



Subject: Biology Y13

NPCAT Curriculum Overview 2021-2022

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
End point	To develop scientific knowledge and conceptual understanding of the following topics:					
Teaching Focus	Module 6 Genetics, evolution and ecosystems					
	Cellular control	Patterns of inheritance	Manipulating genomes	Cloning and biotechnology	Ecosystems, Populations and sustainability	Exam window
Rationale	Aspects of cellular control complement the aspects of systems control and coordination taught concurrently in Module 6. Patterns of inheritance extends the knowledge of genetics taught in Y11 and relates directly to the synthesis of proteins discussed in Y12.					
Maths Skills	Application & understanding that requires a choice of data or equation to be used. Problem solving involving use of mathematics from different areas of maths and decisions about direction to proceed. Calculation of Hardy Weinberg, Chi-Squared, proportion of polymorphic genes, efficiency of biomass transfer					
Practical skills				PAG 7.1 The Effect of Antibiotics		
Key Vocabulary	Substitution, Deletion, Insertion, Mutagens, Duplication, Translocation, Inversion, Gene Regulation, Acetylation, Methylation, Epigenetics, Operon, Lac A, Repressor protein, Promotor, Operator, Intron, Exon, Hox Gene, Diploblastic, Triploblastic, Apoptosis, Somites	Dominant, Recessive, Homozygous, Heterozygous, Allele, Codominance, Allele Frequency, Recessive Epistasis, Founder Effect, Disruptive Selection, Speciation, Artificial Selection, Inbreeding, Seedbanks, Polymorphic, Codominance, Autosomal Linkage	PCR, Primers, probing, Denature, Anneal, Thermal Cycler, Computational Biology, Bioinformatics, Capillary Sequencing, Synthetic Biology Genetic Engineering, Desirable Gene, Recombinant DNA, Vecotr, Callus, Plasmid, Electrofusion, Pharming, Marking, Electroporation, Proteomics, DNA Polymerase,	Natural Cloning, Vegetative Propagation, perennating Organs, Micropropagation, Enucleated, Oocyte, Biotechnology, Bioremediation, Death Phase, Theoretical Growth, Primary Metabolites, Secondary Metabolites, Batch Fermentation Aseptic Technique, Immobilised Enzymes, Lag Phase, Log Phase, Exponential	Population Growth Curve, Carrying Capacity, Density Dependent Factors, Interspecific, Conservation, Preservation, Coppicing, Cultivation, predator-Prey Relationships, Predation, Ecotourism	



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			Hybridisation	Growth; Bioremediation, Bioreactor, Monozygotic Twins, Artificial Twinning		
Summative Assessment		AP1 –AS Content		AP2 –AS Content, Cellular Control, Patterns of Inheritance, Manipulating Genomes, Cloning		