Reproduction (Biology)

Year 6

End Points:

- Asexual reproduction does not require a male and female and doesn't alter genetic information.
- Asexual reproduction is when an organism simply copies itself.
- Some plants and some simple animals reproduce asexually.
- Most flowering plants reproduce by combining a male and female gamete (pollen and ovule) to make a fertilised egg that grows into an embryo.
- The embryo or baby plant is protected inside a seed.
- Most flowering plants clothe their seeds with fruit.
- Fruit protect and keep seeds moist.
- Fruits help with seed dispersal.
- Animals can have male cells (sperm produced in testes) or female cells (eggs produced by ovaries).
- When an egg is fertilised by sperm it is called a zygote.
- The zygote develops into an embryo and then a foetus.
- When a foetus can live outside the mother, it is born.
- Gestation is the period of time that a living thing develops before it is born.
- Different animals have different gestation periods.
- Different species of animal have different ways of looking after their young.

This unit covers content which is additional to the National Curriculum. It builds on understanding of how plants and animals reproduce from previous years, particularly from Year 5 Human Body and also Year 5 Living Things.

This unit begins with a practical task to set up an investigation into asexual reproduction in plants. Pupils will observe a potato, ginger and garlic over the course of this unit to look for growth. Pupils will learn that some plants reproduce asexually, not requiring a male and female, but reproducing by copying itself. Understanding this form of reproduction will build on knowledge of how flowering plants reproduce. In the second lesson, pupils will dissect a flower, reinforcing knowledge of flowering plants and their reproductive organs. They will work scientifically to identify, remove and observe the sepal, stamen, pistil and pollen. In the third lesson, pupils will continue to work scientifically as they dissect fruit looking for three parts of the fruit; the exocarp (skin), mesocarp (flesh) and endocarp (seed covering). They will build on their understanding

of seed dispersal from Year 2 Plants and will learn that the fruit is an important part of reproduction for many plants.

Moving on to reproduction in animals, pupils will look again at how animals reproduce, building on their knowledge from previous years, specifically in Year 5 Human Body. They will learn about internal and external fertilisation and will understand that different animals reproduce in different ways. They will learn that external fertilisation has a much higher mortality rate, therefore animals that use external fertilisation, e.g. fish, produce more offspring than those who use internal fertilisation e.g. humans. Pupils will build on this knowledge and look at growth stages of animals, building on their knowledge from Year 5 when they studied human and elephant gestation periods. Pupils will learn that animals care for their young in different ways and that offspring vary hugely in their ability to be independent when they are born.

This unit has been included to deepen understanding of reproduction in plants and animals and to give pupils a clearer picture of some of the similarities and differences in the world of living things. We strongly suggest that Year 5 Human Body and Year 5 Living Things are taught before this unit in Year 6.

Lesson Sequencing:

In lesson one, pupils will learn about asexual reproduction and that it doesn't require male and female cells. In lesson two, pupils will build upon this knowledge by looking at sexual reproduction in plants. Lesson three will develop that knowledge further by looking at how plants clothe their seeds with fruit. In lesson four, pupils will develop their understanding of sexual reproduction by looking at it with animals. Lesson five will develop this further by looking at gestation periods in animals and how animals look after their young. In the assessment lesson, pupils will apply their knowledge by explaining sexual and asexual reproduction in plants and animals or by writing about their observations from the experiment conducted throughout the unit.

Misconceptions:

- Asexual reproduction always produces exact clones (mutation in DNA can cause variation).
- Flowers are decorative rather than a vital part of reproduction.
- Male offspring take after their fathers and female offspring take after their mothers.

Working Scientifically criteria met in this unit:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments