Knowledge Organiser: lifecycles

Learning Outcomes

- Identify and label the parts of a plant's reproductive system correctly.
- Explain the process of pollination and its significance in plant reproduction.
- Describe at least three methods of asexual reproduction in plants and provide examples.
- Outline the life cycles of at least two amphibians and two insects, including metamorphosis.
- Compare and contrast the reproductive strategies of mammals and birds.
- Conduct simple experiments to observe germination and document findings.
- Create a botanical illustration of a plant's reproductive system, labelling all parts accurately.
- Discuss how environmental factors can influence reproduction in different species.
- Communicate findings about life cycles through written reports or presentations.

Term	Definition
gamete	A reproductive cell (sperm or egg) that combines to form a new organism.
stamen	The male part of a flower, consisting of the anther and filament.
stigma	The part of the pistil where pollen lands and germinates.
carpel	The female reproductive part of a flower, including stigma, style, and ovary.
pistil	The entire female reproductive structure of a flower.
pollination	The transfer of pollen from the anther to the stigma of a flower.
germination	The process by which a seed develops into a new plant.
flowering	The stage in a plant's life cycle when it produces flowers.
sexual reproduction	A type of reproduction involving two parents and the fusion of gametes.
life cycle	The series of stages an organism goes through from birth to adulthood.
seed	A plant's reproductive structure that can grow into a new plant.
pollen	Fine powder produced by the anther that contains male gametes.
anther	The part of the stamen that produces pollen.
filament	The stalk that supports the anther in the stamen.
style	The tube connecting the stigma to the ovary in the pistil.
ovary	The part of the pistil that contains the ovules, which develop into seeds.
botanical illustration	A detailed drawing of a plant used for scientific study.
dissection	The process of cutting apart an organism to study its structure.
corm	A swollen underground stem that stores nutrients for a plant.
bulb	A round underground storage organ that can produce new plants.
spores	Reproductive cells in non-flowering plants that can develop into new organisms.
cutting	A method of asexual reproduction where a piece of a plant grows into a new plant.

fern	A type of non-flowering plant that reproduces using spores.
moss	A small non-flowering plant that also reproduces using spores.
liverwort	A non-flowering plant that reproduces through spores and has a flat structure.
tubers	Swollen underground stems that store food and can produce new plants.
asexual	A type of reproduction that does not involve gametes or fertilisation.
non-flowering	Plants that do not produce flowers, such as ferns and mosses.
propagation	The process of creating new plants from existing ones.
artificial	A method of reproduction that is human-assisted, such as grafting.
natural	A method of reproduction that occurs without human intervention.
metamorphosis	The process of transformation from an immature form to an adult form in animals.
amphibian	A type of animal that can live both in water and on land, often undergoing metamorphosis.
insect	A small animal with six legs and a body divided into three parts.
mammal	A warm-blooded animal that has hair or fur and usually gives live birth.
bird	An animal with feathers and wings that lays eggs.
gestation	The period of development of a foetus inside the womb.
foetus	An unborn offspring in the later stages of development.
sperm	The male gamete involved in reproduction.
egg	The female gamete involved in reproduction.
uterus	The organ in female mammals where the foetus develops.
chick	A young bird that hatches from an egg.
baby	A young mammal that is born live.
adult	A fully developed organism that can reproduce.

Key Concepts

- **Parts of a Plant's Reproductive System**: Understanding the structure and function of stamen and pistil in flowering plants.
- **Pollination Process**: Learning how pollen is transferred and its role in plant reproduction.
- **Germination**: Recognising the stages from seed to sprouting plant.
- **Asexual Reproduction**: Identifying methods such as corms, bulbs, and cuttings in plants like ferns and mosses.
- **Life Cycles of Animals**: Understanding the stages of development in amphibians, insects, mammals, and birds.
- **Metamorphosis**: Exploring the transformation process in amphibians and insects.
- **Reproductive Strategies**: Comparing sexual and asexual reproduction across different species.
- **Environmental Influence**: Recognising how habitats affect reproduction and life cycles.
- **Observation Skills**: Developing skills through botanical illustrations and dissections.
- **Inquiry Skills**: Encouraging questions and exploration of life cycles and reproduction.