



Curriculum Plan *Separate Biology*



Year 11	Golden Treads: State the big ideas that will be taught across the year (Threshold concepts) Homeostasis and response Inheritance, variation and evolution				Enrichment: What is offered through the year to support learning in the classroom?		Review and evaluation: Give date for review of the curriculum July 2024
	Topics	Assessment	Substantive Knowledge	Disciplinary Knowledge	Misconceptions	Key Vocabulary	Knowledge tracking
Term 1	Ecology	Mock Assessment 1 – Paper 1 Content	Adaptations, interdependence and competition Communities Abiotic and biotic factors Adaptations Organisation of an ecosystem Levels of organisation How materials are recycled Decomposition Impact of environmental change Trophic levels in an ecosystem Trophic levels Pyramids of biomass Transfer of biomass Food production Factors affecting food security Farming techniques Sustainable fisheries Role of biotechnology Biodiversity and the effect of human interaction on ecosystems Biodiversity and maintaining it Waste management Land use Deforestation Global warming	Required Practical 9: Measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species Required Practical 10: Investigate the effect of temperature on the rate of decay of fresh milk by measuring the pH change	Plants are dependent on humans. Plants cannot defend themselves against herbivores. Food webs are interpreted as simple food chains. Organisms higher in a food web eat everything that is lower in the food web. There are more herbivores than carnivores because people keep and breed herbivores. Food chains involve predator and prey, but not producers. Decomposers release some energy that is cycled back to plants. Traits are developed by individuals in response to the needs of the individual.	Abiotic Adaptation Biodiversity Environment Predator Prey Decomposition Sustainability Biomass Trophic	Prior Learning – Year 8 Interdependence of organisms Year 9 - Biodiversity Future Learning – Year 12/13 Populations and ecosystems
	Homeostasis and response		Hormonal coordination in humans Human endocrine system Control of blood sugar concentration Maintaining water and nitrogen in the body Hormonal coordination in humans		Response to stimuli includes releasing hormones not just moving muscles. Control of blood glucose concentration - students think Type 1 diabetes is solely caused by genetics.	Stimulus Effectors Receptors Synapse Reflex Endocrine Thyroxine Adrenaline Adrenal Glycogen	Prior Learning – Year 7 Cells to organs Future Learning – Year 13 Stimuli and response, nervous coordination and homeostasis



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			Hormones in human reproduction Contraception Use of hormones to treat fertility Negative feedback Plant hormones Control and coordination Use of plant hormones		Lots of misconceptions about contraception, especially regarding STI's. Students don't realise that plants have hormones.	Glycogen Insulin	
Term 2	Homeostasis and response		Hormonal coordination in humans Hormones in human reproduction Contraception Use of hormones to treat fertility Negative feedback Plant hormones Control and coordination Use of plant hormones	Required practical activity 7: plan and carry out an investigation into the effect of a factor on human reaction time.		Follicle Fertility Infertility Oestrogen Progesterone Testes Ovaries Contraceptive	Prior Learning – Year 7 reproduction Future Learning -
Term 3	Inheritance, evolution and variation	Mock Assessment 2 – Ecology, Homeostasis – 4.5.1, 4.5.2, 4.5.3	Reproduction Sexual and asexual reproduction Meiosis Advantages and disadvantages of sexual and asexual reproduction DNA and the genome DNA structure Genetic inheritance Inherited disorders Sex determination Variation and evolution Variation Evolution Selective breeding Genetic engineering Cloning		Where asexual reproduction is described as 'involves one parent' some students think this is referring to IVF treatment and single parents. It's worth teaching in terms of 'clones'. Students also think that sexual reproduction has to involve sex. Worth teaching in terms of 'fusion of gametes', and explicitly stating that flowers reproduce sexually but obviously don't have sex	Allele Chromosome Clone Dominant Recessive Fertilisation Gamete Genome Genotype Phenotype Heterozygous Homozygous Variation Mutation inbreeding Parasite Nucleotide Clone Evidence Species	Prior Learning – Year 7 reproduction, Year 8 Variation and Year 9 Inheritance and the Genome Future Learning – Year 12 Biological molecules, Year 13 Genetics, populations, evolution and ecosystems and The control of gene expression



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Term 4	Inheritance, evolution and variation	Assessment Week 2 Ecology and Homeostasis and Response	The development of understanding of genetics and evolution Theory of evolution Speciation The understanding of genetics Evidence of evolution Fossils Extinction Resistant bacteria Classification of living organisms			Extinction Fossil Antibiotic resistance Evolution Natural selection	Prior Learning – Year 9 Variation within species and inheritance and the genome Future Learning - Year 13 Genetics, populations, evolution and ecosystems and The control of gene expression
Term 5	GCSE Revision		Biology Paper 1 Biology topics: Cell Biology; Organisation; Infection and response; and Bioenergetics. Biology Paper 2 Biology topics: Homeostasis and response; Inheritance, variation and evolution; and Ecology.				
Term 6							