

# Biology

## Living Things & Their Habitats

### Working Scientifically Drives All of the Substantive Knowledge

NC Objectives	Key Scientific Knowledge	Key Vocabulary	Working Scientifically
<b>Year 2</b>			
To explore and compare the differences between things that are living, dead, and things that have never been alive	<p>To be able to identify characteristics for life e.g. growth, reproduction, movement, response to environment</p> <p>To know that e.g. plants/ animals/ mushrooms are alive (and can die)</p> <p>To know that only living things that have 'lived' (in a scientific sense) can die (characteristics of life stop)</p> <p>To identify things that have never been alive e.g. metals,</p>	<p>Characteristic, reproduction, growth, environment, compare, same, different, similar</p> <p>Alive, dead, living, have never lived, metal</p> <p>Research, spiritual, scientific,</p>	<p><b>Use observations to suggest answer to questions.</b> Which of these is living/ is dead/ has never lived.</p> <p><b>Support children in raising questions</b> (Huge potential for discussion/ extension. Some chn will know that plastics come from oil/ organic matter; so not many things 'never have lived'. )</p> <p>Does a deciduous tree 'die' in Winter? Is fire alive? What does death mean? (non religious/ spiritual sense- purely scientifically/ medically). How do you know if something is alive?</p> <p><b>Teacher asks:</b> How do we know if something has lived/ has died/ never has lived? Explore/ discuss. Do things that are alive have things in common? Teacher explains that scientists call these 'Characteristics for life'.</p>
To identify that most living things live in habitats to which they are suited and describe	To know that animals live in habitats to which they are suited e.g. colder temperature= thicker fur;	Organism, habitat, suited, basic needs, survival, depend	<b>Research</b> the different ways animals/ plants are suited to dry/ cold/ hot environments/ habitats.



	<p>Pond: pond-weed, dragon-fly, frog/ froglet, tadpole/ frog-spawn, water boatman, newt,</p> <p>Micro-habitat (e.g. under log): woodlouse, worm, millipede, centipede, mushroom/ fungus,</p>		
To describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	<p>To understand that animals can eat other animals to obtain energy</p> <p>To be able to create a simple (3-part) food chain e.g. grass, rabbit, cow</p> <p>To be able to identify different sources of food, e.g. plants/ berries/ animals, rotting material/ organic matter</p>	Energy, eat/ consume, food chain, source of food,	<p>Create simple (3 parts) food chains (<b>modelling</b>) as <b>diagrams</b>, always starting with plant.</p> <p><b>Explain</b> where different animals get their foods from; <b>chn present findings orally.</b></p>

### Year 4

To recognise that living things can be grouped in a variety of ways	<p>To identify the difference between invertebrates (lacking backbone) and vertebrates.</p> <p>To understand the terminology: Skeleton, exoskeleton, bones, backbone</p>	<p>Vertebrates (reptiles, birds, fish, mammals, amphibians – Yr 1 link)</p> <p>Invertebrates (insects, spiders, worms, snails, slugs)</p> <p>Exoskeleton,</p>	<p><b>Explore and group/ classify</b> different vertebrates/invertebrate groups</p> <p><b>Observe</b> examples of x-rays of vertebrates and decide which animal/ vertebrate group is being studied</p>
To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	To be able to use a classification key in identifying an organism (e.g. plant / animal) , based on its physical features	Classification key, identify, physical feature, group, environment	<b>Explore and observe local environment using keys</b> e.g. tree ID/ pond ID- school grounds/ Pilley Nature Reserve
To recognise that environments can change and that this can	To be able to identify how environments can change (e.g.	Environment, pollution, impact, climate change,	<b>Research</b> ways in which humans have positive/ negative impacts on living things

<p>sometimes pose dangers to living things.</p>	<p>seasonally/ through fire/ pollution/ deforestation/ climate change)</p> <p>To be able to identify naturally occurring changes and man-made changes to environments.</p> <p>To be able to identify the positive and negative impacts of these changes on living things e.g. some plants need fire to spread seeds; positive impact of humans setting up nature reserves)</p>	<p>natural, man-made, positive, negative,</p>	<p><b>Use scientific evidence to answer questions:</b> e.g. What impact do humans have on the Great Barrier Reef/ Mount Everest/ beaches?</p>
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**Year 5**

<p>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p>	<p>To be able to describe the life cycles of mammals, an amphibian, an insect and a bird.</p> <p>To be able to identify differences in the life cycles of these</p>	<p>Life cycle, mammal, amphibian, insect, bird, egg, young, metamorphosis, complete, incomplete, pupa, larva, adult, baby, stage</p>	<p><b>Draw diagrams, using scientific language,</b> to show details of these life cycles.  <b>Observe &amp; research</b> animals' life cycles in local environment</p> <p><b>Research</b> work of naturalists' / animal behaviourists' e.g. Attenborough/ Goodall and how their observations of animal behaviour feeds into global understanding of a species (and what this can mean for the conservation of a species)</p> <p>Consider WHY it's important to understand the life-cycle of animals e.g. In order to conserve a species, you have to understand its needs e.g. food/ shelter, at different life cycle stages. Conservation/ Ecology link</p>
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<p>To describe the life process of reproduction in some <u>plants</u> and animals.</p>	<p>To describe the life process of reproduction in different plants e.g. ferns= produce spores, flowering plants make seeds, bulbs (asexual reproduction) make more bulblets)</p>	<p>Reproduction, asexual, sexual, male, female, bulb, seed, spore, tuber,</p>	<p><b>Observe over time</b> &amp; grow plants from seed/ bulb/root cuttings.</p> <p><b>Present findings orally and in writing:</b> describe how some plants can reproduce asexually e.g. crocus/ potato (e.g. chit seed potatoes)</p>
<p><b>Year 6</b></p>			
<p>To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals</p>	<p>To be able to group animals into invertebrates/ vertebrate groups (Yr 4 revision), based on similarities/ differences.</p> <p>To be able to explain that scientists group animals/ plants/ micro-organisms based on common observable characteristics and similarities/ differences, giving examples.</p> <p>To understand what micro-organisms are and give examples e.g. bacteria (e.g. found in live yogurt; corona virus; flu virus, common cold-virus)</p>	<p>Classify, classification, Linnaeus, divide, sort, sub-divide (<i>Challenge: taxonomy</i>)</p> <p>Micro-organism, bacteria, virus, fungus</p>	<p>Chn should begin to name different groups e.g. kingdom, phylum...species</p> <p>Explore the significance of Carl Linnaeus' work –pioneer of classification- and how he organised groups. Use his work to raise further questions. (His work : System of Nature')</p> <p>Explore classification systems.</p>
<p>To give reasons for classifying plants and animals based on specific characteristics.</p>	<p>To be able to sort an animal/ plant/ micro-organism into a group based on specific characteristics.</p>		<p><b>Use classification keys/ systems</b> to sort familiar and unfamiliar animal/ plants from the local environment/ from examples given into groups.</p> <p>Make own classification keys.</p>

