Year 5 Science Knowledge Organiser: (All Living Things & Their Habitats)



Subject Specific Skills

- I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- I can describe the life process of reproduction in some plants and animals

Prior Learning

- 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

Key Knowledge:

- Pupils should 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. They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.
- Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals
- Most complex living things develop from an egg to a juvenile to an adult that is capable of having its own offspring.
- For most plants and animals, the cycle begins when an ovum (egg cell) is fertilised by a sperm (male sex cell). As the organism's cells multiply, it grows and matures into adulthood. At this point the organism is able to reproduce, and the cycle continues with the next generation.
- The offspring of some organisms are simply smaller and less developed versions of the adult, others, including butterflies, frogs and ladybirds, undergo metamorphosis.

Key Vocabulary

Egg: The female sex cell in plants and animals. Egg cells are produced by the ovaries.
Fertilisation: The joining of male and female sex cells to produce offspring.
Germination: The process by which a plant emerges from its seed and begins to grow.
Pollen: The male sex cell in plants. The anther of a flower produces pollen.
Reproduction: The process by which a species produces a new organism (offspring).
Sperm: The male sex cell. In animals, sperm is produced by the testes.

Key Individual: Jane Goodall



Key Knowledge:

- At this level, it is not necessary for the children to understand about genes or DNA. Explain that an egg only contains half of the information needed to make a new living thing. For an animal to reproduce, the male must provide the other half of the information, in the form of sperm. It is only when a sperm meets and joins with an egg that there is enough information to produce offspring. The egg and sperm then start to grow and develop into the animal.
- In plants, the process of fertilisation is essentially the same. The male parts of the plant produce pollen, and this must meet and join with the egg cells (ovules) for fertilisation to occur.
- Birds and mammals, produce offspring that look like smaller versions of the parents. However, lots of other animals, including amphibians and insects, produce young that look very different. For example, compare a caterpillar to a butterfly or a tadpole to a frog.
- Plants can reproduce sexually using flowers. Inside flowers are the male and females reproductive organs: the male stamen, which consists of the anther and the filament; and the female carpel, which consists of the stigma, style, ovary and ovules.
- Anthers produce pollen (male sex cells). For pollination to occur, pollen needs to land on a stigma. Some plants use wind to distribute pollen, others rely on insects.
- Once a flower has been pollinated, the pollen grain grows a tube down to the ovary where it fertilises a female ovule. This fertilised ovule then develops into a seed, and the ovary swells and turns into a fruit.

