

<p><b>Year 5 – Living things and their habitats</b></p>	<p><b>Main Outcomes:</b></p> <ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>Describe the life process of reproduction in some plants and animals.</li> </ul>	<p><b>Focus: Science – biology</b></p>
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**What should I already know?**

- Living things can be grouped and classified in different ways, using keys to help.
- The features of invertebrates such as insects, spiders, worms and snails.
- The features of vertebrates such as birds, fish, mammals, reptiles and amphibians.
- That plants can be flowering or non-flowering.
- Environments can change, which sometimes poses dangers to living things.
- Ways that humans can have a protective impact on the environment.

**What I will do**

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).

Possible lines of enquiry

- Study and raise questions about their local environment throughout the year.
- Observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment, and compare them with plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times).
- Find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.
- Find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction and growth in different animals.
- Ask pertinent questions and suggest reasons for similarities and differences.
- Try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.
- Observe changes in an animal over a period of time (for example, by hatching and rearing chicks).

**Resources**

Vocabulary	Meaning
anther	the part of the <b>stamen</b> where <b>pollen</b> is produced
artificial	man-made; not naturally occurring
asexual reproduction	when part of a parent plant grows into a new plant; requires only one parent
botanical	relating to plants
bulb	the underground bud or stem of a <b>seed</b> plant at resting stage
carpel	one of the <b>ovule</b> -bearing structures in a flowering plant
conservation	protecting our environment and the wildlife that lives in it
corn	a short, vertical, swollen underground plant <b>stem</b> that serves as a storage organ; used by some plants to survive winter
cutting	a section of a plant that, when put into suitable soil or compost, will produce roots and grow into a new plant
dissection	the process of separating something into pieces
egg or ovule	a single female germ cell ( <b>gamete</b> or reproductive cell)
endangered	plant and animal species that are not doing very well
fertilisation	when the male and the female germ cells join together
filament	the part of a flower's <b>stamen</b> which supports the <b>anther</b> and often holds it up in order to make <b>pollination</b> easier
fœtus (foetal)	the stage that an organism goes through before it is born as a baby
gamete	an organism's reproductive cells (female= <b>eggs</b> or <b>ovules</b> ; male= <b>sperm</b> )
germination	when a <b>seed</b> starts to sprout and grow into a seedling
gestation	the time period between conception until birth, during which <b>foetal</b> development takes place in the uterus
life cycle	the stages that a plant or animal goes through during its life
metamorphosis	a process which sees animals changing their physical form drastically in a series of stages
naturalist	a person who studies plants, animals, insects and other living things
ovary	one of typically two essential female reproductive organs that produce <b>eggs</b> and, in vertebrates, female sex hormones
pistil	the <b>ovule</b> producing part of a flower
pollen	a fine powdery substance produced by flowering plants, which contains the male germ cell ( <b>gamete</b> or reproductive cell)
pollination	the transfer of <b>pollen</b> from a male part of a plant to a female part of a plant to produce <b>seeds</b>
propagation	increase in numbers
seed	a tiny parcel containing everything a new plant needs to start growing
seedling	the young plant which grows from the seed or a young tree before it becomes a sapling
sexual reproduction	when an <b>egg</b> is fertilised and then grows into a new plant or animal
sperm	the human male's germ cell ( <b>gamete</b> or reproductive cell)
spore	a reproductive cell that can develop into a new individual without uniting with another reproductive cell (used in asexual reproduction)
stamen	the male reproductive organ of a flower, made up of an <b>anther</b> and a <b>filament</b>
stigma	one part of the female reproductive system of a flower (the top part that helps capture <b>pollen</b> )
style	the stalk that supports the <b>stigma</b> and connects it to the <b>ovary</b>
tuber	a specialised storage stem of certain <b>seed</b> plants
uterus	also called the womb, it is the organ where a baby develops until its birth

Hamilton Science planning: living things and their habitats <https://www.hamilton-trust.org.uk/science/year-5-science/living-things-and-their-habitats-art-living/> (all planning also saved on SharePoint).

Knowledge to understand		Skills to learn	
<p><b>Reproduction</b> is when new living things are made e.g. baby animals or new plants.</p>	<p>There are two types of <b>reproduction</b>:</p> <ol style="list-style-type: none"> <li>1. <b>Asexual</b> – only one parent is needed</li> <li>2. <b>Sexual</b> – two parents are needed – a male and a female</li> </ol>		
<p>Animals (not just humans) reproduce by <b>sexual reproduction</b>.</p>	<p>The <b>egg</b> from the female is <b>fertilised</b> by the <b>sperm</b> from the male. The <b>fertilised egg</b> becomes an <b>embryo</b>. The <b>embryo</b> grows into a baby. (N.B. human <b>reproduction</b> is covered in the year 5 unit: Animals including humans).</p>		<ul style="list-style-type: none"> <li>➤ planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>➤ taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>➤ recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>➤ reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>➤ identifying scientific evidence that has been used to support or refute ideas or arguments</li> </ul>
<p>Some plants reproduce by <b>sexual reproduction</b> and some by <b>asexual reproduction</b>. A few can reproduce using either method.</p>	<p><b>Sexual reproduction</b>  <b>Pollen</b> is transferred from the <b>anther</b> to the <b>stigma</b>. The <b>egg</b> is <b>fertilised</b> by the <b>pollen</b> and becomes a <b>seed</b> which <b>germinates</b> into a <b>seedling</b>. This then grows into a new plant.</p> <p><b>Asexual reproduction</b>            New plants grow from parts of a parent plant <i>without</i> using <b>pollen</b> and <b>eggs</b>. Examples include plants that grow from (are propagated from) <b>tubers, bulbs</b> or <b>cuttings</b>.</p>		<p>Cross-curricular (art &amp; design)</p> <ul style="list-style-type: none"> <li>➤ improve mastery of art and design techniques, including drawing, painting and sculpture, with a range of materials</li> </ul>
<p>A <b>life cycle</b> is the series of changes a living thing goes through during its life, including <b>reproduction</b>.</p>	<ul style="list-style-type: none"> <li>➤ The <b>life cycle</b> of a mammal, such as a cat, starts with a <b>fertilised egg</b> growing inside the mother. Mammals give birth to live humans.</li> <li>➤ The <b>life cycle</b> of a bird, such as an owl, starts with the mother laying <b>fertilised eggs</b> in a nest. The chick develops inside the <b>egg</b>, and later hatches from the <b>egg</b>.</li> <li>➤ Most insects, like butterflies, lay <b>fertilised eggs</b> near a food source, such as the leaves and branches of plants.</li> <li>➤ The <b>life cycle</b> of amphibians, such as frogs, starts with the mother laying <b>fertilised eggs</b> in water.</li> </ul>		
Equipment to become familiar with			
		<p>Animal life cycle models (human, amphibian and insect) can be found in the resources room.</p>	

Evidence of Learning	How will I know what I've learnt?
<p>Science books            Photos            Videos            Pupil conferencing            Teaching and learning observations            Learning walks            Data analysis</p>	<p>See KS2 teacher assessment exemplification for science  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf</a></p> <p>See also Hamilton Science_Assessment_Y5 (saved in planning folder on Sharepoint).</p> <p>KS2 quizzes:  <a href="https://gcequiz.com/quiz/ks2-science-quizzes">https://gcequiz.com/quiz/ks2-science-quizzes</a>  <a href="https://churchfieldsjunior.com/test-your-skills-science/">https://churchfieldsjunior.com/test-your-skills-science/</a></p>