



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



Year 11 - Biology

	October Assessment	December Assessment	March Assessment	June Assessment	Age Related Expectation By the end of the year every student will be able to
	<p>Unit 5: Coordination, response and homeostasis 14.1 Nervous control in humans</p> <p>Describe a nerve impulse</p> <p>Describe the human nervous system in terms of:</p> <ul style="list-style-type: none"> – the central nervous system consisting of brain and spinal cord – the peripheral nervous system – coordination and regulation of body functions <p>Distinguish between voluntary and involuntary actions</p> <p>Identify motor (effector), relay (connector) and sensory neurones from diagrams</p> <p>Describe a simple reflex arc</p> <p>Describe a reflex action</p>	<p>Unit 6: Reproduction in plants 16.1 Asexual reproduction</p> <p>Define <i>asexual reproduction</i></p> <p>Identify examples of asexual reproduction from information provided</p> <p>Discuss the advantages and disadvantages of asexual reproduction:</p> <ul style="list-style-type: none"> – to a population of a species in the wild – to crop production <p>17.3 Mitosis Define <i>mitosis</i></p> <p>State the role of mitosis in growth, repair of damaged tissues, replacement of cells and asexual reproduction</p> <p>State that the exact</p>	<p>Unit 8: Inheritance and evolution Define <i>inheritance</i> Define <i>chromosome</i> Define <i>gene</i> Define <i>allele</i> Describe the inheritance of sex in humans with reference to XX and XY chromosomes.</p> <p>Explain that the sequence of bases in a gene is the genetic code for putting together amino acids in the correct order to make a specific protein (knowledge of the details of nucleotide structure is not required)</p> <p>Explain that DNA controls cell function by controlling the production of proteins (some of which are enzymes), antibodies and receptors for neurotransmitters</p> <p>Explain how a protein is made, limited to</p>	<p>Unit 9: Organisms and environment 19.1 Energy flow</p> <p>State that the Sun is the principal source of energy input to biological systems</p> <p>Describe the flow of energy through living organisms</p> <p>Define a <i>food chain</i></p> <p>State and describe how energy is transferred between organisms in a food chain (trophic levels)</p> <p>Define trophic level Define a <i>food web</i> Define <i>producer</i> Define <i>consumer</i> Define <i>herbivore</i> Define <i>carnivore</i> Define <i>decomposer</i></p> <p>State that consumers may be classed as primary, secondary and tertiary according</p>	<p><u>The assessment objectives (AOs) are:</u> AO1 Knowledge with understanding AO2 Handling information and problem solving AO3 Experimental skills and investigations</p> <p><u>AO1 Knowledge with understanding</u> Candidates should be able to demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> • scientific phenomena, facts, laws, definitions, concepts and theories • scientific vocabulary, terminology and conventions (including symbols, quantities and units) • scientific instruments and apparatus, including techniques of operation and aspects of safety • scientific and technological applications with their social, economic and environmental implications. <p><u>AO2 Handling information and problem solving</u> Candidates should be able, in words or using other written forms of presentation (i.e. symbolic, graphical and numerical), to:</p> <ul style="list-style-type: none"> • locate, select, organise and present information from a variety of sources • translate information from one form to another • manipulate numerical and other data • use information to identify patterns, report trends and draw inferences • present reasoned explanations for phenomena, patterns and relationships • make predictions and hypotheses • solve problems, including some of a quantitative nature.



