Edexcel GCSE Biology

		Biology			
		Syllabus point (text abridged)	Boardworks presentations		
			GCSE Science	Additional Science	Separate Sciences
B1a	Topic 1 – Environment	Describe food chains quantitatively using pyramids of biomass (B1 a 1.1)		Energy and Biomass	
		How organisms in an ecosystem compete for resources (B1 a.1.2)	Competition		
		Why it is more cost effective, in terms of energy, to produce a field of wheat rather than a field of beef cows (B1 a 1.3)		Energy and Biomass	
		Explain population data in terms of predator-prey interdependence and intra-species competition (B1 a 1.4)	Competition		
		Higher tier only ***Use secondary data to explain how human activity can affect the environment, especially changes in population size and in economic and industrial conditions (B1 a 1.5)***	Human Impact on the Environment		
		How computer models can be used to study populations, and the advantages and disadvantages of these models compared with real data (B1 a 1.6)			
		Compare natural selection, selective breeding and genetic engineering in terms of changing the characteristics of a species (B1 a 1.7)	Evolution		
		Fossils provide evidence for evolution (B1 a 1.8)	Evolution		
		Principles of natural selection, including: – how individuals within a species can have characteristics that promote more successful reproduction – how, over generations, the effects of natural selection result in changes within species and new species from variants that are better adapted to their environment – how species that are less well-adapted to a changing environment can become extinct (B1 a 1.9)	Evolution		
		Higher tier only ***Discuss why Charles Darwin experienced difficulty in getting his theory of evolution through natural selection accepted by the scientific community in the 19th century (B1 a 1.10)***	Evolution		
		Principles of classification of organisms and the difficulties encountered in attempting to do so (B1 a 1.11)			
		Ethics and principles of organic farming and why organic products are more expensive than non-organic produce (B1 a 1.12)	Sustainability		
		Higher tier only ***Crop plants can be genetically modified and the reasons for doing so (B1 a 1.13)***	Genes and Genetic Engineering		

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B1a	Topic 2 – Genes	Genes as parts of chromosomes which are found within the nucleus and which control the cell's activity (B1 a 2.1)	Genes and Genetic Engineering	Cell division	
		The unit of inheritance is the gene which is a section of a long chain (DNA) molecule (B1 a 2.2)	Genes and Genetic Engineering	Cell Division	
		Implications of the outcome of the Human Genome Project, including the use of DNA evidence in forensic science and medicine (B1 a 2.3)			
		How the lives of people with cystic fibrosis and breast cancer would change if these diseases could be treated genetically (B1 a 2.4)	Genes and Genetic Engineering		
		How asexual reproduction leads to genetically identical individuals called clones, including *Chlorophytum* (spider plant) (B1 a 2.5)	Cloning		
		How sexual reproduction, involving fertilisation, leads to variation in the new generation (B1 a 2.6)	Cloning	Cell Division	
		Higher tier only ***How some inherited characteristics can be modified by environmental conditions, including the influence of diet on human growth and mineral resources on plant growth (B1 a 2.7)***	Health and Diet	Inheritance	
		Higher tier only ***How alternative forms (dominant and recessive) of a gene (alleles) cause variation in a characteristic (B1 a 2.8)***		Inheritance	
		Some alleles cause diseases, which can be inherited (B1 a 2.9)		Inherited Diseases	
		Higher tier only ***Evaluate the potential for using transgenic animals, including the production of 'designer milk', for example, milk containing human antibodies and low cholesterol milk (B1 a 2.10)***	Genes and Genetic Engineering		
		Social and ethical concerns of cloning mammals, including the possibility of cloning human body parts for transplant surgery (B1 a 2.11)			
		Higher tier only ***Consider the contemporary scientific theory of 'designer babies' and explain why today's scientists are finding so much opposition to this being publicly accepted (B1 a 2.12)***	Genes and Genetic Engineering		

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B1b	Topic 3 – Electrical and Chemical Signals	Ways of measuring reaction times (B1 b 3.1)	**Electrical Signals**		
		The structure of the central nervous system, including the structure of the brain, and explain how it carries an electrical impulse from a sense organ to muscles (B1 b 3.2)	**Electrical Signals**		
		Higher tier only ***How strokes, brain tumours, Parkinson's disease and grand mal epilepsy disrupt the functioning of the brain (B1 b 3.3)***	**Electrical Signals**		
		Receptors in sense organs detect internal and external changes, allowing the body to respond to these stimuli (B1 b 3.4)	**Electrical Signals**		
		The difference between voluntary and reflex responses and the advantages of reflex responses in helping to safeguard the body: – the iris reflex – accommodation – 'ducking' reaction to objects travelling close to the head (B1 b 3.5)	**Electrical Signals**		
		The composition and transport function of the blood (B1 b 3.6)			**The Circulatory System**
		How hormones act as chemical messages affecting target organs and / or cells (B1 b 3.7)	**Hormones**		
		Higher tier only ***Interpret data to explain that oestrogen causes the lining of the uterus to thicken during the early part of the menstrual cycle (B1 b 3.8)***	**Hormones**		
		Higher tier only ***Interpret data to explain that progesterone maintains the lining of the uterus during the middle part of the menstrual cycle and during pregnancy (B1 b 3.9)***	**Hormones**		
		How manufactured sex hormones can be used for contraception and to treat infertility in women (B1 b 3.10)	**Hormones**		
		Social and ethical implications of IVF treatment, including its use in mature clients (B1 b 3.11)	**Hormones**		
		How insulin produced by the pancreas regulates glucose concentrations in the blood (B1 b 3.12)	**Hormones**	**Homeostasis**	
		The advantages to people with diabetes of the use of human insulin produced by genetically modified bacteria. (B1 b 3.13)	**Hormones**		

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B1b	Topic 4 – Use, Misuse and Abuse	The main physical and mental effects of: – solvents (on lungs and neurones) – alcohol (on reaction times, liver and brain) – tobacco (on gaseous exchange and circulatory systems) (B1 b 4.1)	Drug Use and Abuse		
		How the use of drugs may: – affect activities such as driving – produce abnormal behaviour – create the risk of viral infections (B1 b 4.2)	Drug Use and Abuse		
		The effects on nerve transmission or reaction times of: – stimulants, including caffeine – sedatives, including barbiturates – painkillers, including paracetamol (B1 b 4.3)	Drug Use and Abuse		
		The use of opiates and cannabinoids in pain-relief for terminally-ill patients, and the dangers of addiction (B1 b 4.4)	Drug Use and Abuse		
		Uses of paracetamol and the dangers of overdose (B1 b 4.5)			
		Discuss why medical opinion on the use of cannabis for pain-relief has fluctuated over the years (B1 b 4.6)			
		A pathogen is a disease-causing organism (B1 b 4.7)	Infections and Immunity		
		Microbes can be transmitted by direct contact, including vertical (mother to foetus) and horizontal, indirect contact, vehicle and vector-borne (B1 b 4.8)	Infections and Immunity		
		The physical barriers as the body's first line of defence against microorganisms, including the role of the skin, nasal hairs and cilia in the gaseous exchange tract and chemical barriers, namely lysozyme, found in tears (B1 b 4.9)	Infections and Immunity		
		The second line of defence against infection as non-specific: – white blood cells ingest bacteria – inflammatory response (B1 b 4.10)	Infections and Immunity		
		The third line of defence as the specific immune system – when the immune system recognises a foreign body (antigen) and prepares a specific reaction to it (antibody production by white blood cells) (B1 b 4.11)	Infections and Immunity		
		What causes tuberculosis (TB) and how it is spread (B1 b 4.12)	Infections and Immunity		
		Higher tier only ***Describe, using secondary data, the prevention and control (drug therapy) of TB including the emergence of drug-resistant TB, financing, supply of drugs and treatment regimes (B1 b 4.13)***	Infections and Immunity		

		Higher tier only ***Interpret data on the number of cases of TB in the UK over a period of time (B1 b 4.14)***	**Infections and Immunity**		
		Explore secondary sources of data about the main physical and mental effects of drug misuse and present the data in different ways to different audiences using ICT (B1 b 4.15)			
		Use secondary data to explore the costs of developing new drugs. B1 b 4.16	**Infections and Immunity**		

