Mary Gillham Archive Project.

Nature detectives: identifying wildlife for beginners!

A Dedicated Naturalist: The Dr Mary Gillham Archive Project is a Heritage Lottery Funded project to celebrate the life and work of **ecologist** Dr Mary Gillham.

From 1963-2013 Dr Mary Gillham (MBE) spent a huge amount of time exploring South Wales and recording the species she found, sometimes whilst teaching students and sometimes to provide evidence for protecting an area. Sometimes she did it just for fun!

? An ECOLOGIST is someone who studies wildlife and learns how to identify di erent species.

Time to be a detective!

Identifying wildlife is like being a detective - you have to look for clues. The more you practice, the more easily you will spot clues.

Scientists and naturalists use a system to sort out all living things into groups of things with shared features, so that when they name a particular plant or animal, for example, they know they are all talking about the same thing. This system is called **'taxonomic classi cation'** or **'taxonomy'**. You are going to practice using taxonomy to identify three big groups of wildlife: **animals, plants** and **fungi.**

You will need: a pencil, sensible shoes and a coat. Let's go!

Step 1: What kingdom does it belong to?

When you nd something you want to identify, you need to narrow down what it could be. An easy way to start is to ask, 'Are you an **animal**, a **plant**, a **fungi** or something else?' These big categories are called **'kingdoms'**. There are many kingdoms but we're going to focus on **plants, animals** and **fungi** to get started.

Animals can move from place to place on their own at some point in their lives. They also have to eat other things; they cannot make their own food.

Look for things that can walk, jump, y, swim and slither. SEE **ANIMALS**

Plants stay in one place (although they may grow over large areas) and they make their own food using sunlight collected on leaves (photosynthesis).

Look for green/brown things with leaves, owers, or bark that stay in one place. SEE **PLANTS**

Fungi are di erent to plants and animals—they usually eat already dead material (cannot make their own food). They stay in one place (but may grow over large areas) and produce spores.

Look for crustlike/ball shaped things in di erent colours that stay in one place. SEE **FUNGI**

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Photographs by Annie Irving, John Wilkins, Sue Ansell and Mary Gillham.
Text by Sue Ansell and Nat Christie.

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Classi cation of living things:

All living things on the planet are **separated** or **grouped together** based on their **similarities** and **di erences**.

There are 7 major levels of classi cation **(Kingdom, Phylum, Class, Order, Family, Genus, Species)**.

These descend in order of size meaning **Kingdom** is the **biggest** group and **Species** is the **smallest** and most speci c.

Example: Human classi cation

Animal	**Kingdom**	All living things are rst divided into **5 broad groups** called **Kingdoms**. We will focus on 3 of these; **animals, plants and fungi**.
Chordata	**Phylum**	Kingdoms are separated into **smaller groups** called **Phyla**.
Mammal	**Class**	Phyla are separated into even **smaller groups** called **Classes**.
Primate	**Order**	Classes are separated into even **smaller groups** called **Orders.**
Hominidae (great apes)	**Family**	Orders are separated into even **smaller groups** called **Families.**
Homo	**Genus**	Families are separated into **even smaller groups** called **Genera.**
Sapiens	**Species**	Genera are separated into **Species** — the **smallest** and **most speci c** classi cation.

Homo sapiens (Today's humans)

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A fun way to remember the di erent levels of classi cation in order…

Karate **P**igs **C**an **O**nly **F**ly **G**oing **S**ideways

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Animals

Step 2: What class of animal is it? Is it an INSECT?

There are lots of di erent types of animal. To help you practice your ID skills we are going to look at simple features that will help you identify the **class** of animal you have found.

Insects: have 6 legs, wings and 3 body segments. Tick the di erent types of **insect** you nd.

Bees, wasps + hover ies often have black + yellow **stripes**

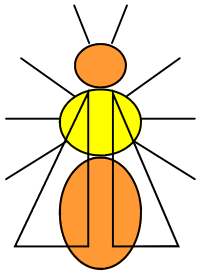
Dragon ies and **damsel ies** have **long, narrow wings and abdomens**

Beetles have **wing cases** and tuck their wings away

Grasshoppers and **crickets** have **long back legs for jumping**

Butter ies and **moths** have **colours and patterns** on their **large wings**

Flies usually look like the insect diagram above!



Antennae
Head
Thorax with 6 legs + wings
Abdomen

How many insects did you nd?

