SUBJECT: Combined Science Biology

NESTON HIGH SCHOOL

KS4 CURRICULUM PLAN

KS4 Knowledge and key skills

YEAR 10	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	***Review Cells and Organisation In Animals***	***organisation in plants & Infection and Response***	***Infection and response***	***Bioenergetics***	***Homeostasis***	***Homeostasis***
Knowledge	Cell Structure and function. Digestive system, Circulatory System the heart, Breathing System, Non communicable disease, Cancer, Enzyme Action. Enzyme rates of reactions.	Transpiration & translocation, active transport. Hygiene & pathogens Bacteria & virus Fungus & protists antibiotics & vaccination drugs	Antibiotics & vaccination. The development of new medicines. Clinical trials.	Photosynthesis, factors affecting photosynthesis, use of glucose by plants. Respiration, excersise and anaerobic respiration. Metabolism.	Nervous system, reflexes, types of neurone, synapses,	Endocrine system, control of glucose, thyroxine and adrenaline. Hormonal control.
Skills	Label the parts of a cell, Label the parts of the digestive system, food tests. Explain digestion and the action of enzymes, Write a method, identify the independent variable, dependent variable and control variable. Draw an enzyme rate graph	Use scientific theories and explanations to develop hypotheses. Explain causes and treatments of disease. Explain the stages of drug development. Explain the use of monoclonal antibodies and vaccines	Explain the immune response, describe how new medicines have been developed from living things. Evaluate clinical trials	Choose and justify the choice of apparatus appropriate for laboratory and fieldwork. Measure reaction times and predict variables affecting reactiojn times. Explain treatments for brain injuries and methods to treat eye problems.	Explain how humans use hormones to treat infertility. Explain how blood glucose concentration is controlled, negative feedback in humans	Explain how blood glucose concentration is controlled, negative feedback in humans
Key Vocab	Cell, Tissue, Organ, Nucleus, Mitochondria, Ribosomes, Eukaryote, Prokaryote, Cytoplasm, Oesophagus, Stomach, Small Intestine	Bacteria, Virus, double blind trial, Salmonella, Gonorrhoea, Measles	Chlorophyll, Chloroplast, Metabolic,	Motor neurone, Sensory neurone, Synapes, Reflex	synapse, receptor, motor neurone, sensory neurone	endocrine gland, insulin, diabetes, thyroxine, adrenaline

YEAR 11	SUMMER 2	SUMMER 1	SPRING 2	SPRING 1	AUTUMN 2	AUTUMN 1
TOPIC	***review***	***review***	***Inheritance & evolution***	***Inheritance & evolution***	***Ecology***	***Homeostasis & ecology***
Knowledge	Paper 2 review	Paper 1 review	Inherited disease. Mendel's work, natural selection, speciation, classification	Human's impact on the environment. Sexual reproduction. Asexual reproduction, The structure of DNA. Mitosis and meiosis comparison.	Adaptation. Communities. Decomposition, Carbon cycle, deforestation,	Menstrual cycle and control of fertility. Homeostasis & temp control. Sampling techniques
Skills	Answering : Long-answer questions, Mathematical skills, and Required Practicals.	Answering : Long-answer questions, Mathematical skills, and Required Practicals.	Evaluating genetic testing, classifying species, interpreting evolutionary relationships	Explaining conservation methods. Explaining the need for conservation.Calculating probability using punnett squares, comparing and contrasting cell division processes,	Explain how organisms are adapted to their habitat, analyse predator prey relationships. Explain how carbon is cycled in the atmosphere	Explain how humans use hormones to treat infertility. Explain how body temperature is controlled.Sampling techniques. Explain Control of variables in fieldwork. Calculating population sizes
Key Vocab			Homozygous, heterozygous, phenotype, genotype, natural selection.	Climate change, decomposer, random sampling, transect. Mitosis, gamete, meiosis, nucleotide,	Producer, primary consumer, predator, abiotic, biotic, decomposer,	FSH,, oestogen, LH, menstrual, vasoconstriction & vasodilation. Random sampling, transect, quadrat

Key Knowledge Transfer