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B2	Topic 1 – Inside Living Cells	A DNA molecule as two strands coiled to form a double helix, the strands linked by a series of paired bases (adenine with thymine and cytosine with guanine) (B2 1.1)	Genes and Genetic Engineering	Cell Division	
		DNA controls the joining together of amino acids to make a specific protein in a cell. The order of bases in a section of DNA decides the order of amino acids in the protein (B2 1.2)	Genes and Genetic Engineering	Cell Division	
		Sections of DNA coding for specific proteins can be transferred into microorganisms which are then cultivated in fermenters to produce useful substances, including human insulin (B2 1.3)	Genes and Genetic Engineering		
		Microorganisms use an external food source to obtain energy, changing some substances in the medium – this process is fermentation (B2 1.4)		Decay and Recycling Enzymes	Using Micro-organisms for Food Other Uses for Micro-organisms
		Higher tier only ***Describe a fermenter as a vessel used to cultivate microorganisms and explain the need to supply suitable conditions in fermenters, including aseptic precautions, nutrients, optimum temperature and pH, oxygenation and agitation (B2 1.5)***		Enzymes	Other Uses for Micro-organisms
		Advantages of using microorganisms for food production – rapid population growth – ease of manipulation – production independent of climate – use of waste products from other industrial processes (B2 1.6)		Enzymes	Using Micro-organisms for Food
		Higher tier only ***Organelles in the cell that are involved with making protein (B2 1.7)***		Animal and Plant Cells	
		Higher tier only ***The stages of protein synthesis*** ***– coding by triplets of bases to produce RNA*** ***– linking of RNA to ribosomes*** ***– linking of amino acids to form polypeptides (B2 1.8)***		Animal and Plant Cells	
		Aerobic respiration provides energy for work (B2 1.9)		Animal and Plant Cells	
		How glucose and oxygen diffuse from capillaries into respiring cells, and how carbon dioxide diffuses from respiring cells into capillaries (B2 1.10)		Movement In and Out of Cells	
		Why heart rate and breathing rate increase with exercise. Interpret data on these measurements (B2 1.11)			The Heart

		Higher tier only ***Why respiration is increased in exercising muscles and why diffusion of oxygen and carbon dioxide at the lung surface and muscle cells is increased (B2 1.12)***			
		Why during vigorous exercise, muscle cells may not receive sufficient oxygen for their energy requirements (B2 1.13)		**Animal and Plant Cells**	
		How digital thermometers, breathing rate and heart rate monitors, can provide more reliable data than traditional methods (B2 1.14)			
		Glucose is changed to lactic acid and energy is released, during anaerobic respiration (B2 1.15)		**Animal and Plant Cells**	
		Higher tier only ***Why extra oxygen is needed to remove the lactic acid that causes cramp (oxygen debt) (B2 1.16)***		**Animal and Plant Cells**	
		Why official advice on diet and exercise changes over time and consider the scientific basis of current fashionable diets and advice. (B2 1.17)	**Health and Diet**		

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B2	Topic 2 – Divide and Develop	Mitosis is the division of a cell to produce two nuclei with identical sets of chromosomes, for growth or replacement (B2 2.1)		**Cell Division**	
		Higher tier only ***Meiosis is the division of a cell to produce four haploid nuclei with sets of chromosomes that are not genetically identical to produce gametes e.g. sperm and ovum (B2 2.2)***		**Cell Division**	
		Higher tier only ***The differences between mitosis and meiosis (B2 2.3)***		**Cell Division**	
		The meaning of growth, in terms of increase in size, length, wet weight and dry weight (B2 2.4)		**Growth and Development**	
		How cell division, elongation and differentiation contribute to the growth and development of an organism (B2 2.5)		**Growth and Development**	
		The scientific evidence for the potential of stem cell research (B2 2.6)	**Cloning**	**Growth and Development**	
		Cells have a limit to the number of divisions they undergo, the Hayflick limit; stem cells and cancer cells have no Hayflick limit (B2 2.7)		**Growth and Development**	
		Animal stem cells differentiate into all other types of cells, but lose this ability as the animal matures (B2 2.8)		**Growth and Development**	
		The scientific evidence that contributes to the decision regarding the legality and age of termination of a foetus (B2 2.9)			
		Organisms have a size range for that particular species. Height in humans is a continuous variable, influenced by a number of genes, hormones and nutrition (B2 2.10)		**Inheritance**	
		Factors affecting the growth and distribution of plants, including: – nutrients – light – temperature – carbon dioxide – oxygen – plant 'hormones' (B2 2.11)	**Competition**	**Photosynthesis** **Plant Growth**	
		Interpret data on how environmental factors affect the distribution of plants (B2 2.12)		**Photosynthesis** **Plant Growth**	
		Higher tier only ***Fruit initiation in plants and how it can be manipulated with artificial hormones (B2 2.13)***		**Plant Growth**	