Bees, wasps and hover ies	
Dragon ies and damsel ies	
Beetles	
Grasshoppers and crickets	
Butter ies and	
Flies	

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If it is NOT an insect, is your animal a bird...? See the next page.

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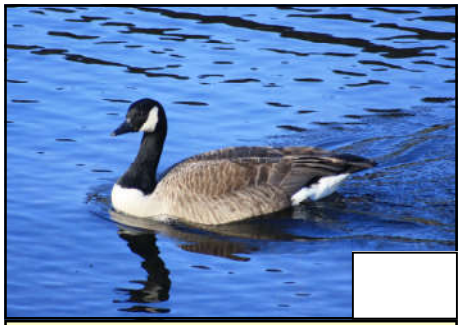
Step 2: What class of animal is it? Is it a BIRD?

Animals

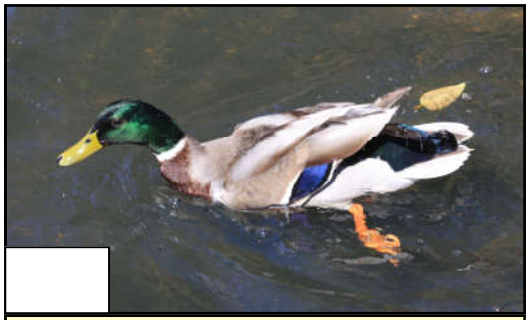
Birds: have 2 legs, wings, a bill and feathers. Tick the di erent types of **bird** you nd.

Water birds (also known as 'water fowl') have webbed feet and swim or wade in water.

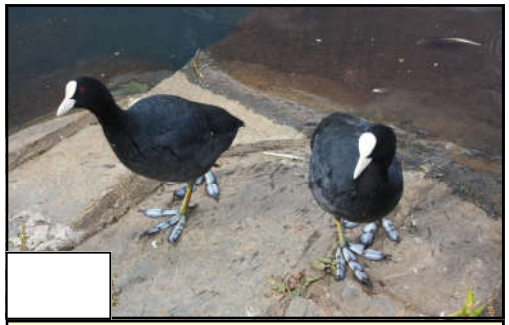
Here are some common water birds...



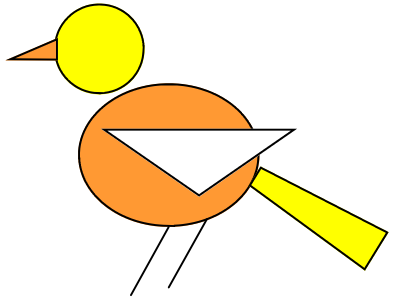
Geese are **big**, have **long necks** and **attened bills**



Ducks are smaller than geese, with **short necks** and **attened bills**



Coots are **black wading birds** with **white bills and foreheads**



Bill	Head	Body	Wing	Tail

Swans are our **big-gest swimming water birds**, with **long necks** and **attened orange or yellow bills.** British swans are white. Australian swans are black

Moorhens are **black wading birds** with **red bills and foreheads**

The **Grey Heron** is our biggest com-mon wading bird. It **stands tall and upright**, with a **long neck** and a **long, sharp bill**

Crested grebes have **long necks, long, sharp bills** and **red and black feathers in a crest around their faces.**

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How many did you nd?

Geese	
Ducks	
Coots	

Moorhens	
Swans	
Herons	
Grebes	

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Step 2: What class of animal is it? Is it a BIRD?

Animals

Birds: have 2 legs, wings, a bill and feathers. Tick the di erent types of **bird** you nd.

Gulls are sea birds with webbed feet. You can see them sitting on water or around town, as well as by the sea.

Black-headed gulls have **red bills** and **black heads in the summer**. Their heads turn white in winter.

Herring gulls have **yellow bills**, **pink legs** and **black wing tips with white spots**.

Lesser black-backed gulls have **yellow bills**, **yellow legs** and **black wing tips with white spots**.

How many did you nd?

Black-headed	
Herring gull	
Lesser black-backed	

Crows live on land so they don't have webbed feet. You can see them perching, walking and hopping about on the ground.

Crows are **black** and **shiny**, with **large, black bills**.

Jackdaws are **ash-grey** with a **black cap** on their head

Magpies have **black heads, black bills** and **white bodies**, with **blue wing tips** and **long blue-green tail feathers**.

Jays have **pink-brown bodies** and **white throats** with a **black stripe joining their dark bills**. Their **wings and tail** are **black and white**, with **blue ashes on** the front edge of their **wings.**

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How many did you nd?

