Curriculum	Topic	Sub-heading	Keywords	Specification Statement
CORE/SUPPLEMENT	Characteristics and classification of living organisms	Classification	kingdom, genus, species, animal, plant, fungus, prokaryote, protoctist, monocotyledon, dicotyledon, vertebrate, invertebrate, mammals, birds, reptiles, amphibians, fish, arthropods, myriapods, insects, arachnids, crustaceans, binomial system, dichotomous keys, virus	Section 1: 1.1-1.2 1.3.1-1.3.6
CORE/SUPPLEMENT	Organisation of the organism	Cells	bacterial cell, plasmid, flagella, cell wall, plant cell, chloroplast, vacuole, cell wall, membrane, mitochondria, cytoplasm, nucleus	Section 2: 2.1.1-2.1.6 2: 2.2
CORE	Organisation of the organism	Cells, tissues, organs and organ systems	Cell differentiation in multicellular animals, tissues (muscle, gland, epithelia), organs (stomach), systems (digestive system components). Plant tissues (epidermis, mesophyll, xylem and phloem) and organs (stem, root, leaf)	Section 2: 2.1.7
CORE/SUPPLEMENT	Movement in and out of cells	Diffusion, osmosis and active transport	Diffusion, rate, oxygen diffusion, active transport, concentration gradient, osmosis, partially permeable membrane, exchange surfaces in organs	Section 3: 3.1, 3.2, 3.3
CORE	Biological molecules	Diet	nutrients, carbohydrates, fats, proteins, food tests, balanced diet	Section 3: 4.1.1-4.3.1 Section 7: 7.1
CORE/SUPPLEMENT	Enzymes	Enzymes	Biological catalyst, factors influencing enzymes (temp, substrate conc., pH), specificity, lock and key hypothesis, denaturation, enzyme experiments	Section 5: 5.1
CORE/SUPPLEMENT	Plant nutrition	The leaf and photosynthesis	structure of the leaf, chlorophyll, chloroplast, stomata, photosynthesis, word equation, limiting factors (light, CO_2, temp), stomata, gas exchange, use of glasshouses	Section 6: 6.1-6.2
CORE/SUPPLEMENT	Human nutrition	Digestive system and digestive enzymes	Ingestion, egestion, parts (mouth oesophagus, stomach, small and large intestines, pancreas, liver, gall bladder), peristalsis, es, lipases, role of bile, villi	Section 7: 7.2-7.5
CORE/SUPPLEMENT	Transport in plants	Transpiration and plant transport	xylem, phloem, root hair cells, transpiration, rate of transpiration	Section 8: 8.1-8.4
CORE/SUPPLEMENT	Transport in animals	Blood and circulatory system	blood (red, white cells, plasma, platelets), heart, valves, circulatory system, arteries, veins, capillaries	Section 9: 9.1 9.2.1-9.2.3 9.3, 9.4
CORE/SUPPLEMENT	Transport in animals	Heart disease	coronary heart disease, cornonay artieries, risk factors	Section 9: 9.2.5-9.2.6
CORE	Diseases and immunity	Pathogens and the body's defence against disease	pathogens, infectious disease, methods of transmission, vectors, physical defences - skin, cilia, mucus, chemical - stomach acid, lysozyme	Section 1: 1.3.7 (virus structure) Section 10: 10.1.1-10.1.5
SUPPLEMENT	Diseases and immunity	Harmful microbes, vaccination and immunity	immune system, phagocytes, lymphocytes, vaccination	Section 10: 10.1.6-10.1.12 10.1.16-10.1.17
CORE/SUPPLEMENT	Gas exchange in humans	Gas exchange and the lungs	gas exchange system, lungs, alevoli, trachea, diaphragm, inspired and expired air, breathing mechanism, goblet cells, mucus, cilia	Section 11: 11.1.1-11.2 11.1.4 11.1.7-11.1.9 11.1.11
CORE/SUPPLEMENT	Gas exchange in humans	Effects of exercise on the body	heart rate, breathing rate	Section 9: 9.2.4, 9.2.11 Section 11: 11.1.5, 11.1.10 Section 12: 12.3.6-12.3.7
CORE/SUPPLEMENT	Respiration	Aerobic and anaerobic respiration	aerobic respiration, capillaries, diffusion, anaerobic respiration, lactic acid, oxygen debt	Section 12: 12.1.1 12.2-12.3 21.2 (bread-making)

CORE/SUPPLEMENT	Excretion in humans	The kidney and water balance	waste products, urea, urinary system (renal artery, vein, kidney, ureters, bladder, urethra), dialysis, organ donation, nephron (glomerulus, Bowman's capsule, convoluted tubules, loop of Henle, collecting duct, osmoregulation, ADH, pituitary gland, negative feedback	Section 13: 13.1
CORE	Coordination and Response	The nervous system	nervous system, brain, spinal cord, sense organs, nerves, neurones, receptors	Section 14: 14.1.1-14.1.4 14.2.1
CORE	Coordination and Response	The reflex arc	sensory, relay, motor neurone, synapse, myelin, neurotransmitter, reflex arc	Section 14: 14.1.5-14.1.7
SUPPLEMENT	Coordination and Response	The synapse	synapse, neurotransmitters	Section 14: 14.1.8-14.1.10
CORE/SUPPLEMENT	Coordination and Response	The eye and vision	lens, accommodation, pupil reflex, retina, rods, cones, iris	Section 14: 14.2.2-14.2.9
CORE/SUPPLEMENT	Coordination and Response	Hormones in our bodies	hormones, endocrine gland, adrenaline, insulin	Section 14: 14.3.1-14.3.6 14.4.2
