

## Inheritance, Variation and Evolution

Content	RAG
To understand the differences between sexual and asexual reproduction	
Describe the process of meiosis and explain why it leads to variation.	
Describe advantages and disadvantages of sexual and asexual reproduction.	
Explain how sex is determined, using genetic diagrams where necessary. Explain probability of having a boy or a girl.	
Describe the structure of genes, chromosomes and DNA. Explain how the bases link together.	
Describe protein synthesis in simple terms. Link the importance of shape to enzyme function.	
Describe what mutations are and the effect a mutation may have (e.g on enzymes).	
Describe genetic inheritance. Give examples of characteristics controlled by a single gene/multiple genes. Define key terms: gametes, genotype, phenotype, dominant recessive, homozygous and heterozygous	
Describe polydactyly and cystic fibrosis, use genetic cross diagrams to explain inheritance and carriers.	
Describe Mendel's experiments.	
Use punnett squares to predict the outcome of a monohybrid cross	
Describe the process of genetic engineering and its advantages & disadvantages. Describe examples of genetic engineering including the production of insulin.	
HT – describe the role of enzymes in genetic engineering	
Describe methods of cloning in plants and animals.	
Classify characteristics as inherited or environmental variation, continuous and discontinuous.	
Describe the process of selective breeding and give advantages and disadvantages.	
Describe Darwin's theory of evolution by natural selection.	
Define the terms mutation and species. Explain why mutations lead to change.	
Describe the work of Wallace and how new species may arise.	
Describe the work of Lamarck and Identify difference between Darwin's theory & conflicting theories.	
Describe the evidence for evolution: fossils & resistant bacteria.	
Define the term extinction, and explain how it may be caused.	
Classification of living organisms	