

**Science: Living things and their habitats- year 5**

**Definition:** Living things are made of cells, grow and develop, use energy, reproduce, respond to their environment and adapt.

**Habitat (noun)** The place where a particular organism lives, which provides all its basic needs for survival and reproduction.

**Microhabitat (noun)** a very small habitat, forming part of a much larger habitat.

**Biology definition:** The word **biology** is derived from the greek words /bios/ **meaning** /life/ and /logos/ **meaning** /study/ and is **defined** as the science of life and living organisms. An organism is a living entity consisting of one cell e.g. bacteria, or several cells e.g. animals, plants and fungi.

**POS:**

- ❖ 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.

**Prior learning:**

- Notice that animals, including humans, have offspring which grow into adults.
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Links to other science topics:

Plants year 1/2  
 Animals including humans  
 Living things and their habitats year 2/4  
 Living things and their habitats year 6

**Disciplinary concepts:**

**Growth:** What are the stages in the life cycles of plants and animals?

**Differences and similarities:** How might the life cycles of some animals and plants be different or similar?

**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 and only birds lay eggs.

Some children believe that seeds are not living things. Others might think that seeds contain miniature plants. You could counter this misconception by cutting a broad bean in half and showing the children what's inside.

Children often think of an egg as the "start" of a life cycle. In fact, since the different stages repeat in a continuous cycle, there is no start. However, it could be said that each individual organism starts life as a fertilised egg.

Young children don't often think of humans as animals, as they think of all animals as things that are kept as pets, or found in zoos or farms. You can address this misconception by comparing animals and humans, and drawing out the similarities. Like all animals we have offspring that grow into adults. It is worth reminding children that not all animals have the same kind of life cycle as we do, and not all offspring look like their adult form.

**Core Knowledge:**

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.

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.

**Wider Knowledge:**

Some lifecycles are gross, some are astonishing. Then there are others that are just downright confusing. Take the cicada for instance. These large, flying insects are renowned for their incredibly loud chirping and also their unusual existence. The 17-year cicada is identified as such because it lives underground for that period of time, slowly developing while feasting on tree sap. Then, every 17 years, all of these cicadas emerge at once and live for... just a few weeks. So that's 17 years beneath our feet followed by just a month in the open air. Then they all vanish for another decade and a half.

**Working scientifically:**

- Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals.
- Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth.
- Look for patterns between the size of an animal and its expected life span.
- Grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes.
- Plant bulbs and then harvest to see how they multiply.

**End Goals:**

- To draw the life cycle of a range of animals identifying similarities and differences between the life cycles
- To explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways

**CPD:** Reach out CPD – Living things and habitats

Science Association PLAN London Assessment Network