Crow		**Magpie**	
Jackdaw		**Jay**	

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Step 2: What class of animal is it? Is it a BIRD?

Animals

Birds: have 2 legs, wings, a bill and feathers. Tick the di erent types of **bird** you nd.

Song birds come in all sizes and are a very large group of birds. Here are some common types...

Robins are **small**, with bright **orange faces and chests**

Blue tits are **tiny**, with **blue crests on their heads** and a **black stripe** running **through their eye**

Great tits are **yellow** and **grey-blue,** with a **black cap, white cheeks** and a **black stripe running down their chest**

Cha nch

House sparrow

Finches have **bills** that are **short and sturdy**, for **crushing seeds.**

Starlings have a **green sheen** when their black feathers catch the light and **white spots** like tiny stars. They often **gather together** to roost, form-ing huge clouds of birds, called **'murmurations'**.

Blackbirds are **black all over** apart from **yellow bills**

Song thrushes are **brown** and have **white chests with brown spots**

Woodpigeons are **large** birds with a **grey head, pink chest** and a **white collar** around their neck

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Identifying Birds

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What date is it today?

Where are you looking for wildlife?

How many crows and songbirds did you nd?

Crow	
Jackdaw	
Magpie	
Jay	
Robin	
Blue tit	
Great tit	
Cha nch	
House sparrow	
Starling	
Blackbird	
Song thrush	
Wood pigeon	

Draw a picture of your favourite bird that you found:

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Next time you come to this place you can use this list to compare whether you nd the **same things.** This is how **ecologists** like Mary **record and check wildlife.**

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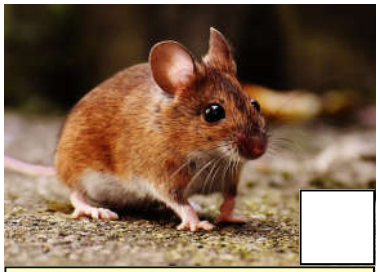
Step 2: What class of animal is it? Is it a MAMMAL?

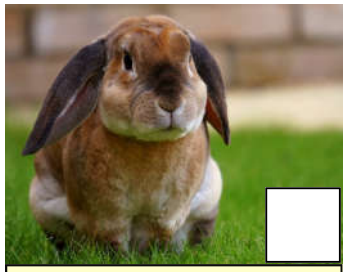
Animals

Mammals: are hairy or furry. They have 4 limbs with clawed ngers on each hand or foot. They have teeth, ears and nostrils on their heads, and usually have a tail.

Tick the di erent types of **wild mammal** you nd.



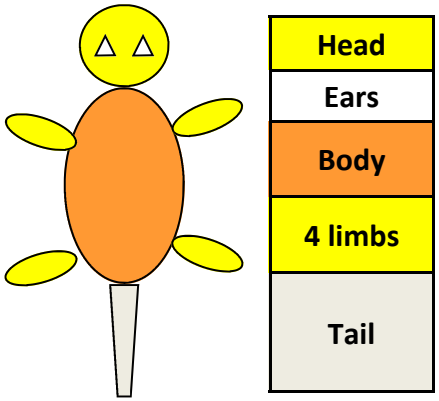
Mice have a pointed noses, small **round ears** and very **long tails**

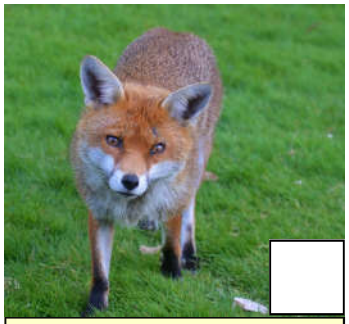


Rabbits have **long ears**, soft fur and a **u y ball tail**

Grey squirrels have a **big bushy tail** and are often found running up **tree trunks**

Hedgehogs are covered in **spines**. They're **nocturnal** so may be hard to nd!





Foxes have **pointed ears** and a **bushy tail**. They walk on their toes

Otters have **long bodies** and **short legs**. They have **webbed feet** for swimming

Badgers have **black and white faces**, **fat bodies** and **short legs** for digging

Deer have **long legs** and can jump high. Only the **males** have **antlers** on their heads

How many MAMMALS did you nd?

Mice	
Rabbits	
Grey squirrels	
Hedgehogs	
Foxes	
Otters	
Badgers	
Deer	

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Today's date:

Where were you?

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Identifying Plants

Plants

Step 1: What kingdom does it belong to? Plants.

Step 2: What type of plant is it? Trees.

