

Curriculum statement	Type	Explorify activities	Suggested use
<b>Year 4</b>			
<p>Recognise that living things can be grouped in a variety of ways</p> <p>Guidance: Group <b>vertebrate</b> animals into groups such as fish, amphibians, reptiles, birds, and mammals; and <b>invertebrates</b> into snails and slugs, worms, spiders, and insects. <b>Plants</b> can be grouped into categories such as flowering plants (including grasses and non-flowering plants, such as ferns and mosses).</p> <p>I can identify and classify examples of living things, past and present, to help me appreciate their diversity. I can relate physical and behavioural characteristics to their</p>	<b>VERTEBRATES</b>		
	<p>The following activities are great starters when learning about the key features of vertebrate groups. Lots of practice is needed and playing games is an effective way to do this e.g. <i>Who am I?</i></p> <p>Give children a label on their back with the name of an animal. They have to move round the room asking yes/no questions to identify what animal they are. Then play ‘corners’ – listen to statements and group themselves.</p> <p>I am a predator/ I am prey (I am both?).                      I am a carnivore/omnivore/herbivore.                      I am warm-blooded/ I am cold-blooded.                      I am a vertebrate/ I am an invertebrate.                      I am a mammal/I am an amphibian/I am an insect/I am a bird – when in these groups, children work together to produce a definition. Definitions to include: can, have, are. For example, mammals <u>can</u> produce milk, <u>have</u> hair, <u>are</u> warm-blooded, etc.</p> <p><b>Supporting pdf for the labels for this game are available on the <a href="#">PSTT (Primary Science Teaching Trust)</a> website.</b></p>		
	<b>Mixed</b>		
	WGO	<a href="#">Thirsty work</a>	What is classification: <a href="https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z3nbcwx">https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z3nbcwx</a> Film shows a range of mammals and birds visiting a watering hole- can children identify them? <i>What group are they in? How do they know?</i> Identify differences, noting that what each has in common is a need for water.
OOO	<a href="#">Terrific tree dwellers - Explorify</a> – frog, sloth and sun bird	Compare the features of vertebrate groups (amphibian, mammal and bird). How is each animal adapted to life in the tree canopy? Long claws, slow metabolism, sucker pads, long bill and talons.	
OOO	<a href="#">Hot-steppers - Explorify</a> – lizard, duck and lion.	Compare the features of vertebrate groups (reptile, mammal and bird).	

<p>survival or extinction. SCN 2-01a</p> <p>NI KS1: <b>The variety of living things in the world</b> and how we can take care of them.</p> <p>Animals that migrate.</p> <p>Animals that hibernate and the materials that they use.</p> <p>How animals use colour to adapt to their natural environment.</p> <p>Some living things that are now extinct.</p> <p>Wales PS3: I can describe the features of organisms and recognise how they allow them to live, grow and reproduce for survival in their environment.</p>	000	<a href="#">Funky Feet</a> – golden eagle, duck, tree frog.	Compare the amphibian group to the bird group. Children could design some yes/no questions to separate them.
	000	<a href="#">Baby animals - Explorify</a> - duck, lamb and elephant.	Good activity to get children discussing the differences between mammals and birds.
	000	<a href="#">Making tracks</a>	Comparing tracks of a bird and two mammals (deer and dog).
	<b>Mammals</b>		
	000	<a href="#">Furry flyers</a>	Address misconceptions about bats and identify them as a mammal: hairy, live young, warm-blooded.
	ZIZO	<a href="#">Brown and Hairy</a> – vampire bat.	Interesting to note that birds are not the only animals that can fly.
	000	<a href="#">Batty homes</a>	Highlights conservation of bats with various places they might live.
	000	<a href="#">Hanging out</a>	Humans, flying fox and spider monkey - all mammals. Good reminder that human are animals too.
	<b>Birds</b>		
	BQ	<a href="#">Why do some birds migrate?</a> – black tern	Could be used as a starting point for children for looking at grouping the birds they would see in the local area/ school grounds. Which of these birds migrate? As a follow-up, <a href="#">here's</a> a fascinating Google Earth film about the longest of all migrations: the Arctic Tern's journey from pole to pole.
	000	<a href="#">How old is that chicken?</a>	Archaeopteryx, a Tyrannosaurus, and a chicken. All of these are examples of <a href="#">Therapods</a> , of which birds are the only living descendants. Excellent video from <a href="#">Natural History Museum</a> to follow up explaining why birds are the only remaining survivor.
	ZIZO	<a href="#">Strange stripes</a> – a feather	Feathers are a feature found only in birds. Different feather types are shown <a href="#">here</a> .
	ZIZO	<a href="#">Creature comforts</a> – blue tit's feathers	There is, of course, the Great Garden Birdwatch but the RSPB also provide fun activities like this one: can you identify <a href="#">these</a> garden birds by their song alone?

