

Science

Living things and their habitats Year 5

Remember when

Grouped animals into vertebrates, fish, reptiles, amphibians, birds, mammals and invertebrates. (Y1/Y2/Y4)

Life cycles (including those of plants and humans) (Y2)

The processes of dispersal, fertilisation and germination. (Y4)

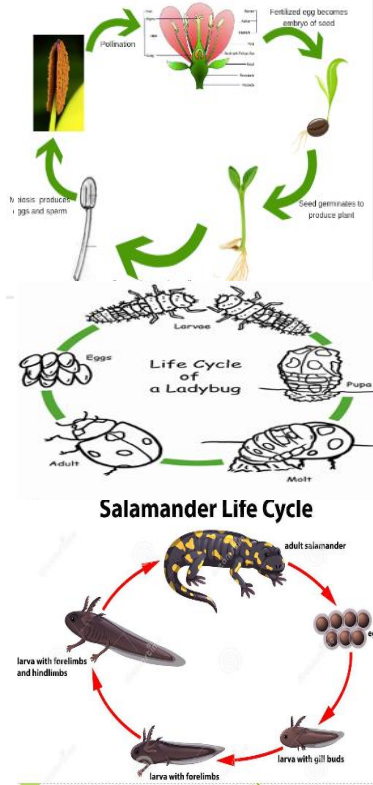
Reproduction is one of the seven life processes. (Y3/ Y4)

Parts of a plant, their features and what their functions are. (Y1/Y2/Y3/Y4)

The word metamorphic means 'a change of form' (in the context of rocks) (Y3)

Sticky knowledge

- The life cycles of mammals, birds, amphibians and insects have similarities and differences. One difference is that amphibians and insects go through the process of metamorphosis. This is when the structure of their bodies changes significantly as they grow (for example, from ladybird or salamander).
- Reproduction is when an animal or plant produces one or more individuals similar to itself.
- Sexual reproduction requires a male and female gametes (cells) and will produce offspring that is similar to but not identical to the parent.
- Asexual reproduction will produce offspring that is identical to the parent and requires only one parent.
- The life process of reproduction in a flowering plant involves, pollination, fertilisation and germination.
- 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.
- A naturalist is an expert in or student of natural history.



Key vocabulary

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|---------------|---------------|
| anthers | life cycle |
| asexual | metamorphosis |
| embryo | offspring |
| fertilisation | ovary |
| filament | ovule |
| germination | pollination |
| egg | reproduction |
| sexual | sepal |
| sperm | stamen |
| live young | stigma |
| tubers | style |
| plantlets | |
| runners | |
| bulbs | |

National Curriculum

Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

Describe the life process of reproduction in some plants and animals.

Common Misconceptions

Some children may think:

- all plants start out as seeds
- all plants have flowers
- plants that grow from bulbs do not have seeds
- only birds lay eggs.

LO and Enquiry type	Knowledge and Skills	Lesson outline
Lesson 1 LO: To know what a life cycle is and what it shows.	SK: The life cycles of mammals, birds, amphibians and insects have similarities and differences. One difference is that amphibians and insects go through the process of metamorphosis. This is when the structure of their bodies changes significantly as they grow	Recap mammals, amphibians, insects, birds. Child will have a post it on their back with the name of an animal (any category). They can only ask yes/no questions to decide what their animal is. What is a life cycle? Introduce children to new and prior vocabulary (metamorphosis, pupa, larvae etc). Recap on life cycles from Year 2 (5 vertebrate groups plus butterflies) and Year 1 and EYFS (chicks).

