SUBJECT: Separate 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***	***Infection and Response***	***Bioenergetics***	***Homeostasis***	***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	Hygiene & pathogens Bacteria & virus Fungus & protists antibiotics & vaccination drugs Plant disease & nutrients	Photosynthesis, factors affecting photosynthesis, use of glucose by plants. Respiration, excersise and anaerobic respiration. Metabolism	Nervous system, reflexes, types of neurone, synapses, eyes and brain.	Hormonal control. Menstrual cycle and control of fertility. Homeostasis & temp control Endocrine system, control of glucose Thyroxine and adrenaline kidney	Plant hormone & uses of plant hormones. Seed practical.
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	Plan an investigation using aseptic techniques.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	Identify key variables in complex contexts and explain why some cannot readily be controlled and planning approaches to take account of this. Draw rate of photosynthesis graphs graphs.	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 humens use hormones to treat infertility. Explain how blood glucose concentration is controlled, negative feedback in humans	Identify key variables in complex contexts and explain why some cannot readily be controlled and planning approaches to take account of this
Key Vocab	Cell, Tissue, Organ, Nucleus, Mitochondria, Ribosomes, Eukaryote, Prokaryote, Cytoplasm, Oesophagus, Stomach, Small Intestine	Bacteria, Virus, double blind trial, Salmonella, Gonorrhoea	Chlorophyll, Chloroplast, metabolic,	Motor neurone, Sensory neurone, Synapes, Reflex	FSH, LH, oestrogen, menstruation, ovulation	Auxing, gravitropism, phototropism

YEAR 11	SUMMER 2	SUMMER 1	SPRING 2	SPRING 1	AUTUMN 2	AUTUMN 1
TOPIC	***ecology***	***Review***	***Review***	***Inheritance***	***Inheritance & ecology***	***ecology***
Knowledge	Adaptation. Communities. Decomposition, Carbon cycle, deforestation, pyramids of biomass, human's impact on the environment	Paper 2 Review	Paper 1 review	Sexual reproduction. Asexual reproduction, The structure of DNA. Mitosis and meiosis comparison. Methods of cloning	Inherited disease. Mendel's work, natural selection, speciation, classification	Adaptation. Communities. Decomposition, Carbon cycle, deforestation, pyramids of biomass, human's impact on the environment
Skills	Sampling techniques. Explain Control of variables in fieldwork. Calculating population sizes. Explaining conservation methods. Explaining the need for conservation.	Answering : Long-answer questions, Mathematical skills, and Required Practicals.	Answering : Long-answer questions, Mathematical skills, and Required Practicals.	Explain methods of cloning. Draw diagrams to show stages of meiosis. Explain differences between lifecycles.	Explain the discoveries of Charles darwin & Alfred Russel Wallace. Draw genetic diagrams to predict inheritance probabilities	Sampling techniques. Explain Control of variables in fieldwork. Calculating population sizes. Explaining conservation methods. Explaining the need for conservation.
Key Vocab				Evolution, homozygous, heterozygous, phenotype, genotype	Gamete, meiosis, mitosis, asexual,	Climate change, decomposer, random sampling, transect

Key Knowledge Transfer