

	<b>Year</b>	5	<b>Topic</b>	Living things and their habitats
	<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>			

Prior learning	Future learning
<ul style="list-style-type: none"> <li>Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)</li> </ul>	<ul style="list-style-type: none"> <li>Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta. (KS3)</li> <li>Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms. (KS3)</li> </ul>

WHAT PUPILS NEED TO KNOW OR DO TO BE SECURE	
Show understanding of a concept using scientific vocabulary correctly	
Key learning	Possible evidence
<p>As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis.</p> <p>Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects.</p>	<ul style="list-style-type: none"> <li>Can draw the life cycle of a range of animals identifying similarities and differences between the life cycles</li> <li>Can explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways</li> </ul>

<b>Key vocabulary</b>	
Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings	
<b>Common misconceptions</b>	
Some children may think: <ul style="list-style-type: none"> <li>• all plants start out as seeds</li> <li>• all plants have flowers</li> <li>• plants that grow from bulbs do not have seeds</li> <li>• only birds lay eggs.</li> </ul>	
<b>Apply knowledge in familiar related contexts, including a range of enquiries</b>	
<b>Activities</b>	<b>Possible evidence</b>
<ul style="list-style-type: none"> <li>• Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals.</li> <li>• Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth.</li> <li>• Look for patterns between the size of an animal and its expected life span.</li> <li>• Grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes.</li> <li>• Take cuttings from a range of plants e.g. African violet, mint.</li> <li>• Plant bulbs and then harvest to see how they multiply.</li> <li>• Use secondary sources to find out about pollination.</li> </ul>	<ul style="list-style-type: none"> <li>• Can present their understanding of the life cycle of a range of animals in different ways e.g. drama, pictorially, chronological reports, creating a game</li> <li>• Can identify patterns in life cycles</li> <li>• Can compare two or more animal life cycles they have studied</li> <li>• Can explain how a range of plants reproduce asexually</li> </ul>

### Working Scientifically

<p><b>Year 5: Living things and their habitats</b></p> <p><b>Classifying:</b> The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.</p> <p>Children present the same data in different ways in order to help with answering the question.</p> <ul style="list-style-type: none"> <li>• Classify animals according to their life cycle</li> </ul> <p><b>Observing over time:</b> Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</p> <p>They talk about how their scientific ideas change due to new evidence that they have gathered.</p> <p>They talk about how new discoveries change scientific understanding.</p> <ul style="list-style-type: none"> <li>• Grow from cuttings and observe whether they grow roots/stem/ leaf/flower.</li> <li>• Grow from, and harvest, bulbs through the year. (Can be done in conjunction with Year 2.)</li> </ul>
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- Observe strawberry/spider plants through the year.

Pattern seeking: In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.

They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.

They identify any limitations that reduce the trust they have in their data.

They communicate their findings to an audience using relevant scientific language and illustrations.

- Children generate questions such as:
  - Do larger mammals have longer gestation periods?
  - Do larger animals live longer?
  - Do smaller animals lay more eggs?

#### Comparative/Fair testing

- Not relevant

- Researching: Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry.
- Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.
- The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.
- Generate questions to research the life cycle of a chosen animal: mammal, amphibian, insect, bird e.g. dragon fly, cuckoo, salmon, worm, owl. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.)
- Research how gardeners asexually reproduce plants.