		Regeneration in animals (including spiders, worms and reptiles) and why it is relatively rare (B2 2.14)		**Growth and development**	
		Evidence that selective breeding (artificial selection) can be used to: – improve the quality of milk from cattle – increase the number of offspring in sheep – increase the yield from dwarf wheat (B2 2.15)	**Genes and Genetic Engineering**		
		Ethics and health concerns of using growth factors to enhance performance in sport (B2 2.16)			
		The stages in the production of cloned mammals, including Dolly the sheep: the introduction of a diploid nucleus from a mature cell into an egg cell and stimulation of the diploid nucleus to divide. Discuss the risks associated with later embryonic development (B2 2.17)	**Cloning**		
		The potential benefits and ethical dilemmas posed by advances in genetic modification (B2 2.18)	**Genes and Genetic Engineering**	**Growth and Development**	
		Higher tier only ***The potential of gene therapy for the relief of symptoms of inherited diseases such as cancer (B2 2.19)***	**Genes and Genetic Engineering**	**Inherited Diseases**	
		Discuss whether gene therapy would prevent diseases being passed on to the next generation (B2 2.20)			

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B2	Topic 3 – Energy Flow	Plant and animal cells are similar because they contain nuclei, cytoplasm and membranes. Plant cells also have cellulose cell walls, chloroplasts containing chlorophyll and vacuoles (B2 3.1)		**Animal and Plant Cells**	
		The reactants (carbon dioxide, water) for and products (glucose, oxygen) of photosynthesis (B2 3.2)		**Photosynthesis**	
		Human exploitation of plants, including their use as a food source (B2 3.3)	**Sustainability**	**Plant Growth Energy and Biomass**	
		Analyse data on the effects of limiting factors on the rate of photosynthesis and draw conclusions (B2 3.4)		**Photosynthesis**	
		Higher tier only ***How mineral salts are taken up in the roots by active transport using energy from respiration (B2 3.5)***		**Plant Growth Transport in Plants**	
		Understand and interpret data on the carbon cycle as representing the flow of carbon in nature, including the roles of microorganisms, photosynthesis, respiration and combustion (B2 3.6)		**Decay and Recycling**	
		The importance of nitrogen in the environment, including the roles of nitrogen-fixing bacteria, decomposers, nitrifying bacteria and denitrifying bacteria as shown and interpreted in nitrogen cycle diagrams [NB. specific names of bacteria are not required] (B2 3.7)		**Decay and Recycling**	**Soil and Nutrients**
		The evidence that a biosphere could be used to colonise Mars (B2 3.8)		**Decay and Recycling**	
		How the indiscriminate use of nitrogenous fertilisers leads to environmental damage (B2 3.9)	**Human Impact on the Environment**		**Aquatic Ecology**
		Higher tier only ***Human populations are increasing and are using resources unsustainably e.g. deforestation, which sometimes leads to massive environmental change (B2 3.10)***	**Human Impact on the Environment** **Sustainability**		
		Environmental changes, such as global warming, are threatening human life on the planet as we know it (B2 3.11)	**Human Impact on the Environment**		
		Social and ethical considerations of the unequal distribution of food (B2 3.12)		**Energy and Biomass**	

		Energy transfer can be maximised in food production using the examples of fish farms and greenhouses (B2 3.13)		**Energy and Biomass**	
		Higher tier only ***The ways in which food production can be maximised by the use of optimum feeding / growing conditions, disease and predator control using the examples of fish farms and greenhouses (B2 3.14)***		**Energy and Biomass**	
		How secondary sources of data about global warming can be collected from the internet and briefly summarised using ICT (B2 3.15)			

