CB3 Genetics

CB3a Meiosis

Step	Learning outcome	Had a look	Nearly there	Nailed it!
7th	Recall that gametes are produced by meiosis.	☐	☐	☐
8th	Describe what happens in meiosis. [without details of the stages]	☐	☐	☐
8th	Explain why haploid gametes are needed for sexual reproduction.	☐	☐	☐
6th	Recall what an organism's genome is.	☐	☐	☐
6th	Describe where genes are found.	☐	☐	☐
6th	Recall the function of genes.	☐	☐	☐

CB3b DNA

Step	Learning outcome	Had a look	Nearly there	Nailed it!
5th	Recall where DNA is found in a eukaryotic cell.	☐	☐	☐
7th	Name the bases in DNA.	☐	☐	☐
7th	Recall the pairing of bases in DNA.	☐	☐	☐
7th	Describe how DNA strands are held together.	☐	☐	☐
8th	Describe the overall structure of DNA.	☐	☐	☐
7th	*Describe how DNA can be extracted from fruit.*	☐	☐	☐

CB3c Alleles

Step	Learning outcome	Had a look	Nearly there	Nailed it!
	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	Had a look	Nearly there	Nailed it!
	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.	☐	☐	☐

CB3e Gene mutation

Step	Learning outcome	Had a look	Nearly there	Nailed it!
	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	Had a look	Nearly there	Nailed it!
	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.	☐	☐	☐