

BIOLOGY

YEAR 5 and 6: AUTUMN 1

How do living things reproduce and why is this important in a life cycle?

COVERAGE: How do living things reproduce and why is this important in a life cycle?
The children will start comparing the life cycles of plants, mammals, birds, amphibians and insects, the children investigate asexual reproduction in plants and compare sexual and asexual reproduction.

- Describe the life cycle of a plant, including the reproductive stage.
- Describe the life cycle of a mammal.
- Describe the life cycle of a bird and compare it with that of a mammal.
- Describe the life cycle of an amphibian.
- Describe the life cycle of an insect and compare it with that of an amphibian.
- Describe asexual reproduction in plants.

Working Scientifically

- Observe and compare equivalent parts in different flowers.
- Research the life cycles of different mammals.
- Pose questions to compare the life cycles of different birds.
- Suggest how one temperature may affect egg hatching.
- Use data to describe a relationship and make predictions.
- Represent root growth over time on a line graph.

KEY LANGUAGE AND VOCABULARY:

adolescence
amphibian (Y1)
asexual reproduction
bird (Y1)
characteristic
data
estimate
fertilisation
germination
gestation
gills
incubation
insect (Y4)
life cycle (Y2)
line graph
line of best fit
lungs
mammal (Y1)
mating
metamorphosis
offspring
ovule
pollen
pollination
reproduction (Y3)
sexual reproduction
testable

KNOWLEDGE AND FACT SHEET

Science Knowledge Organiser
Autumn 1

Living Things & their Habitats

Life processes

There are seven things that all living things do. These are called life processes.

MRS GREEN will help you remember!

Movement
Respiration
Sensitivity
Growth
Reproduction
Excretion
Nutrition

All living things move. All living things take in food and release gas. Living things grow, eat, excrete, feel and react.

To get bigger or taller. Having offspring. Getting rid of waste products. Consuming food for energy.

Mrs Green

The five animal groups

Mammals
Have fur or hair. Warm blooded. Give birth to live young.

Reptiles
Have scales. Cold blooded. Lay eggs.

Amphibians
Have smooth skin. Cold blooded. Lay eggs. Can live on land and in water.

Birds
Have feathers. Warm blooded. Lay eggs.

Fish
Have scales. Cold blooded. Live in water.

Reproduction in animals

Reproduction is the process in which living things create offspring (children or babies). Offspring will have DNA from their parents and have similar characteristics.

Mammals

A mammal **offspring** grows inside the mother's womb. The mother provides nutrients and oxygen to the foetus (unborn baby). When a mammal carries a foetus it is **pregnant**. In order to create a **baby**, two mammal parents (a male and a female) are needed. A male sex cell, called a **sperm**, fertilises the female sex cell, called an **egg**.

Birds and Reptiles

Birds and reptiles lay eggs. The shell protects the baby and when it is ready, they will break out of the shell. Baby birds will be looked after by their mothers, whereas adult reptiles do not look after their babies.

Amphibians and fish

Fish and most amphibians also lay eggs but in water. Eggs laid by amphibians are called **spawn**. Fish lay **hundreds of eggs** and when they hatch they look after themselves.

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Reproduction in plants

The Flower

The flower's main job is to create new seeds to grow new plants. There are lots of different parts of the flower.

petal
Brightly coloured to attract insects.

anther
Contains the pollen.

stamen
Holds the anther up.

stigma
Sticky to catch the pollen grains.

style
Holds up the stigma. Pollen travels down it to the ovary.

ovary
Where the seeds are formed.

pollination and seed dispersal

Pollination is when pollen from the anther is transferred to the stigma. This can happen by wind or by a pollinator such as a bee or a butterfly. Once the pollen is transferred to the stigma, it travels down the style to the ovary where the seed grows. Seeds are then dispersed and will grow in **different places**. Seeds can be dispersed by exploding plants, wind, water or animals.

Life Cycles?

All plants and animals have a **life cycle** but they are different depending on the type of animal or plant. Here are some examples.

Frog life cycle

Butterfly life cycle

Dandelion life cycle

Human life cycle

Strawberry life cycle

KEY QUESTIONS:

1. How do plants reproduce?
2. What is a plants lifecycle?
3. What is the lifecycle of a mammal?
4. What is the lifecycle of a bird?
5. What is the lifecycle of an amphibian?
6. What is the lifecycle of an insect?
7. What is asexual reproduction in plants?

KEY SKILLS AND KNOWLEDGE

Knowledge

- A life cycle shows the changes an animal or plant goes through until the reproduction of a new generation when the cycle starts again.
- All living things must reproduce for the species to survive.
- Sexual reproduction requires two parents whereas asexual reproduction only requires one parent. There are different processes

plants and animals use to reproduce (asexual and sexual reproduction).

- There are a range of jobs and careers that use scientific knowledge and methods.
- There is current scientific research taking place with aims for achievement in the future.
- Scientific evidence is used to support or refute ideas or arguments.

Skills

Posing questions

- Raising questions throughout the enquiry process.
- Identifying testable questions.

Planning

- Suggesting which variables will be changed, measured and controlled.
- Making and explaining decisions about what observations to make and how long to make them for.

Observing

- Using their senses to describe, in detail and with a broader range of scientific vocabulary, what they notice or what has changed.

Measuring

- Using standard units to measure and compare with increasing precision (decimals).

Researching

- Gathering answers to open-ended questions from a variety of sources.

Recording

- Representing data by using line graphs and scatter graphs.
- Plotting points with greater accuracy.
- Reading the value of plotted points with greater accuracy.

Analysing and drawing conclusions

- Suggesting with increasing independence how one variable may have affected another.
- Quoting relevant data as evidence of relationships.
- Using identified patterns to predict new values or trends.

ENRICHMENT:

-

Visits: -

Previous Learning:

Future Learning:

The children will go on to answer questions about how can we separate materials (Chemistry) and how we can vary circuits (Physics)?

School Drivers to Examine

Children will look at:

- Care of the Environment = how can we care for the lifecycles of different animals and plants?