

AQA Biology		Covered in	Diagnosis			Revised		
B4.6 Inheritance, variation and evolution		Lesson	R	A	G	1	2	3
4.6.1 Reproduction	Describe features of sexual and asexual reproduction							
	Describe what happens during meiosis and compare to mitosis							
	Describe what happens at fertilisation							
	<i>Bio ONLY: Explain advantages of sexual and asexual reproduction</i>							
	<i>Bio ONLY: Describe examples of organisms that reproduce both sexually and asexually (malarial parasites, fungi, strawberry plants and daffodils)</i>							
	Describe the structure of DNA and its role in storing genetic information inside the cell							
	Explain the term 'genome' and the importance of the human genome (specific examples from spec only)							
	<i>Bio ONLY: Describe the structure of DNA, including knowledge of nucleotide units</i>							
	Bio & HT ONLY: Explain complementary base pairing in DNA							
	Bio & HT ONLY: Explain the relationship between DNA bases (ATCG), amino acids and proteins							
	Bio & HT ONLY: Describe how proteins are synthesised on ribosomes, including protein folding and its importance for protein function							
	Bio & HT ONLY: Explain what mutations are, and the possible effects of mutations							
	Bio & HT ONLY: Explain what non-coding parts of DNA are, and why they are important							
	Describe how characteristics are controlled by one or more genes, including examples							
	Explain important genetic terms: gamete, chromosome, gene, allele, genotype, phenotype, dominant, recessive, homozygous and heterozygous							
	Explain and use Punnet square diagrams, genetic crosses and family trees							
	HT ONLY: Construct Punnet square diagrams to predict the outcomes of a monohybrid cross							
	Describe cystic fibrosis and polydactyly as examples of inherited disorders							
	Evaluate social, economic and ethical issues concerning embryo screening when given appropriate information							
	Describe how the chromosomes are arranged in human body cells, including the function of the sex chromosomes							
Explain how sex is determined and carry out a genetic cross to show sex inheritance								
4.6.2 Variation and evolution	Describe what variation is and how it can be caused within a population							
	Describe mutations and explain their influence on phenotype and changes in a species							
	Explain the theory of evolution by natural selection							
	Describe how new species can be formed							
	Describe what selective breeding is							
	Explain the process of selective breeding, including examples of desired characteristics and risks associated with selective breeding							
	Describe what genetic engineering is, including examples, and how it is carried out							
	Explain some benefits, risks and concerns related to genetic engineering							
	HT ONLY: Explain the process of genetic engineering, to include knowledge of enzymes and vectors							
	<i>Bio ONLY: Describe different cloning techniques, to include: tissue culture, cuttings, embryo transplants and adult cell cloning</i>							
Development of understanding of genetics and evolution	<i>Bio ONLY: Describe the ideas proposed by Darwin in his theory of natural selection and explain why this theory was only gradually accepted</i>							
	<i>Bio ONLY: Describe other inheritance-based theories that existed (apart from the theory of natural selection), and the problems with these theories</i>							
	<i>Bio ONLY: Describe the work of Alfred Russel Wallace</i>							
	<i>Bio ONLY: Explain how new species can be formed</i>							
	<i>Bio ONLY: Describe how our understanding of genetics has developed over time, to include knowledge of Mendel</i>							
	Describe some sources of evidence for evolution							
	Describe what fossils are, how they are formed and what we can learn from them							

4.6.3 The development of life	Explain why there are few traces of the early life forms, and the consequences of this in terms of our understanding of how life began							
	Describe some of the causes of extinction							
	Describe how antibiotic-resistant strains of bacteria can arise and spread (inc MRSA)							
	Describe how the emergence of antibiotic-resistant bacteria can be reduced and controlled, to include the limitations of antibiotic development							
4.6.4 Classification	Describe how organisms are named and classified in the Linnaean system							
	Explain how scientific advances have led to the proposal of new models of classification, inc three-domain system							
	Describe and interpret evolutionary trees							