



<p>Unit: Inheritance, Variation and Evolution</p>	<ol style="list-style-type: none"> 1. Sexual & asexual reproduction 2. Meiosis 3. Advantages & disadvantages of sexual & asexual reproduction. 4. DNA & The Genome 5. Genetic inheritance, sex determination. 6. DNA structure & protein synthesis. 	<ol style="list-style-type: none"> 7. Inherited disorders 8. Variation 9. Evolution 10. Selective breeding 11. Genetic engineering 12. Cloning 13. Theory of evolution 14. Speciation 	<ol style="list-style-type: none"> 15. Understanding of genetics 16. Evidence for evolution 17. Fossils 18. Extinction 19. Resistant bacteria 20. Classification & evolutionary trees
<p>LESSONS</p>			
<p>Knowledge & Skills Development</p>	<ul style="list-style-type: none"> • Outline the differences between sexual & asexual reproduction. • State and explain the stages in meiosis. What is produced during meiosis and the advantage of meiosis. • Advantages and disadvantages of types of reproduction. • Outline the structure of DNA including mutations • Define the Human Genome Project and the importance of it to future generations. • Complete genetic diagrams to show inheritance of eye colour, hair colour, flower colour and sex. • Understanding of Polydactyl and cystic fibrosis symptoms, treatments and mode of inheritance. • Define variation and explain how variation is produced. • Define evolution including the differing views of theories of evolution and how/why they have changed. To include natural selection and the mechanism. • Define, explain and give examples of selective breeding including the advantages and disadvantages. • Define genetic engineering. Outline the stages involved using examples such as insulin, fluorescence. Advantages and disadvantages of GE. • Explain the steps of tissue culture, cuttings, embryo transplants and adult cell cloning. 		
<p>Assessment / Feedback Opportunities</p>	<p>Formative Assessment Teacher questioning Quizzes Exam style questions</p>	<p>Summative assessment End of topic assessment Exam questions in future end of topic assessments to assess recall</p>	

<p>Key Vocabulary</p>	<p>Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest</p> <p>Chromosomes, DNA, Gene, Meiosis, Variation Genetic engineering, restriction enzyme, plasmid, bacteria, Selective breeding, Genetically modifies (GM), Clone, Cuttings, Tissue culture, Surrogate, Allele, Genotype, Phenotype, Dominant, Recessive, Homozygous, Heterozygous, Monohybrid, inheritance, Punnett square, Polydactyly, Cystic fibrosis, Sex Chromosomes, XX chromosomes, XY chromosomes, Sexual reproduction, Asexual reproduction, Gamete, Evolution, Natural Selection, Fossils, Lamarck, Darwin, Offspring, Binomial System, Genus, Species, Three-domain system</p> <p>Extinct, Speciation, Population, Carl Woese, Carl Linnaeus, Phylum, Class, Order, Family, DNA, Chromosomes, Gene, Genome, Polymer, Nucleotide, Mutation, factors, peas, Gregor Mendel, speciation. DNA, Chromosomes, Gene, Genome, Polymer, Nucleotide, Mutation</p>
<p>Literacy/Reading Opportunities</p>	<p>Subject specific vocabulary introduced before reading of related texts</p> <p>Word etymology from Latin and Greek roots</p> <p>Reading of simple and complex sentences, paragraphs, articles</p> <p>Scientific writing including structuring methods, comparisons and evaluations</p>
<p>Cross Curricular Themes</p>	<p>Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators</p>
<p>Personal Development (Including British Values, RSE, Citizenship)</p>	<p>Ethics of genetic engineering and selective breeding</p>
<p>Career Opportunities</p>	<p>Geneticist, nursing, genetic councillor, farming, horticulture, vet, vet nurse, journalist, palaeologist, conservationist, politician</p>