CORE/SUPPLEMENT	Coordination and Response	Homeostasis	bond making, bond breaking	Section 14: 14.4.1, 14.4.3
SUPPLEMENT	Coordination and Response	Thermoregulation	thermoregulation, skin, sweat, blood vessels, hair, vasoconstriction, vasodilation, negative feedback	Section 14: 14.4.6-14.4.8
SUPPLEMENT	Coordination and Response	Controlling blood sugar levels (supplement)	pancreas, insulin, glucagon, glycogen	Section 14: 14.3.5 14.4.4-14.4.5
CORE/SUPPLEMENT	Coordination and Response	Tropisms - hormone control of plant growth	plant hormones, phototropism, geotropism, auxin, cell elongation, gibberellins	Section 14: 14.5
CORE/SUPPLEMENT	Drugs	Antimicrobial agents and microbial resistance	antibiotics, antibiotic resistant bacteria, MRSA	Section 15: 15.1 Section 18: 18.3.5
CORE/SUPPLEMENT	Reproduction	Human reproduction	asexual reproduction, sexual reproduction, fertilisation, zygote, embryo, reproductive systems, placenta, amniotic fluid, secondary sexual characteristics	Section 16: 16.1 16.2 16.4
CORE/SUPPLEMENT	Reproduction	Plant reproduction	asexual reproduction, pollination, pollen, seed, fruit, germination	Section 16: 16.3
CORE/SUPPLEMENT	Reproduction	Hormonal control of the menstrual cycle	FSH, LH, oestrogen, progesterone, menstrual cycle	Section 16: 16.4.2 16.5
CORE	Reproduction	Controlling fertility	contraception, STIs, HIV	Section 16: 16.6
CORE/SUPPLEMENT	Inheritance	Genes and inheritance	dominant, recessive, homozygous, heterozygous, phenotype, genotype, monohybrid cross, genetic diagram, Punnett square, sex inheritance, codominance	Section 17: 17.1.3-17.1.4 17.4.1-17.4.9 17.4.14-17.4.15
SUPPLEMENT	Inheritance	How proteins are made	RNA, transcription, translation, mRNA, tRNA, ribosomes, codon, anticodon, mutation	Section 17: 17.1.5-17.1.9 Section 18: 18.1.9
SUPPLEMENT	Inheritance	Mitosis	mitosis, genetically identical body cells, growth, repair, asexual reproduction, cloning	Section 17: 17.2.1-17.2.4
SUPPLEMENT	Inheritance	Stem cells	stem cell, undifferentiated, differentiated, specialised cell	Section 17: 17.2.5

SUPPLEMENT	Inheritance	Meiosis	meiosis, haploid gametes, fertilisation, diploid zygote	Section 17: 17.3
SUPPLEMENT	Inheritance	Sex determination and sex-linked disorders	sex-linked, sex chromosome, red-green colour blindness	Section 17: 17.4.16-17.4.17
CORE	Variation and selection	Variation and inherited chatacteristics	DNA, chromosomes, genes, alleles, inherited characteristics, environmental variation, continuous variation, discontinuous variation	Section 17: 17.1-17.1.2 17.1.10-17.1.12 Section 18: 18.1
CORE	Variation and selection	Adaptations to the environment	Adaptation	Section 18: 18.2
CORE/SUPPLEMENT	Variation and selection	Evolution by natural selection	Darwin, evolution, natural selection	Section 18: 18.3.1 18.3.4
CORE/SUPPLEMENT	Organisms and their environment	Energy and biomass in food chains	interdependence, food chain, trophic levels, pyramid of biomass, energy losses	Section 19: 19.1 19.2.1-19.2-9 19.2.11-19.2.18
CORE	Organisms and their environment	The carbon cycle	carbon cycle, photosynthesis, respiration, decomposer, combustion, fossil fuel	Section 19: 19.2.7-9 19.3.1
SUPPLEMENT	Organisms and their environment	The nitrogen cycle	nitrogen fixation, root nodules, lightening, decomposers, protein, urea, ammonia, nitrifying bacteria, nitrates, denitrifying bacteria	Section 19: 19.3.2
CORE/SUPPLEMENT	Human influences on ecosystems	Food security	genetic modification, chemical fertilisers, pesticides, bilogical control, selective breeding	Section 18.3.2-18.3.3 Section 19: 19.2.19 Section 20: 20.1.1, 20.1.3 20.4.2, 20.4.6
CORE/SUPPLEMENT	Human influences on ecosystems	Human impact on biodiversity	biodiversity, conservation, extinction, monoculture, habitat destruction, deforestation	Section 19: 19.2.10 Section 20: 20.1.2 20.2 20.4.3-20.4.4, 20.4.7
CORE/SUPPLEMENT	Human influences on ecosystems	Pollution and environmental change	pollution, greenhouses gases, sulfur dioxide, eutrophication, deforestation	Section 20.3
CORE/SUPPLEMENT	Human influences on ecosystems	Sustainability	Sustainable, non-sustainable, ecosystem	Section 19: 19.4.2-19.4.3 Section 20: 20.4.1 - 20.4.2
CORE/SUPPLEMENT	Biotechnology and genetic engineering	Making use of microbes	mycoprotein, fermenter, yeast, fermentation, biofuels	Section 21: 21.1 21.2.1-2, 21.2.6-7
CORE/SUPPLEMENT	Biotechnology and genetic engineering	Using enzymes in industry	enzymes, lactase, pectinase, biological washing powders	Section 21: 21.2.3-21.2.5
CORE/SUPPLEMENT	Biotechnology and genetic engineering	Genetic engineering	recombinant DNA technology (insulin, restriction enzymes, ligase, sticky ends)	Section 21: 21.3