

Year 4 – Living things and their habitats	Main Outcomes: <ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. 	Focus: Science – biology
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What should I already know?
<ul style="list-style-type: none"> The differences between things that are living, dead, and have never been alive. That most living things live in habitats to which they are suited. Describe how these habitats provide for the basic needs of a variety of different plants and animals that can be named. What a food chain is and how it works.
What I will do
<p>I will have weekly or blocked science lessons. In lessons, I will be taught a skill and I will gain knowledge and understanding through the process of scientific enquiry (observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources).</p> <p><u>Possible lines of enquiry</u></p> <ul style="list-style-type: none"> Use the local environment throughout the year to raise and answer questions that help to identify and study plants and animals in their habitat. Identify how the habitat changes throughout the year. Explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants. Begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses. Explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation. Use and make simple guides or keys to explore and identify local plants and animals. Make a guide to local living things. Raise and answer questions based on observations of and research about animals.
Resources

Vocabulary	Meaning
adapt	develop special features to suit a habitat
arachnid	8-legged animals such as spiders
branching database/ dichotomous key	a set of questions used to identify a living thing
carbon dioxide (CO ₂)	a chemical compound usually in the form of a gas
classify	put things into groups
climate change	the shift in the Earth's usual weather conditions over many years
danger	the possibility of harm or injury
environment	everything around us, including the air, soil, water, plants, and animals
excretion	the process that removes waste products, such as CO₂ , from the body
graph	a type of diagram that is used to represent data
greenhouse effect	a process that occurs when gases in Earth's atmosphere trap the Sun's heat
habitat	the place where living things naturally live and grow
identify	to know and say what something is
impact	the action or effect of one thing on another
insect	creatures that have bodies with three segments that are protected by a hard shell
invertebrate	animals without a backbone
local	the surrounding area
man-made	not natural
natural	not man-made; occurring in nature
negative	something that is unpleasant or harmful
nutrition	all the stuff that's in food, such as vitamins, protein, fat, carbohydrates and more
observation	taking note of the things we see
positive	something that improves things
record	to write down results and observations
reproduction	the process by which a living organism creates a likeness of itself
respiration	the process that all living things go through to create the energy they need to live
results	what happens at the end of an experiment
sensitivity	sensing and responding to what is going on around a living thing
table	a way of presenting information or data using rows (horizontal) and columns (vertical)
thermometer	an instrument used to tell the temperature
threat	an indication of imminent harm, danger, or pain
variety	a number or collection of different things
vertebrate	an animal with a backbone

Hamilton Science planning: living things and their habitats
<https://www.hamilton-trust.org.uk/science/year-4-science/living-things-and-their-habitats-name-living-thing/>
<https://www.hamilton-trust.org.uk/science/year-4-science/living-things-and-their-habitats-help-our-habitats/>
 (all planning also saved on SharePoint).

Knowledge and Skills Map – Science at Estcots School

Knowledge to understand		Skills to learn
<p>Living things can be put into groups based on features they have in common.</p>		<ul style="list-style-type: none"> ➤ asking relevant questions and using different types of scientific enquiries to answer them ➤ setting up simple practical enquiries, comparative and fair tests ➤ making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ➤ gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ➤ recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ➤ reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ➤ identifying differences, similarities or changes related to simple scientific ideas and processes ➤ using straightforward scientific evidence to answer questions or to support their findings. <p>Cross-curricular (maths)</p> <ul style="list-style-type: none"> ➤ statistics: interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
<p>Vertebrates are animals with a backbone.</p>	<ul style="list-style-type: none"> • Birds have feather and wings. • Reptiles have dry, scaly skin and lay eggs on land. • Fish have fins and scales and breathe through gills. • Amphibians have damp skin and lay eggs in water. • Mammals have hair or fur and give birth to live young. 	
<p>Invertebrates are animals without a backbone.</p>	<ul style="list-style-type: none"> • Insects have 6 legs. • Spiders (arachnids) have 8 legs. • Worms, snails and slugs do not have legs. 	
<p>Plants can be flowering or non-flowering.</p>	<ul style="list-style-type: none"> • Non-flowering plants include mosses, ferns and coniferous trees (e.g. pines). • Flowering plants include deciduous trees (e.g. oak), grasses and garden shrubs. 	
<p>A key is used to identify unknown plants or animals. It is usually a set of yes/no questions.</p>	<p>Keys can be branched or in a list. They are usually dichotomous (contain a series of yes/no questions).</p>	
<p>Humans can have positive (protective) and negative (damaging) impacts on the environment.</p>	<p>Protective: e.g. making garden ponds, creating nature reserves, litter picking, repairing, reducing, reusing and recycling.</p> <p>Damaging: e.g. pollution, littering, cutting down forests, building on meadows, taking over land for farming (all things which can cause animals and plants to die out, e.g. by taking away their food and shelter).</p>	
Equipment to become familiar with		<p>Cameras</p> <p>Petri dishes</p> <p>Tweezers</p> <p>Magnifying glasses</p> <p>Branching/dichotomous (yes/no) key</p> <p>Thermometers</p> <p>Graph paper</p>

Evidence of Learning	How will I know what I've learnt?
<p>Science books</p> <p>Photos</p> <p>Videos</p> <p>Pupil conferencing</p> <p>Teaching and learning observations</p> <p>Learning walks</p> <p>Data analysis</p>	<p>See KS2 teacher assessment exemplification for science</p> <p>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf</p> <p>See also Hamilton Science_Assessment_Y4 (saved in planning folder on Sharepoint).</p> <p>KS2 quizzes:</p> <p>https://gcequiz.com/quiz/ks2-science-quizzes</p> <p>https://churchfieldsjunior.com/test-your-skills-science/</p>