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



<p>Define a <i>synapse</i></p> <p>Describe the structure of a synapse</p> <p>Describe how an impulse is transmitted at synapse</p> <p>State that in a reflex arc the synapses ensure that impulses travel in one direction only</p> <p>State that many drugs, e.g. heroin act upon synapses</p> <p>14.2 Sense organs Define <i>sense organs</i></p> <p>Identify the internal structures of the eye</p> <p>Describe the function of each part of the eye, limited to:</p> <ul style="list-style-type: none"> – cornea – refracts light – iris – controls how much light enters pupil – lens – focuses light onto retina – retina – contains light receptors, some sensitive to light of different colours – optic nerve – carries impulses to the brain 	<p>duplication of chromosomes occurs before mitosis</p> <p>State that during mitosis, the copies of chromosomes separate, maintaining the chromosome number (details of stages of mitosis are not required)</p> <p>Describe stem cells as unspecialised cells that divide by mitosis to produce daughter cells that can become specialised for specific functions</p> <p>16.2 Sexual reproduction Define <i>sexual reproduction</i></p> <p>Define <i>fertilisation</i></p> <p>Discuss the advantages and disadvantages of sexual reproduction:</p> <ul style="list-style-type: none"> – to a population of a species in the wild – to crop production <p>17.4 Meiosis State that meiosis is</p>	<p>mRNA synthesis and translation</p> <p>Explain that all body cells in an organism contain the same genes, but many genes in a particular cell are not expressed because the cell only makes the specific proteins it needs</p> <p>Define a <i>haploid nucleus</i></p> <p>Define a <i>diploid nucleus</i></p> <p>State that in a diploid cell, there is a pair of each type of chromosome and in a human diploid cell there are 23 pairs</p> <p>Define <i>genotype</i> Define <i>phenotype</i> Define <i>homozygous</i> Define <i>heterozygous</i> Define <i>dominant gene</i> Define <i>recessive gene</i></p> <p>Interpret pedigree diagrams for the inheritance of a given characteristic</p>	<p>to their position in a food chain</p> <p>Construct simple food chains</p> <p>Interpret food chains and food webs in terms of identifying producers and consumers</p> <p>Identify producers, primary consumers, secondary consumers, tertiary consumers and quaternary consumers as the trophic levels in food webs, food chains, pyramids of numbers and pyramids of biomass</p> <p>Explain why the transfer of energy from one trophic level to another is inefficient</p> <p>Explain why food chains usually have fewer than five trophic levels</p> <p>Explain why there is a greater efficiency in supplying plants as</p>	<p><u>AO3 Experimental skills and investigations</u></p> <p>Candidates should be able to:</p> <ul style="list-style-type: none"> • demonstrate knowledge of how to safely use techniques, apparatus and materials (including following a sequence of instructions where appropriate) • plan experiments and investigations • make and record observations, measurements and estimates • interpret and evaluate experimental observations and data • evaluate methods and suggest possible improvements. <p><u>A Grade C Cambridge IGCSE Biology candidate should be able to:</u></p> <ul style="list-style-type: none"> • recall and communicate secure knowledge and understanding of scientific phenomena, facts, laws, definitions, concepts and theories • apply scientific concepts and theories to present simple explanations of familiar and some unfamiliar phenomena, to solve straightforward problems involving several stages, and to make detailed predictions and simple hypotheses • communicate and present scientific ideas, observations and data using a wide range of scientific terminology and conventions • select and process information from a given source, and use it to draw simple conclusions and state the scientific, technological, social, economic or environmental implications • solve problems involving more than one step, but with a limited range of variables or using familiar methods • analyse data to identify a pattern or trend, and select appropriate data to justify a conclusion • select, describe and evaluate techniques for a range of scientific operations and laboratory
---	---	--	---	--



