

Year 8 – Genes – Variation and Reproduction

Name of unit	
Expected Outcomes • Students will understand the differences between sexual and asexual reproduction. • Students will describe how variation arises in organisms. • Students will explain the role of genes and chromosomes in inheritance. • Students will identify inherited and environmental causes of variation. • Students will explore how reproduction contributes to the survival of species.	
Developmental Focus Opportunities • Data handling: Analysing variation through data collection (e.g., class surveys). • Scientific vocabulary: Accurately using terms such as genes, chromosomes, and inheritance. • Visual reasoning: Interpreting diagrams of reproduction and genetic transfer. • Scientific curiosity: Exploring diversity in nature and the impact of reproduction on evolution.	
Key Learning Points	Powerful Knowledge
• Reproduction can be sexual (involving two parents) or asexual (one parent only). • Genes are carried on chromosomes and determine characteristics. • Variation can be inherited, environmental, or a combination of both. • Reproduction is essential for the continuation of species.	• Understanding how traits are passed on and why offspring are not identical. • Recognising the biological basis of diversity in living things. • Appreciating how reproduction influences evolution and natural selection. • Building foundational knowledge for GCSE topics in genetics and heredity.
Subject-Specific Vocabulary	Reading Opportunities
• Gene • Chromosome • Reproduction • Sexual reproduction • Asexual reproduction • Fertilisation • Inherited characteristics • Variation • DNA	• Case studies on selective breeding or cloning. • Articles about famous geneticists such as Mendel or Rosalind Franklin. • Charts or texts comparing different reproductive strategies in plants and animals.

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- Clone

Possible Misconceptions

- Believing that all traits are inherited and none are influenced by environment.
- Confusing chromosomes with cells or genes.
- Thinking that asexual reproduction produces variation.
- Assuming that all offspring from sexual reproduction look very different.

Cross-Curricular Links

- **Maths:** Graphing and analysing variation data.
- **PSHE:** Respect for diversity and differences.
- **English:** Reading and writing informational reports or ethical discussions on cloning.