WGO	<a href="#">The Sound of silence</a>	Listen and watch the sound waves recorded during the flight of a pigeon, hawk and barn owl.
WGO	<a href="#">Barnacle dive</a>	The death-defying leap that this newly-hatched Barnacle Goose chick makes at the start of its life is a tough watch, but it takes it from a place of safety to place where food is more abundant.
WGO	<a href="#">Takeaway dinner</a>	The bearded vulture has learnt to smash larger bones by flying to a great height and smashing the bones on rocks.
<b>Reptiles</b>		
ZIZO	<a href="#">A slippery customer</a> – green tree python	Follow up by examining UK reptiles. The <a href="#">slow worm</a> is often mistaken for a snake; it is, in fact, a legless lizard.
WGO	<a href="#">Unexpected eggs</a> – reptiles emerge from eggs	Most animals reproduce by laying eggs. Children might be surprised to discover that the eggs in <a href="#">this</a> PSTT (Primary Science Teaching Trust) <i>Pictures for Talk</i> activity belong to a cobra.
<b>Amphibians</b>		
ZIZO	<a href="#">Tiny teeth – tadpole teeth</a>	Younger children might enjoy learning <a href="#">this</a> song about metamorphosis.
ZIZO	<a href="#">Golden Jewel</a> – toad’s eye and skin	Activity suggests comparing toad’s skin to a snake’s skin in <a href="#">A slippery customer</a> .
<b>Fish</b>		
WGO	<a href="#">In the swim</a>	Discussion starter: What are the characteristics of fish? Which animals in the film are not fish?
OOO	<a href="#">Wildlife in the pond</a>	Pond snail, tadpole and pond fish, such as the stickleback.
TBQ	<a href="#">Why can’t fish live on land?</a>	Great discussion to ensure that the class are confident about the features of fish. Could follow up by watching <a href="#">this</a> film about the ancient and unusual lungfish.
ZIZO	<a href="#">Grey and black</a>	Get a close-up look at the wet scales of fish and compare with the dry scales shown in <a href="#">A slippery customer</a> .
<b>INVERTEBRATES</b>		

TBQ	<a href="#">Where do insects go in winter</a>	This could be a prompt for the problem solver <a href="#">Design a bug hotel</a> .
ZIZO	<a href="#">Massive migration</a>	Adult butterflies cannot survive winter in the northern hemisphere as their food source, nectar from flowers, is in short supply. Different species of butterfly have adapted in different ways. Peacock butterflies enter a period of dormancy in their adult stage (e.g. sheltering in a hollow tree or garden shed). Other species spend the winter in a different stage of their life cycle, for example, as pupae or eggs when they do not need to find food. <b>The painted lady butterfly shown in the images undertakes a massive migration.</b>  An excellent stimulus to consider <a href="#">Where do insects go in winter</a> Children could ask their own questions and investigate changes in their local environment over time, e.g. <i>In which season are there most invertebrates under logs?</i>
OOO	<a href="#">Spot the difference</a> – Moth, peacock and caterpillar	Invertebrates and vertebrates This can be done as a formative assessment activity or before an invertebrate count outside: <a href="#">Bug Count</a> is an example of an invertebrate picture quiz offered by National History Museum.
OOO	<a href="#">Friends of flowers</a> - butterfly, ladybird and spider	All three are pollinators. There are a couple of pollination activities on pp5-10 of <a href="#">this</a> activity sheet produced by SAPS (Science and Plants for Schools).
ZIZOs	<a href="#">Spectacular scales</a> - on a butterfly's wing	Good starter to ensure children know that butterflies are insects. Children could make close observations if they raise butterflies or could devise questions to investigate.
WGO	<a href="#">Far from home</a>	Fantastic, detailed footage of monarch butterflies, known for their long migration.
WGO	<a href="#">Wrigglers</a> – earthworms	Find out more about earthworms <a href="#">here</a> or make your own classroom wormery, <a href="#">here</a> .
WGO	<a href="#">The damselfly's day</a>	Interesting video featuring a damselfly, spider and frogs around a pond. Take note of the things you see the damselfly eat, or that eat it!
ZIZO	<a href="#">Brown and bumpy</a>	Get an up-close look at a snail.
OOO	<a href="#">Legs eleven</a>	Earwig (Insect), woodlice (Crustacean - not an Insect) and common house spider (Arachnid not an Insect). Good activity for discussing what is and what is not an insect.
TBQ	<a href="#">Who is overwintering in our school and why?</a>	If you decide to follow up your investigation planning, then there is a great spider guide to download from the <a href="#">Natural History Museum</a> .
ZIZO	<a href="#">I spy</a>	Get an up-close look at a jumping spider (Arachnid).

