began a career of teachers’ courses, radio programmes, lecturing at third level, field trips with Secondary School pupils and most significantly of all, visits to Primary Schools to teach the pupils and indeed the teachers there, about the wildlife around them.

Her publications include *Talking Wild*, *Wild and Wonderful*, *Straight Talking Wild* and *Wild Dublin*. She has just completed a five-year term of office as President of An Taisce and is currently the Vice-President of the Tree Council of Ireland.

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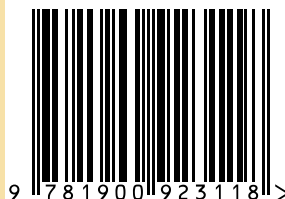


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Christine Warner is an illustrator and calligrapher working mostly in the field of education. She provides full colour illustrations, line diagrams and cartoons for textbooks, workbooks and posters. She has worked for many educational publishers and also for Dúchas, Forfás and Trócaire.

While she illustrates material on a wide variety of subjects, she specialises in science, having science degrees from University College Dublin and Trinity College Dublin. She particularly enjoys producing wildlife illustrations and cartoons. She has been an environmental activist for many years. Christine may be contacted via email at cwarner1@gmail.com

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