<p>Enquiry type: Research</p>	<p>(for example, from ladybird or salamander). Skill: 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</p>	<p>What would the life cycle of the animal on your post it note look like? Draw into your book. LA – Order pictures to create a life cycle. ARE - simpler life cycles (mammals/birds) GD – more complex life cycles.</p>
<p>Lesson 2</p> <p>LO: To compare the differences in the life cycles of a mammal and an amphibian.</p> <p>Enquiry type: Research</p>	<p>SK: The life cycles of mammals, birds, amphibians and insects have similarities and differences. One difference is that amphibians and insects go through the process of metamorphosis. This is when the structure of their bodies changes significantly as they grow (for example, from ladybird or salamander). Skill: Record data and results of increasing complexity using scientific diagrams and labels</p>	<p>Recap – what is a life cycle? What does a mammal life cycle look like? What does an amphibian life cycle look like? What similarities do you notice? What differences do you notice? LA – compare the two by sorting statements into 2 columns (similarities/differences) ARE – compare using 3 columns (similarities/just amphibian/just mammal) GD – compare using venn diagram (similarities/just amphibian/just mammal)</p>
<p>Lesson 3</p> <p>LO: To compare the differences in the life cycles of an insect and a bird.</p> <p>Enquiry type: Research</p>	<p>SK: The life cycles of mammals, birds, amphibians and insects have similarities and differences. One difference is that amphibians and insects go through the process of metamorphosis. This is when the structure of their bodies changes significantly as they grow (for example, from ladybird or salamander). Skill: Record data and results of increasing complexity using scientific diagrams and labels</p>	<p>Recap – what is a life cycle? What does a insect life cycle look like? What does an bird life cycle look like? What similarities do you notice? What differences do you notice? Discuss metamorphosis in insects. LA – compare the two by sorting statements into 2 columns (similarities/differences) ARE – compare using 3 columns (similarities/just insect/just bird) GD – compare using venn diagram (similarities/just insect/just bird)</p>
<p>Lesson 4</p> <p>LO: To describe the process of reproduction in animals.</p> <p>Enquiry type: Research</p>	<p>SK: Reproduction is when an animal or plant produces one or more individuals similar to itself. Sexual reproduction requires a male and female and will produce offspring that is similar to but not identical to the parent. Asexual reproduction will produce offspring that is identical to the parent and requires only one parent Skill: Report and present findings from enquiries,</p>	<p>Class Discussion Recap to check the children's understanding of reproduction – What does reproduction mean? What do you know about how plants and animals reproduce? Discuss why it is so important for animals to reproduce. What would happen if they didn't? What happens when a species becomes extinct? Almost every animal uses sexual reproduction to produce offspring. Male and female cells combine to form a single cell - this is called fertilisation. How do animals reproduce? - BBC Bitesize LA – order the pictures and statements to show the process of sexual reproduction. ARE – order the pictures and write a statement to show the process of sexual reproduction. GD – as ARE. Explain what would happen if animals did not reproduce.</p>

	including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	
Lesson 5 LO: To describe the process of reproduction in plants. Enquiry type: Observation	SK: 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. Skill: Plan different types of scientific enquiries to answer questions including recognising and controlling variables where necessary	Discuss how plants reproduce. Recap plant life cycles and seed dispersal and its different methods from Year 3. True or False? New plants can be created from just one plant. Discuss that this is called asexual reproduction. How can we grow different plants? Children plan enquiries to answer question e.g. Observe bulbs and bulblets (drawing on knowledge from year 2). Children will set up an investigation to grow new plants from vegetable tops. They can choose their own vegetable and see if they can use it to regrow more. (Veg that works this way - celery, carrots, lettuce, spring onions). Record how the plants are growing throughout the next few weeks, then replant in the allotment once the roots have grown (if they have grown) LA – Teacher support (group work) ARE – Paired work GD – Paired work but compare growth of two vegetables
Lesson 6 LO: To investigate the work of a naturalist Enquiry type: Research	SK: A naturalist is an expert in or student of natural history. Skill: Report and present 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	Children to work in groups to research different naturalists and their work using different sources. They will prepare a presentation to feed back to the rest of the class. Naturalists - Chris Packham - Jane Goodall - Steve Irwin - Steve Backshall - David Attenborough (LA only)
Working towards	End of unit assessment Working at Age related expectations	Working at a greater depth