<b>PLANTS</b>		
	OOO	<a href="#">Out to grass</a> These are all flowering plants. Good opportunity to talk about grass flowers and why we don't always see them because of lawn cutting.
	OOO	<a href="#">Ponder on</a> All flowering pond plants: hornwort (rarely flowers), duck weed and water lilies.
	ZIZO	<a href="#">Brown spots</a> - new Ferns are plants that reproduce without flowers by producing spores.
	ZIZO	<a href="#">Spectacular spirals</a> Another example, also likely to be found in damp places around a school site, is moss. A good opportunity to develop close observational drawing skills, using hand lenses.
<b>CLASSIFICATION KEYS</b>		
Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	WI	<a href="#">What if there were no insects?</a> Once you have learnt about the group 'Insects', plan this investigation which uses keys to identify them.  Fantastic <a href="#">minibeast pack</a> containing keys etc or this one from OPAL <a href="#">Invertebrates-guide--UPDATED-FINAL.pdf (imperial.ac.uk)</a>  This <a href="#">pond pack</a> includes a useful branching key (page 17) to use when identifying pond invertebrates when pond dipping. The Tree of Life is available <a href="#">here</a> .
	TBQ	<a href="#">Which pollinators visit our school grounds?</a> Connect and revise Y3 plants work on pollination. If plants are not pollinated, what happens?
	ZIZO	<a href="#">Rugged landscapes</a> Try observing lichen with magnifying glasses, then identify and classify the types of lichen present in your local area using this super <a href="#">key</a> . Follow the guidance <a href="#">here</a> to use lichens to assess air quality.
<b>CHANGING ENVIRONMENTS</b>		
Recognise that environments can change and that this can sometimes pose dangers to living things.  (Guidance: Pupils should use the local environment	Why is biodiversity so important and can reintroducing species help? Watch <a href="#">this explanation</a> from David Attenborough.	
	OOO	<a href="#">Wet, wet, wet</a> – seafront, lakefront, stream Look at the seafront, lakefront and stream - have children visited these habitats? Hold a discussion about negative impacts of humans on the environment. Building a school pond would provide a fantastic habitat and water source for local wildlife (Warwickshire Wildlife Trust has produced this <a href="#">helpful guidance</a> and ASE has this useful <a href="#">safety guide</a> ).

<p>throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year).</p> <p>Through research and discussion I have an appreciation of the contribution that individuals are making to scientific discovery and invention and the impact this has made on society. SCN 2-20a</p> <p>I can report and comment on current scientific news items to develop my knowledge and understanding of topical science. SCN 2-20b</p> <p>NI KS1: The variety of living things in the world and how we can take care of them.</p> <p>Changes in the local natural environment including how they affect living things.</p>			When you don't have much space, you could still add <u>mini-ponds</u> . It would also be fun to make your <u>own nets</u> and go pond dipping with the guidance and keys in this <u>pond pack</u> .
	OOO	<a href="#">Warming effects</a>	The three images show the effects of global warming: a flooded village street, wildfire spreading through dry vegetation near some houses and a lake with low water levels.
	OOO	<a href="#">Thorny issue</a> - ancient woodland, mixed woodland, hawthorn hedgerow	Looking at an ancient woodland, a mixed woodland with bluebells growing amongst trees and a flowering hawthorn hedgerow - have children seen similar habitats? Discuss negative human impacts and land sharing. You could demonstrate <a href="#">wildlife corridors</a> using bean bags and tarpaulin. Watch this great video from by the NFU about <a href="#">hedgerows</a> .
	PS	<a href="#">Design a bug hotel</a> - Listed 5-6 better 3-4 positive human impact	A making task that is a wonderful way to show a positive human impact. There is useful guidance available from <a href="#">Wildfowl and Wetlands Trust</a> or <a href="#">Devon Wildlife trust</a> .
	WGO	<a href="#">Family Meal</a>	Watch polar bears hunting. This leads to thinking about how they will be affected by global warming. Follow up with this <u>video</u> which explains the importance of sea ice to the polar bears and use scenario modelling to show how carbon emissions could affect the polar bears. Trees are nature's answer to global warming. The Woodland Trust offer <u>free trees for schools</u> or you may even like to join the <u>School Tree Nursery programme</u> . It is also easier than you might think to work towards a Green Tree School's <u>award</u> with the Woodland Trust.
	WI	<a href="#">What if the ice caps melted?</a>	The impact of climate change. Could follow up <a href="#">Family Meal</a> (above).
	LWCYH	<a href="#">Tumbling Timber</a> - sound of a saw felling a tree.	Follow up with <a href="#">this</a> video, David Attenborough finds the Superb Lyre Bird, which mimics the sounds it hears in its forest home, including, sadly, a chainsaw.
	WGO	<a href="#">Buzzing with life</a>	Explore habitats in and around your school. How many flowers can you identify? You could use this <u>spotter sheet</u> or the free app Seek by iNaturalist ( <u>user guide</u> ). You can encourage wildlife in your school grounds and help restore local biodiversity by planting your own wildflower meadow. The Wildlife Trust has a <u>leaflet</u> about ways to introduce wildflowers and offers further advice <u>here</u> . You could also register for support and match funding from the Earth Restoration Service <u>here</u> or sign up to be part of <u>Backyard</u>

<p>KS2: How animal or plant behaviour is influenced by seasonal change.</p> <p>Wales PS2: I can recognise that what I do and the things I use, can have an impact on my environment and on living things.</p>			<p><u>Nature</u>. Do your pupils want to create a wildflower corner at home? They could make <u>seedballs</u> using these instructions and then find a suitable spot for them.</p>
	PS	<a href="#">House hunting hogs</a>	<p>There are more things you can do to make your school grounds and gardens more hedgehog friendly. Your school could register as a <u>hedgehog champion</u>. You could make hedgehog holes in fences at home and school using <u>this guide</u>. Schools can even achieve a <u>Hedgehog friendly campus award</u> for their efforts. Being aware of hazards is also important. You can add a simple <u>hedgehog friendly ramp</u> to your pond for example.</p>
	OOO	<a href="#">No place to hide</a>	<p>Compare the ptarmigan, the mountain hare and the stoat.</p>
	WGO ZIZO WGO	<a href="#">Flying high</a> <a href="#">Red Ruffles</a> <a href="#">Beavering away</a>	<p>All three activities show the positive impact of species reintroduced to the wild by humans. You can encourage wildlife in your school grounds and help restore local biodiversity. Take part in RSPB annual BIG School bird watch in February. They have great <u>bird spotting resources</u> available. Children enjoy making bird feeders to encourage birds to visit. These <u>simple designs</u> work well and WWT have <u>useful guidance</u> on how to repurpose a plastic bottle. The Natural History Museum offers <u>instructions</u> to make a bird nesting box. Once they are in use, <u>cleaning the bird boxes</u> could become an annual contribution that children could make to help local birdlife.</p>
	OOO	<a href="#">It's a big, big world</a>	<p>Peat bog, heathland and limestone pavement. Could lead to research about the importance of these habitats and the animals that live there.</p>
	ZIZO	<a href="#">Massive Migration</a>	<p>This leads to a discussion about why the butterflies can't feed enough in the Northern hemisphere's winter. Children could pose a question about their local environment and visit it at least four times in different seasons of the year to investigate. E.g. <i>Which has the most invertebrate life on the leaves. Oak trees or Holly trees? When are there most leaves on the ground? During which season can you find the most invertebrates under log piles?</i></p>
	TBQ	<a href="#">How do animals store their winter cache</a>	<p>As above.</p>
	OOO	<a href="#">Meadow feast</a>	<p>Different types of meadow are found in different areas of the British Isles. Upland habitats are vital for birds such as the curlew for breeding. Rough grass provides cover and an abundance of insects for skylarks to feed their young. Chalk meadows are home to unique species such as the Adonis blue butterfly.</p>
<p><b>Year 6</b></p>			

## Animals (Vertebrates & Invertebrates) and Plants

In this unit, classification needs thorough revisiting but most of the Explorify content listed for Year 4 would also be suitable in Year 6 depending on the strengths of your pupils. Some additions are listed below:

<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>I have contributed to investigations into the role of microorganisms in producing and breaking down some materials. SCN 2-13a</p>	WGO	<a href="#">To flee or not to flee</a>	<p>Engaging starter which looks at the way a range of mammals and birds move. Use for formative assessment of these vertebrate groups. Do they know which are in each group? Do they know about the animals and their features? In small groups, pool everything they know ready to tell the class.</p> <p>Follow up by trying out some of the identification activities on <a href="#">vertebrates</a> produced by ARKive, including a 'guess which species' <a href="#">game</a> and work towards making a presentation of your findings.</p>
	ZIZO	<a href="#">Jagged</a>	Woodlice - crustacean
	ZIZO	<a href="#">Little Lodger</a>	Head lice - insects
	ZIZO	<a href="#">Hairy coil</a>	<p>Butterfly proboscis- insects</p> <p>In Year 6 your invertebrate hunting could progress to the <a href="#">OPAL investigation</a> on urbanisation – an advanced citizen science bug hunt!</p>
	ZIZO	<a href="#">Confusing camouflage</a>	Stick insect
	<b>Micro-organisms</b>		
	ZIZO	<a href="#">Green for growth</a>	<p>Watch mould on bread grow in this time lapse <a href="#">video</a>.</p> <p><a href="#">What is a microorganism?</a> - BBC video introduction.</p> <p>Plan an investigation into what makes bread go mouldy quicker. <a href="#">Fabulous resource with newspaper stimulus</a> (page 18)</p> <p>Starting point: <i>Does something exist if it's so small you can't see it?</i> Using microscopes... A good activity for looking at familiar things more closely, is: <a href="#">Are you a supertaster?</a> BBC Terrific Scientific</p>
	OOO	<a href="#">Small but powerful</a> - virus, bacteria, yeast	<p>Make <a href="#">bread</a> in DT. Or try making yoghurt. <a href="#">Here's</a> a recipe (video no longer available and note bowel/bowl confusion!).</p> <p>Plan an investigation: <i>What makes yeast grow?</i> <a href="#">Guide</a></p> <p>Watch these BBC videos on <a href="#">microbiologists</a>.</p>

	TBQ	<a href="#">Can microbes be good for you?</a>	Good discussion to assess what they know before lesson or have retained after lesson.
	WI?	<a href="#">What if no one cleaned the house</a>	A conversation starter that's about more than tidying up! Lead into this by considering whether something can be so small that you cannot see it. This might be an opportunity to use microscopes.
<b>CLASSIFICATION based on specific characteristics</b>			
<p>Give reasons for classifying plants and animals based on specific characteristics</p> <p>(Guidance: Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification.)</p>	OOO	<a href="#">Feathered friends</a>	<p>Looking at the similarities of these quite different birds (ostrich, a wren and a barn owl) could lead into a discussion about the vast variety of birds species across the world (at least 11,000 species and in all habitats from deserts to Antarctica).</p> <p>This wide variety led scientists such as Carl Linnaeus to devise classification systems to group and organise them. Children could research more about Carl Linnaeus beginning with this <a href="#">super video</a>. <a href="#">The Linnean Society</a> is a good starting point for research and has a fun <a href="#">Species generator game</a> and <a href="#">Random Special Species Generators</a> too.</p> <p>Another useful resource found <a href="#">here</a> introduces biodiversity through images of a range species and looks at how new species are still being discovered by scientists. Following the presentation, children identify nine newly-discovered amphibian species using a simple dichotomous key. In a second activity, they look at photographs of a variety of newly-discovered species identifying key features with which to differentiate them when creating their own classification keys.</p>
	OOO	<a href="#">Wonderful Women in Science</a>	The first photo is particularly relevant when talking about scientists studying living things. It shows Dr Jane Goodall, a primatologist (a scientist who studies primates such as monkeys and apes). She is famous for her ground-breaking research on chimpanzees.

Useful other resources to support planning can be found at: [PLAN primary science assessment resources \(planassessment.com\)](#) and [Assessment \(TAPS \(Teacher Assessment in Primary Science\)\) - Curriculum Materials | Primary Science Teaching Trust \(pstt.org.uk\)](#) and [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/648197/2016\\_sciencesamplepublicrelease\\_Commentary\\_Booklet\\_V9.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/648197/2016_sciencesamplepublicrelease_Commentary_Booklet_V9.pdf)