CB3 Genetics

RAG rate your confidence levels at the start and end of each topic:

R= Not Confident **A= Fairly confident (need more practice/ to review)** **G= Very confident**

CB3a Meiosis

Step	Learning outcome	Start of topic	End of Topic
	Recall that gametes are produced by meiosis.		
	Describe what happens in meiosis. [without details of the stages]		
	Explain why haploid gametes are needed for sexual reproduction.		
	Recall what an organism's genome is.		
	Describe where genes are found.		
	Recall the function of genes.		

CB3b DNA

Step	Learning outcome	Start of topic	End of Topic
	Recall where DNA is found in a eukaryotic cell.		
	Name the bases in DNA.		
	Recall the pairing of bases in DNA.		
	Describe how DNA strands are held together.		
	Describe the overall structure of DNA.		
	Describe how DNA can be extracted from fruit.		

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CB3c Alleles

Step	Learning outcome	Start of topic	End of Topic
	Describe the difference between a gene and an allele.		
	Explain the effects of alleles on inherited characteristics.		
	Describe the relationship between a genotype and a phenotype.		
	Identify homozygous and heterozygous genotypes.		
	Use genetic diagrams to work out possible combinations of alleles in the offspring of parents.		
	Explain why the effects of some alleles in an organism's genotype are not seen in its phenotype.		

CB3d Inheritance

Step	Learning outcome	Start of topic	End of Topic
	Use Punnett squares to work out possible combinations of alleles in the offspring of parents.		
	Interpret family pedigree charts to work out possible inherited genotypes and phenotypes.		
	Describe how sex is determined in humans.		
	Calculate ratios of phenotypes (controlled by alleles of a single gene) when organisms are crossed.		
	Calculate probabilities of certain phenotypes occurring when organisms are crossed.		

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CB3e Gene mutation

Step	Learning outcome	Start of topic	End of Topic
	Give examples of characteristics controlled by multiple genes.		
	Define the term mutation.		
	Describe some potential applications of mapping human genomes.		
	Explain how a mutation can cause variation (limited to changes in the protein formed, which can affect processes in which that protein is needed).		
	Give examples of mutations in human genes that affect the phenotype, and examples of those that have little or no obvious effect.		
	Explain why many mutations have no effect on the phenotype.		

CB3f Variation

Step	Learning outcome	Start of topic	End of Topic
	Distinguish between genetic variation and environmental variation.		
	Distinguish between continuous and discontinuous variation.		
	Describe the causes of genetic variation (mutation and sexual reproduction).		
	Describe the causes of environmental variation (differences in the environment, acquired characteristics).		
	Analyse the contribution of genes and environment to the variation in a characteristic.		

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