

KNOWLEDGE AND SKILLS OVERVIEW	HT1	HT2	HT3	HT4	HT5	HT6
Year 7	Introduction to Science. Cells, organs and tissues in animals and plants	Skills: microscope slides Essential practical: use of a microscope. Modelling cells. Diffusion. Organisation. Photosynthesis experiment			Lifecycles → Plants and pollination Sex Cells (link to term 1) plus seed formation and dispersal Male and female anatomy Fertilisation and inheritance. Foetal development Birth/Puberty and menstrual cycle	
Year 8	Food and diet Food tests Digestive system Everyones experiments Absorption of food		Respiration (aerobic and anaerobic)		The link between photosynthesis and respiration. Limiting factors and photosynthesis.	Transport in plants. Plant specialised cells. Wide range of plant products. Farming practices. Food chains and food webs. Biotic and Abiotic factors.
Year 9 N.B. Units are taught by Y9 staff in a different order for each HT due to demands for resources.	Variation and classification Genetics (cause) of variation Mendelian genetics DNA	Importance of variation and evolution Biodiversity	Exercise (effects on the body) Muscles / joints Asthma. Recreational drugs / alcohol / smoking Skeletal system – bone disease	Diet/exercise	Working scientifically – KS3 Practical experiment. Microscopy Plant and animal cells Eukaryotic and prokaryotic cells – specialised cells	Chemistry of food Food tests Tissues and organs in animals Digestive system
Year 10 Bold content is SS only	Enzymes theory Enzymes in digestion The circulatory system Heart problems Breathing system Enzymes theory (SS) Enzymes in digestion (SS) Stem Cells and cell division (SS) Cell cycle (SS)	Cell transport methods: Diffusion / osmosis / Active transport and surface area: volume. Cell transport methods: Diffusion / osmosis / Active transport and surface area: volume (SS)	Plant tissues and organs Plant transport Photosynthesis Limiting factors Products of photosynthesis Enhancing food production(SS) The circulatory system (SS) Heart problems (SS) Breathing system (SS) Plant tissues and organs (SS) Plant transport (SS)	Respiration (aerobic) Exercise Anaerobic respiration Liver(SS) Communicable diseases Pathogens Microbiology(SS) Defence against disease Respiration (aerobic) (SS) Exercise (SS) Anaerobic respiration (SS) Liver (SS)	Drug development/drug trials Monoclonal antibodies(SS) Non-communicable diseases / cancer / smoking / alcohol / diabetes (type 2) Photosynthesis (SS) Limiting factors (SS) Products of photosynthesis (SS) Enhancing food production (SS)	Stem Cells and cell division. Cell cycle. Communicable diseases (SS) Pathogens (SS) Microbiology (SS) Defence against disease (SS) Drug development/drug trials (SS) Monoclonal antibodies (SS) Non-communicable diseases / cancer / smoking / alcohol / diabetes (type 2) (SS)
Year 11 Bold content is SS only	Photosynthesis Limiting factors Products of photosynthesis Enhancing food production	Communities / abiotic and biotic factors Investigating ecosystems Competition and adaptation Feeding relations and cycles in nature	Monoclonal antibodies (SS) Nervous and hormonal coordination and plant hormones Homeostasis and control	Human reproduction Control of fertility Genetics and evolution Types of reproduction DNA and protein synthesis (SS) Inheritance and disease variation. Classification	Human impacts on environment Pollution Revision	
Year 12 2 Staff teach independent topics each half term	Biological molecules Cell structure Cell membranes	Breathing Surface area: Volume Viruses and replication	Protein synthesis Populations in ecosystems Exchange and transport systems Transport into and out of cells.	The immune system HIV AIDS Exchange and transport Haemoglobin Plants Digestion Heart	Diversity, selection and classification	Protein synthesis Populations in ecosystems

Year 13 2 staff teach independent topics each half term	Photosynthesis Genetics Conservation/populations in ecosystems	Respiration Energy transfer and nutrient cycles	Gene technology/Mutations/Stem Cells/Cloning Coordination and homeostasis	Homeostasis Control of gene expression Gene technology	Revision	
ORACY/LIT/NUM	Graph work / tables Scientific reports Pupil's verbal responses Percentage mass change Graphics. Ratio calculations	Magnification calculation Graphs and tables Energy in food calculations Analysis of data on enzymes BMI Calculations	Genetic analysis / ratios Percentages Graphs of variation Lung disease presentation	Magnification calculations Interpreting dissociation curves	Graphs of results (line graphs and limiting factors)	Presentations by pupils on global food production. Sampling and data analysis. Ecological methods
CULTURAL CAPITAL	Health and Safety Transplant ethics Conservation	Food production Eating disorders Famine / war / disease Sustainability in ecosystems Conservation ethics of stem cells	Genetic disorders DNA technology Ethics – transplantation Gene banks Religious views Drug problems in society IVF HIV AIDS	Human genes Ethics of genetics Vaccination	Endangered animals and extinction Infertility Pregnancy and health Problems with pregnancy Body Awareness Life choices Climate change Peat bog destruction Risk factors and disease	Climate change and loss of pollinators Efficient food production Global effects of drought, carbon sinks and rainforests Peat and carbon sinks Evaluating farming methods Role of pollinators

DEPARTMENT: BIOLOGY

DH / GR / AMB / LA / JL