There are lots of di erent types of trees. To help you practice your ID skills we are going to look at simple features that will help you identify the **type** of tree you have found.

Broad-leaved trees have **at leaves.**

Ash

Sycamore

Coniferous trees have leaves like **green needles** and produce **cones** that hold their seeds.

Pine

Larch

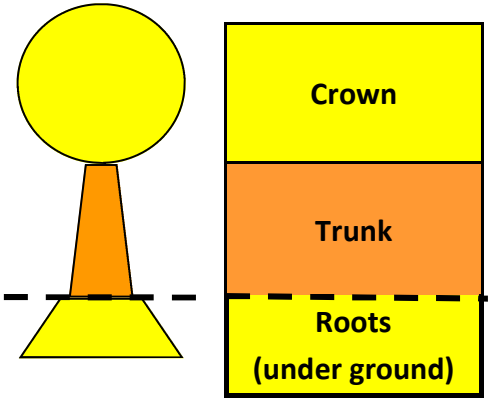
In autumn some trees **drop all their leaves**. These are called **'deciduous'** trees.

Other trees keep replacing leaves all year round, so they **always have leaves**. These are called **'evergreen'** trees.

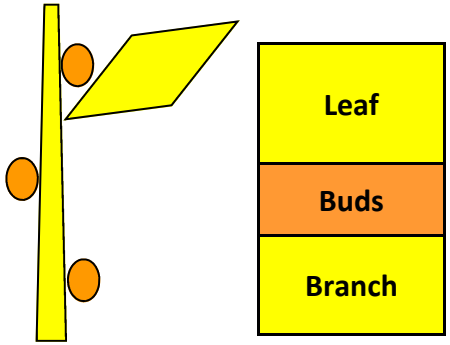
In autumn and winter this is a good clue to help you identify the tree!

How many did you nd?

Broad-leaved trees	
Coniferous trees	
Deciduous trees	
Evergreen trees	



A tree's **crown** is made up of **branches and leaves. Buds** are where new leaves and branches grow from.



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Identifying Plants

Step 1: What kingdom does it belong to? Plants.

Step 2: What type of plant is it? Trees.

There are lots of di erent types of trees. To help you practice your ID skills we are going to look at simple features that will help you identify the **type** of tree you have found.

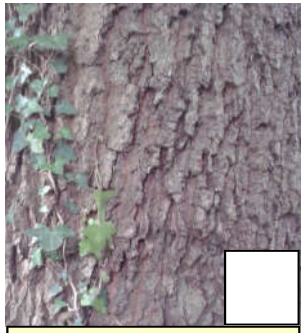
Plants

Tree trunks are covered in bark. Some trunk bark is smooth, some is rough and ridged. Tick the di erent types of **tree bark** you nd.

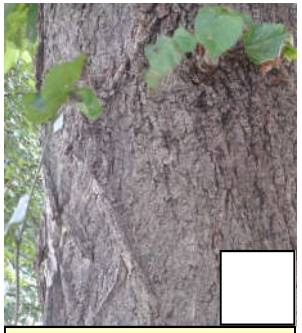
By looking at the **leaves AND** the **bark** you can make a better guess at what type of tree it is.

Ash trees can be easily identi ed by their **black buds on smooth green/grey bark**

Hawthorn



Oak



Lime

Sycamore

Cherry

Birch

Alder

Holly

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How many did you nd?

Smooth trees	
Rough trees	

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Identifying Plants

Step 1: What kingdom does it belong to? Plants.

Step 2: What type of plant is it? Trees and shrubs.

There are lots of di erent types of trees. To help you practice your ID skills we are going to look at simple features that will help you identify the **type** of tree you have found.

Plants

Broad-leaved tree leaves come in di erent shapes...

Lime: Simple, toothed

Birch: Simple, toothed

Ash: Compound, oval

Alder: Simple

Cherry: Simple, oval,

Holly: Simple

Oak: Simple, lobed

Hawthorn: Simple, lobed

Sycamore: Simple, lobed, toothed

How many did you nd?

Oval leaves	
Lobed leaves	
Toothed leaves	
Simple leaves	
Compound leaves	

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Identifying Plants

Step 1: What kingdom does it belong to? Plants.

Step 2: What type of plant is it? Trees.

There are lots of di erent types of trees. To help you practice your ID skills we are going to look at simple features that will help you identify the **type** of tree you have found.

Plants

Did you know that trees produce **owers and fruit**? These are great clues to the identity of a tree if there are no leaves.