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



	<p>Explain the pupil reflex in terms of light intensity and pupil diameter (antagonistic action of circular and radial muscles in the iris)</p> <p>Explain accommodation to view near and distant objects</p> <p>State the distribution of rods and cones in the retina of a human</p> <p>Outline the function of rods and cones.</p> <p>Identify the position of the fovea</p> <p>14.3 Hormones Define a <i>hormone</i></p> <p>Identify specific endocrine glands and their secretions,</p> <p>Describe adrenaline as the hormone secreted in ‘fight or flight’ situations and its effects</p> <p>Discuss the role of the hormone adrenaline in the chemical control of metabolic activity, including increasing the</p>	<p>involved in the production of gametes</p> <p>Define <i>meiosis</i></p> <p>Explain how meiosis produces variation by forming new combinations of maternal and paternal chromosomes (specific details are not required)</p> <p>16.3 Sexual reproduction in plants Identify and draw, using a hand lens if necessary, the sepals, petals, stamens, filaments and anthers, carpels, style, stigma, ovary and ovules, of an insect-pollinated flower</p> <p>State the functions of the sepals, petals, anthers, stigmas and ovaries</p> <p>Use a hand lens to identify and describe the anthers and stigmas of a wind-pollinated flower Distinguish between the pollen grains of insect-pollinated and wind-pollinated flowers</p>	<p>Use genetic diagrams to predict the results of monohybrid crosses and calculate phenotypic ratios, limited to 1:1 and 3:1 ratios</p> <p>Explain how to use a test cross to identify an unknown genotype</p> <p>Use Punnett squares in crosses which result in more than one genotype to work out and show the possible different genotypes Explain co-dominance by reference to the inheritance of ABO blood groups – phenotypes being A, B, AB and O blood groups and alleles being I^A, I^B and I^o</p> <p>Define a <i>sex-linked characteristic</i></p> <p>Describe colour blindness as an example of sex linkage</p> <p>Use genetic diagrams to predict the results of monohybrid crosses involving co-dominance or sex</p>	<p>human food, and that there is a relative inefficiency in feeding crop plants to livestock that will be used as food Draw, describe and interpret pyramids of numbers and biomass</p> <p>Discuss the advantages of using a pyramid of biomass rather than a pyramid of numbers to represent a food chain</p> <p>Use food chains and food webs to describe the impacts humans have through over-harvesting of food species and through introducing foreign species to a habitat</p> <p>19.3 Nutrient cycles</p> <p>Describe the carbon cycle</p> <p>Discuss the effects of the combustion of fossil fuels and the cutting down of forests on the carbon dioxide concentrations in the</p>	<p>procedures.</p> <p>Mathematical requirements</p> <p>Calculators may be used in all parts of the examination. Candidates should be able to:</p> <ul style="list-style-type: none"> • add, subtract, multiply and divide • use averages, decimals, fractions, percentages, ratios and reciprocals • use standard notation, including both positive and negative indices • understand significant figures and use them appropriately • recognise and use direct and inverse proportion • use positive, whole number indices in algebraic expressions • draw charts and graphs from given data • interpret charts and graphs • determine the gradient and intercept of a graph • select suitable scales and axes for graphs • make approximate evaluations of numerical expressions • recall and use equations for the areas of a rectangle, triangle and circle and the volumes of a rectangular block and a cylinder • use mathematical instruments (ruler, compasses, protractor and set square) • understand the meaning of angle, curve, circle, radius, diameter, circumference, square, parallelogram, rectangle and diagonal • solve equations of the form $x = y + z$ and $x = yz$ for any one term when the other two are known. <p>Presentation of data</p> <p>The solidus (/) is to be used for separating the quantity and the unit in tables, graphs and charts, e.g. time / s for time in seconds.</p> <p>(a) Tables</p> <ul style="list-style-type: none"> • Each column of a table should be headed with the physical quantity and the appropriate unit, e.g. time / s.
--	---	---	---	---	---



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



<p>blood glucose concentration</p> <p>Compare nervous and hormonal control systems in terms of speed and longevity of action</p> <p>State the functions of insulin, oestrogen and testosterone</p> <p>Discuss the use of hormones to improve sporting performance, limited to testosterone and anabolic steroids</p> <p>14.5 Tropic responses Define <i>gravitropism</i></p> <p>Define <i>phototropism</i></p> <p>Investigate gravitropism and phototropism in shoots and roots</p> <p>Explain phototropism and gravitropism of a shoot as examples of the chemical control of plant growth</p> <p>Explain the role of auxin in controlling shoot growth, limited to:</p> <p>Describe the use in weed</p>	<p>Define <i>pollination</i> Define self-pollination Define cross-pollination</p> <p>Discuss the implications to a species of self-pollination and cross-pollination</p> <p>Describe the growth of the pollen tube and its entry into the ovule followed by fertilisation</p> <p>Describe the structural adaptations of insect-pollinated and wind-pollinated flowers</p> <p>Investigate and state the environmental conditions that affect germination of seeds</p> <p>Unit 7: Human reproduction Identify and name diagrams of the male reproductive system: the testes, scrotum, sperm ducts, prostate gland, urethra and penis, and state the functions of these parts</p>	<p>linkage and calculate phenotypic ratios</p> <p>Define <i>variation</i></p> <p>Distinguish between phenotypic variation and genetic variation</p> <p>State that phenotypic variation is caused by both genetic and environmental factors</p> <p>State that continuous variation results in a range of phenotypes between two extremes, e.g. height in humans</p> <p>State that discontinuous variation results in a limited number of phenotypes with no intermediates, e.g. tongue rolling</p> <p>State that discontinuous variation is mostly caused by genes alone, e.g. A, B, AB and O blood groups in humans</p> <p>Record and present the results of investigations into continuous and discontinuous variation</p>	<p>atmosphere</p> <p>Describe the water cycle</p> <p>Describe the nitrogen cycle</p> <p>State the roles of micro-organisms in the nitrogen cycle, limited to decomposition, nitrification, nitrogen fixation and denitrification (generic names of individual bacteria, e.g. <i>Rhizobium</i>, are not required)</p> <p>Unit 10: Human influences on the environment</p> <p>19.4 Population size</p> <p>Define <i>population</i> Define community Define ecosystem</p> <p>Identify and state the factors affecting the rate of population growth for a population of an organism</p>	<ul style="list-style-type: none"> • The column headings of the table can then be directly transferred to the axes of a constructed graph. (b) Graphs • Unless instructed otherwise, the independent variable should be plotted on the x-axis (horizontal axis) and the dependent variable plotted on the y-axis (vertical axis). • Each axis should be labelled with the physical quantity and the appropriate unit, e.g. time / s. • Unless otherwise instructed the scales for the axes should allow more than half of the graph grid to be used in both directions, and be based on sensible ratios, e.g. 2 cm on the graph grid representing 1, 2 or 5 units of the variable. • The graph is the whole diagrammatic presentation, including the best-fit line when appropriate. It may have one or more sets of data plotted on it. • Points on the graph should be clearly marked as crosses (x) or encircled dots (⊙). • Large ‘dots’ are penalised. Each data point should be plotted to an accuracy of better than one half of each of the smallest squares on the grid. • A best-fit line (trend line) should be a single, thin, smooth straight line or curve. The line does not need to coincide exactly with any of the points; where there is scatter evident in the data, Examiners would expect a roughly even distribution of points either side of the line over its entire length. Points that are clearly anomalous should be ignored when drawing the best-fit line. (c) Numerical results • Data should be recorded so as to reflect the precision of the measuring instrument. • The number of significant figures given for calculated quantities should be appropriate to the
---	---	--	---	--



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



<p>killers of the synthetic plant hormone 2, 4-D</p> <p>14.4 Homeostasis Define <i>homeostasis</i> Explain that homeostasis is the control of internal conditions within set limits</p> <p>Explain the concept of control by negative feedback</p> <p>Describe the control of the glucose concentration of the blood by the liver and the roles of insulin and glucagon from the pancreas</p> <p>Outline the symptoms and treatment of Type 1 diabetes (detail of β cells is not required)</p> <p>Name and identify on a diagram of the skin: hairs, hair erector muscles, sweat glands, receptors, sensory neurones, blood vessels and fatty tissue</p> <p>Describe the maintenance of a constant internal body temperature in humans in terms of insulation, sweating, shivering and the</p>	<p>Identify and name on diagrams of the female reproductive system: the ovaries, oviducts, uterus, cervix and vagina, and state the functions of these parts</p> <p>Describe fertilisation as the fusion of the nuclei from a male gamete (sperm) and a female gamete (egg cell/ovum)</p> <p>Compare male and female gametes</p> <p>State and explain the adaptive features of sperm</p> <p>State and explain the adaptive features of egg cells</p> <p>State that in early development, the zygote forms an embryo which is a ball of cells that implants into the wall of the uterus</p> <p>State and describe the functions of the amniotic sac and amniotic fluid, placenta</p>	<p>Define <i>mutation</i> Define gene mutation</p> <p>State that mutation is the way in which new alleles are formed</p> <p>State that ionising radiation and some chemicals increase the rate of mutation</p> <p>Describe the symptoms of sickle-cell anaemia</p> <p>Explain how a change in the base sequence of the gene for haemoglobin results in abnormal haemoglobin and sickle-shaped red blood cells</p> <p>Use genetic diagrams to show how sickle-cell anaemia is inherited</p> <p>State that people who are heterozygous ($Hb^S Hb^A$) for the sickle-cell allele have a resistance to malaria</p> <p>Explain the distribution of the sickle-cell allele in human populations with reference to the</p>	<p>Identify the lag, exponential (log), stationary and death phases in the sigmoid population growth curve for a population growing in an environment with limited resources</p> <p>Explain the factors that lead to each phase in the sigmoid curve of population growth, making reference, where appropriate, to the role of limiting factors</p> <p>Discuss the increase in human population size over the past 250 years and its social and environmental implications</p> <p>Interpret graphs and diagrams of human population growth</p> <p>21.1 Food supply State how modern technology has resulted in increased food production in terms of:</p>	<p>least number of significant figures in the raw data used.</p> <p>(d) Pie charts</p> <ul style="list-style-type: none"> • These should be drawn with the sectors in rank order, largest first, beginning at ‘noon’ and proceeding clockwise. Pie charts should preferably contain no more than six sectors. <p>(e) Bar charts</p> <ul style="list-style-type: none"> • These should be drawn when one of the variables is not numerical. They should be made up of narrow blocks of equal width that do not touch. <p>(f) Histograms</p> <ul style="list-style-type: none"> • These should be drawn when plotting frequency graphs with continuous data. The blocks should be drawn in order of increasing or decreasing magnitude and they should touch. <p>The practical skills needed: recall of familiar, and unfamiliar, techniques to record observations and make deductions from them</p> <ul style="list-style-type: none"> • recall of simple chemical tests, e.g. for food substances and the use of hydrogencarbonate indicator, litmus and Universal Indicator paper • recognise, observe, record and measure images of familiar, and unfamiliar, biological specimens • making a clear line drawing from an image of a specimen, calculating the magnification and adding labels as required. <p>record readings from diagrams of apparatus, including:</p> <ul style="list-style-type: none"> – reading a scale with appropriate accuracy and precision – interpolating between scale divisions – taking repeated measurements, where appropriate, to obtain an average value • describe, explain or comment on experimental arrangements and techniques • interpret and evaluate observations and experimental data • complete tables of data, and process data, using a
--	---	--	---	---



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



	<p>role of the brain (limited to blood temperature receptors and coordination) and vasodilation and vasoconstriction of arterioles supplying skin surface capillaries</p> <p>15. Drugs Define a <i>drug</i></p> <p>Describe the use of antibiotics for the treatment of bacterial infection</p> <p>State that some bacteria are resistant to antibiotics which reduces the effectiveness of antibiotics</p> <p>Explain how development of resistant bacteria such as MRSA can be minimised,</p> <p>State and explain that antibiotics kill bacteria but do not affect viruses</p> <p>Describe the effects of excessive alcohol consumption and abuse of heroin.</p> <p>Explain how heroin</p>	<p>and umbilical cord State that some toxins, e.g. nicotine, and pathogens, e.g. rubella virus, can pass across the placenta and affect the fetus</p> <p>Outline the growth and development of the fetus in terms of increasing complexity in the early stages and increasing size towards the end of pregnancy</p> <p>Describe the ante-natal care of pregnant women,</p> <p>Outline the processes involved in labour and birth</p> <p>Discuss the advantages and disadvantages of breast-feeding compared with bottle-feeding using formula milk</p> <p>16.5 Sex hormones in humans Describe the roles of testosterone and oestrogen in the development and regulation of secondary</p>	<p>distribution of malaria</p> <p>Define <i>adaptive feature</i> Define fitness</p> <p>Interpret images or other information about a species to describe its adaptive features</p> <p>Explain the adaptive features of hydrophytes and xerophytes to their environments</p> <p>Describe the mechanism of natural selection.</p> <p>Describe evolution</p> <p>Define the process of adaptation</p> <p>Describe the development of strains of antibiotic resistant bacteria as an example of evolution by natural selection</p> <p>Describe selective breeding</p> <p>State the differences between natural and artificial selection</p>	<ul style="list-style-type: none"> - agricultural machinery - chemical fertilisers - insecticides - herbicides - selective breeding <p>Describe the negative impacts to an ecosystem of large-scale monocultures of crop plants</p> <p>Describe the negative impacts to an ecosystem of intensive livestock production</p> <p>Discuss the social, environmental and economic implications of providing sufficient food for an increasing human global population</p> <p>Discuss the problems which contribute to famine</p> <p>21.2 Habitat destruction</p> <p>Describe the reasons for habitat destruction, limited to:</p>	<p>calculator where necessary perform simple arithmetical calculations</p> <ul style="list-style-type: none"> • plot graphs and/or interpret graphical information • draw an appropriate conclusion, justifying it by reference to the data and using an appropriate explanation • identify sources of error and suggest possible improvements in procedures • plan an experiment or investigation, including making reasoned predictions of expected results and suggesting suitable apparatus and techniques.
--	---	---	---	---	---



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



	<p>affects the nervous system, limited to its effect on the function of synapses</p> <p>Describe the effects of smoking on the lungs and the heart</p> <p>Describe the effects on the gas exchange system of tobacco smoke and its major toxic components, limited to carbon monoxide, nicotine and tar</p> <p>Discuss the evidence for the link between smoking and lung cancer</p> <p>State that the liver is the site of breakdown of alcohol and other toxins</p>	<p>sexual characteristics during puberty</p> <p>Describe the sites of production of oestrogen and progesterone in the menstrual cycle and in pregnancy</p> <p>Describe the menstrual cycle in terms of changes in the lining of the uterus and ovaries</p> <p>Explain the role of hormones in controlling the menstrual cycle and pregnancy, limited to FSH, LH, progesterone and oestrogen</p> <p>16.6 Methods of birth control in humans Outline the following methods of birth control:</p> <ul style="list-style-type: none"> - natural, limited to abstinence, monitoring body temperature and cervical mucus - chemical, limited to IUD, 	<p>Outline how selective breeding by artificial selection is carried out over many generations to improve crop plants and domesticated animals</p> <p>20.1 Biotechnology and genetic engineering</p> <p>State why bacteria are useful in biotechnology and genetic engineering</p> <p>Describe the role of anaerobic respiration in yeast during production of ethanol for biofuels</p> <p>Describe the role of anaerobic respiration in yeast during bread-making</p> <p>Investigate and describe the use of pectinase in fruit juice production</p> <p>Investigate and describe the use of biological washing powders that contain enzymes</p> <p>Investigate and explain the use of lactase to produce lactose-free milk</p>	<ul style="list-style-type: none"> - increased area for food crop growth, livestock production and housing - extraction of natural resources - marine pollution <p>State that through altering food webs and food chains, humans can have a negative impact on habitats</p> <p>List and explain the undesirable effects of deforestation as an example of habitat destruction</p> <p>21.3 Pollution</p> <p>State the sources and effects of pollution of land and water, e.g. rivers, lakes and the sea, by insecticides, herbicides and by nuclear fall-out</p> <p>State the sources and effects of pollution of water (rivers, lakes and the sea) by chemical</p>	
--	---	--	---	---	--