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B2	Topic 4 – Interdependence	The principles of interdependence, adaptation, competition and predation. Explain how these factors influence the distribution and population sizes of organisms in a given terrestrial or aquatic environment (B2 4.1)	**Competition** **Adaptation**		
		Higher tier only ***Use primary and secondary data to consider how human activity, including differing economical and industrial conditions, can affect the environment and cause changes in sizes of population (B2 4.2)***	**Human Impact on the Environment** **Sustainability**		
		Investigate, using primary and secondary data, the impact of human activity on the environment, including the pollution of air and of water; and the effects of air pollutants (including carbon dioxide, sulphur dioxide, carbon monoxide) and of water pollutants (including sewage, nitrates and phosphates) (B2 4.3)	**Human Impact on the Environment**		**Aquatic Ecology**
		Higher tier only ***Interpret data on environmental change (B2 4.4)***	**Human Impact on the Environment**		
		The importance of protecting natural populations (B2 4.5)	**Sustainability**		
		The special nature of some extreme environments, notably deep sea volcanic vents, the Antarctic and high altitudes (B2 4.6)			
		Interpret data to show the impact of human activity on the environment to include: – living indicators e.g. lichen distribution and incidence of skin cancer – non-living indicators e.g. global temperature and ozone depletion (B2 4.7)	**Human Impact on the Environment**		**Aquatic Ecology**
		Does recycling reduce demand for resources and reduce the problem of waste disposal, including paper, plastics and metals? (B2 4.8)	**Human Impact on the Environment**		
		Conservation management techniques, including reforestation, coppicing, replacement planting. Discuss how conservation can lead to greater biodiversity (B2 4.9)	**Sustainability**		

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B3	Topic 1 – Biotechnology	Bacteria are used in the production of yoghurt from milk by the conversion of lactose to lactic acid (B3 1.1)			**Using Micro-organisms for Food**
		Commercial production of soy sauce includes fermentation of a mixture of cooked soya beans and roasted wheat using *Aspergillus*, further fermentation using yeasts and then *Lactobacillus*, filtration, pasteurisation and sterile bottling (B3 1.2)			
		Functional foods are not necessarily produced by fermentation, including prebiotics such as oligosaccharides found as a food ingredient, and 'spreads' that contain plant stanol esters that lower cholesterol (B3 1.3)			
		Prebiotics are functional foods marketed as providing health benefits (B3 1.4)			
		Microbial products are used in food, including: - vitamin C produced by *Acetobacter* spp. (bacterium) - carrageen, a gelling agent from seaweed - enzymes such as invertase (sucrase) produced by *Saccharomyces cerevisiae* (yeast) used in the manufacture of sweets - citric acid produced by *Aspergillus niger* (fungus) used in fizzy drinks - amino acids such as glutamic acid produced by *Corynebacterium glutamicum* (bacterium) and the flavour enhancer, monosodium glutamate (MSG), a sodium salt of glutamic acid (B3 1.5)		**Enzymes**	
		Production of the enzyme chymosin, produced by genetically altered microorganisms, which is used in the manufacture of vegetarian cheese (B3 1.6)			
		Importance of a well-balanced diet, in terms of a healthy lifestyle (B3 1.7)	**Health and Diet**		
		Possible consequences of being severely overweight or underweight for your height (B3 1.8)	**Health and Diet**		
		Potential of biotechnology in relation to world food shortage, e.g. kwashiorkor. (B3 1.9)	**Genes and Genetic Engineering Sustainability**		
		Weed control to reduce loss of food supplies by genetically modifying crops to ensure resistance to herbicides. (B3 1.10)	**Genes and Genetic Engineering Sustainability**		
		Use of *Agrobacterium tumefaciens* as a vector to transfer genes coding for herbicide resistance to the genome of a plant cell. (B3 1.11)			

		Breeding insect-resistant plants including the insertion of the toxin gene from *Bacillus thuringiensis* and inserting it into plants (B3 1.12)			
		Ethics of genetic modification and its use, for example, plants and animals in developing countries. (B3 1.13)	**Genes and Genetic Engineering Sustainability**		
		Stem cell research and therapies as possible treatments for diseases e.g. Parkinson's disease (B3 1.14)		**Growth and Development**	
		Allowing people to choose the sex of their baby may skew the sex balance of the population and may lead to other choices being permitted - including colour of eyes (B3 1.15)			
		Ethical implications of reproductive biology research. (B3 1.16)			
		Importance and medicinal value of drugs produced by plants, including: – aspirin - compound called salicin found in bark and leaves of willow plants used for pain-relief – taxol - derived from bark of the Pacific yew tree and used as an anti-cancer agent - quinine - comes from bark of the cinchona tree: until the 1930s it was the only real treatment for malaria – artemisinin and derivatives - extracted from the Chinese plant *Artemisia annua*, used for treating malaria and reducing its transmission (B3 1.17)			**Other Uses for Micro-organisms**
		Advantages and disadvantages of drugs derived from plant sources compared to synthetic drugs (B3 1.18)			
		Potential for discovering sources of new drugs, including rainforests. (B3 1.19)			
		Production of insulin using genetic engineering: the role of recombinant DNA technology including restriction enzyme, ligase and sticky ends. (B3 1.20)	**Genes and Genetic Engineering**		
		Role of biotechnology in developing new substances, for example, the use of genomics in medical research to develop personalized medicines. (B3 1.21)			

