

Islip Manor High School

Scheme of Learning Overview



Year group: 11	Term: Autumn	Unit duration: 4 weeks	Number of lessons: 8 lessons	Inheritance, Variation and Evolution part 2		
Unit assessment: End of topic test				Fertile question: if we can "edit" DNA, should we design the perfect human?		
Key skills/ concepts/ prior knowledge that students should have when starting this unit:				Star t RAG	End RAG	Literacy. Key vocabulary/subject terminology that students should cover
1. The nucleus of a cell contains chromosomes made of DNA molecules. 2. In body cells, chromosomes are normally found in pairs. 3. A gene is a small section of DNA on a chromosome. 4. Mitosis is used for growth and repair in the body. 5. Asexual reproduction involves only one parent and no fusion of gametes.						Meiosis, Genome, Allele, Homozygous, Heterozygous, Genotype, Phenotype, Polydactyly, Cystic Fibrosis, Dominant, Recessive, Genetic Screening
Key skills/concepts/knowledge that students should cover				Star t RAG	End RAG	
1. Meiosis & Gametes: Explain how cells divide by meiosis to form gametes (sperm/egg) with half the number of chromosomes. 2. The Genome: Define the human genome and explain its importance for medicine, tracing migration, and treating inherited disorders. 3. DNA Structure: Describe DNA as a polymer made of two strands forming a double helix, organised into chromosomes. 4. Genetic Inheritance: Explain terms (allele, dominant, recessive) and use Punnett squares to predict the probability of phenotypes. 5. Inherited Disorders: Describe the cause and inheritance of polydactyly (dominant) and cystic fibrosis (recessive). 6. Sex Determination: Explain how ordinary human body cells contain 23 pairs of chromosomes, with the 23rd pair (XX or XY) determining sex. 7. Selective Breeding: Describe the process of breeding for specific characteristics and the risks of "inbreeding" (e.g., disease susceptibility). 8. Genetic Engineering: Explain the process of modifying the genome of an organism by introducing a gene from another organism (e.g., insulin-producing bacteria).						Suggested materials teachers could/should use: AQA Combined Science textbook Oxford University Press Kerboodle Key home learning tasks students should complete: Kerboodle assessment checkpoints

9. Evidence for Evolution: How fossils and antibiotic resistance provide proof of Darwin's theory of evolution.			
10. Extinction & Classification: Identify factors leading to extinction and explain the Linnaean system and the three-domain system (Woese).			
Stretch. Key skills/concepts/knowledge that students should cover Evaluate the ethical, social, and economic issues surrounding embryo screening and gene therapy.			