Hawthorn berries

Lime berries

Birch owers (‘catkins’)

Oak acorn and acorn cups

Sycamore seeds

Pine cones

Larch cones

Alder cones

Chestnuts

How many did you nd?

Acorns	
Chestnuts	
Lime berries	
Sycamore seeds	
Hawthorn berries	
Cones	
Catkins	

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Identifying Plants

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What date is it today?

Where are you looking for trees?

How many of each type of tree did you find?

Oak	
Ash	
Hawthorn	
Lime	
Cherry	
Pine	
Larch	
Alder	
Sycamore	
Holly	
Birch	
Chestnut	

Draw a picture of your favourite tree that you found:

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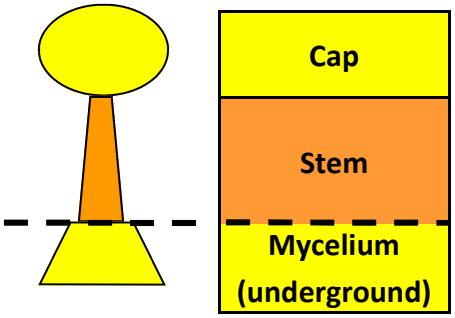
Identifying Fungi

Fungi

Fungi are **not plants**—they cannot make their own food and usually **eat things that are already dead**!

They **stay in one place** (but may grow over large areas) and produce **spores.**



Only the **fruiting body** (the stem and the cap) of a fungus can be seen — it is **above ground**.

The **mycelium** is the branching part of the fungus **hidden underground**. The fungus uses this to **absorb nutrients** from dead and decaying things.

The mycelium of fungi are known as the **'wood wide web'** as they branch out far distances and connect to each other underground!

Fungi come in lots of di erent shapes and sizes as you can see below. Tick the **shapes** that you nd.

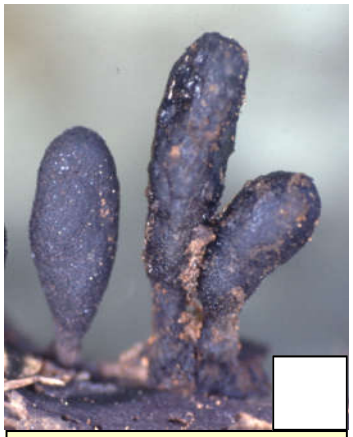
Puffball/cushion fungi have a round, ball- or pear-shape

Bracket fungi look crust-like and are found on dead wood

Jelly fungi are soft and jelly-like with an uneven shape

Gilled fungi are the typical 'toadstools'. They have eshy gills under the cap

'Cupped' fungi are shaped like a bowl or attened cup



Club fungi are upright and unbranched with a 'clubbed' shape.

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Identifying Fungi

Fungi

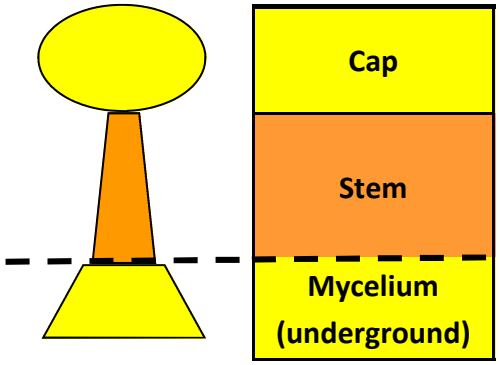
Fungi: have a **cap,** a **stem** and **mycelium hidden underground.** Tick the di erent types of **fungi** you nd, based on their shape.

Puffballs have a pale **ball-shaped** body covered in tiny **spines**

Stinkhorns have a cap covered in **foul-smelling slime**!

Fly agarics have a **red cap** with **white spots**. A famous mushroom

Shaggy inkcaps have a **long white cap** with shaggy brownish **scales**



Honey fungus caps are **caramel-coloured** and found at the **base of trees, hedges and shrubs**

Turkey tails have **stripes of contrasting colours** (like a turkey's tail!). They are **crust-like** and found on **dead wood**

Dead man's ngers are **tough** and **black** in colour. They are shaped like ngers!

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Identifying Fungi

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What date is it today?

Where are you looking for fungi?

How many of each type of fungus did you find?

Puffballs	
Stinkhorns	
Fly agarics	
Shaggy inkcaps	
Honey fungus	
Turkey tails	
Dead man's fingers	

Draw a picture of your favourite fungus that you found:

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