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



		<p>IUS, contraceptive pill, implant and injection</p> <ul style="list-style-type: none"> - barrier, limited to condom, femidom, diaphragm - surgical, limited to vasectomy and female sterilisation <p>Outline the use of hormones in contraception and fertility treatments</p> <p>Outline artificial insemination (AI)</p> <p>Outline <i>in vitro</i> fertilisation (IVF)</p> <p>Discuss the social implications of contraception and fertility treatments</p> <p>16.7 Sexually transmitted infections (STIs) Define <i>sexually transmitted</i></p> <p>State that human immunodeficiency virus</p>	<p>Describe the role of the fungus <i>Penicillium</i> in the production of the antibiotic penicillin</p> <p>Explain how fermenters are used in the production of penicillin</p> <p>Define <i>genetic engineering</i></p> <p>State examples of genetic engineering:</p> <ul style="list-style-type: none"> - the insertion of human genes into bacteria to produce human insulin - the insertion of genes into crop plants to confer resistance to herbicides - the insertion of genes into crop plants to confer resistance to insect pests - the insertion of genes into crop plants to provide additional vitamins 	<p>waste, discarded rubbish, untreated sewage and fertilisers</p> <p>Explain the process of eutrophication of water</p> <p>Discuss the effects of non-biodegradable plastics in the environment, in both aquatic and terrestrial ecosystems</p> <p>State the sources and effects of pollution of the air by methane and carbon dioxide, limited to the enhanced greenhouse effect and climate change</p> <p>Discuss the causes and effects on the environment of acid rain</p> <p>State the measures that are taken to reduce sulfur dioxide pollution and reduce the impact of acid rain</p>	
--	--	---	--	---	--



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



		<p>(HIV) is an example of an STI</p> <p>Explain how the spread of STIs is controlled</p> <p>Describe the methods of transmission of HIV</p> <p>State that HIV infection may lead to AIDS</p> <p>Outline how HIV affects the immune system</p>	<p>Outline genetic engineering using bacterial production of a human protein as an example.</p> <p>Discuss the advantages and disadvantages of genetically modifying crops, such as soya, maize and rice</p>	<p>Explain how increases in carbon dioxide and methane concentrations in the atmosphere cause an enhanced greenhouse effect that leads to climate change</p> <p>Describe the negative impacts of female contraceptive hormones in water courses</p> <p>21.4 Conservation</p> <p>Define a <i>sustainable resource</i></p> <p>Define the term <i>sustainable development</i></p> <p>Explain the need to conserve non-renewable resources, limited to fossil fuels</p> <p>State that some resources can be maintained, limited to forests and fish stocks</p> <p>State that products can be reused or recycled, limited to paper, glass, plastic and metal</p>	
--	--	--	--	--	--



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



				<p>Explain how forests and fish stocks can be sustained using education, legal quotas and re-stocking</p> <p>Explain that sustainable development requires:</p> <ul style="list-style-type: none">• management of conflicting demands• planning and co-operation at local, national and international levels <p>Outline how sewage is treated to make the water that it contains safe to return to the environment or for human use</p> <p>Explain why organisms become endangered or extinct</p> <p>Describe how endangered species can be conserved,</p> <p>Explain the risks to a species if the</p>	
--	--	--	--	---	--



NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019



				<p>population size drops, reducing variation (knowledge of genetic drift is not required)</p> <p>Explain reasons for conservation programmes</p>	
--	--	--	--	--	--