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B3	Topic 2 – Behaviour in Humans and Other Animals	Animals inherit certain patterns of behaviour from their parents known as instinctive behaviour. (B3 2.1)			**Behaviour**
		An animal's early experiences in life impact on the way in which it behaves as an adult. (B3 2.2)			**Behaviour**
		Habituation is an important part of the learning process in young animals. (B3 2.3)			**Behaviour**
		Animals can learn through conditioning. (B3 2.4)			**Behaviour**
		Humans can use conditioning when training captive animals for specific purposes. (B3 2.5)			**Behaviour**
		Much behaviour requires animals to communicate. (B3 2.6)			**Behaviour**
		Communication can happen in many different ways - sounds, signals, and chemicals (pheromones). (B3 2.7)			**Behaviour**
		Most mammals are able to communicate their intentions through body posture and facial expression. (B3 2.8)			**Behaviour**
		Facial expressions are species-specific; a gesture or expression may appear as a threat to one species, but may mean something totally different to another. (B3 2.9)			**Behaviour**
		Humans have developed highly-complex ways of communicating - transmitting knowledge of past events, emotions, and complex ideas to other humans. (B3 2.10)			
		Humans are conscious of the outcomes of their actions, and as a result are more self-aware than other animals. (B3 2.11)			**Behaviour**
		Feeding behaviours are different depending on the type of food being consumed. (B3 2.12)			**Behaviour**
		Herbivores have to eat more food in order to get the nutrients (particularly amino acids) they require, so more time is spent eating. (B3 2.13)			**Behaviour**
		Vertebrate herbivores may feed in large groups or herds, possibly for protection in numbers. This is a successful evolutionary strategy, even though some members of the herd may be killed. (B3 2.14)			**Behaviour**
		Vertebrate herbivores who feed in large groups usually need to be continually on the move to find new feeding areas. (B3 2.15)			**Behaviour**

		Herbivores have to be good at avoiding, fleeing from, or resisting predation. (B3 2.16)			**Behaviour**
		Carnivores eat protein-rich food and have to spend less time actually eating. (B3 2.17)			**Behaviour**
		Carnivores have to be good at detecting and catching their food. (B3 2.18)			**Behaviour**
		Some carnivores hunt efficiently in packs. (B3 2.19)			**Behaviour**
		Some carnivores hunt efficiently as individuals. (B3 2.20)			**Behaviour**
		Mammals and birds have special feeding behaviours in relation to their young, since they show parental care. (B3 2.21)			**Behaviour**
		Some animals have developed the use of tools in their search for food. (B3 2.22)			**Behaviour**
		Sexual reproduction requires finding and selecting a suitable mate, and can involve courting behaviour. (B3 2.23)			**Behaviour**
		Some animals mate for life, others select several different mates during the mating season. (B3 2.24)			**Behaviour**
		Some animals, particularly birds and mammals, have developed special behaviours for the rearing of young, since they display parental care. (B3 2.25)			**Behaviour**
		Parental care is a successful evolutionary strategy; although it involves risk to the parents, it can increase the chances of survival of the parental genes. (B3 2.26)			**Behaviour**
		Humans are one of the great apes, and have developed from small family groups of hunter-gatherers, closely related to bonobos (pygmy chimpanzees), to complex societies capable of gross modification of their own environment. (B3 2.27)			
		Humans have exploited other animals; originally hunters, they domesticated animals that helped them hunt; as humans developed agriculture, humans exploited herd animals to provide a constant and dependable source of food. (B3 2.28)			**Behaviour**
		Humans have exploited animals in other ways, as a source of clothing and domestic materials and, more recently, for medical purposes. (B3 2.29)			**Behaviour**
		Humans use animals as a source of entertainment (hunting, racing, circuses, wildlife parks) and companionship (pets). (B3 2.30)			**Behaviour**
		Humans debate the ethics using of animals in these ways; some consider that animals have rights comparable or identical to humans, others consider that such beliefs are not tenable. (B3 2.31)			**Behaviour**
		It is a mistake to interpret behaviour observed in other animals as showing human characteristics (anthropomorphism). (B3 2.32)			**Behaviour**

		It is a mistake to assume that human and animal behaviours have nothing in common. (B3 2.33)			**Behaviour**