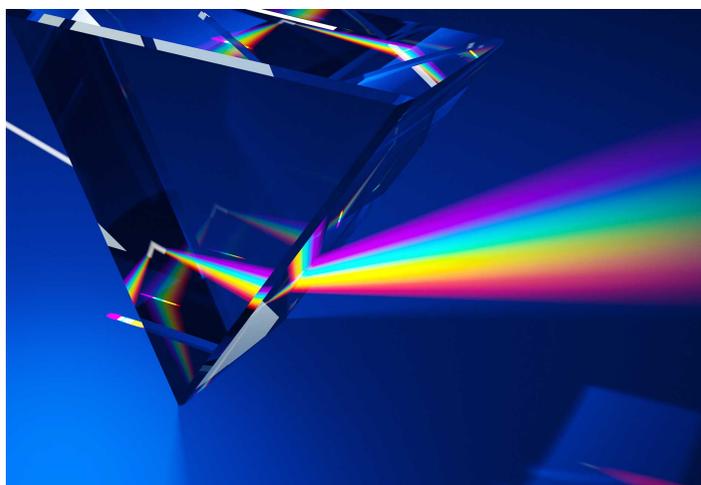
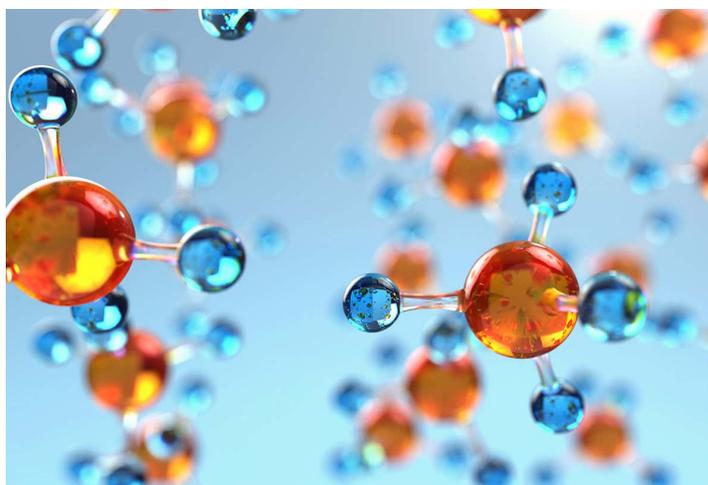


Hessle High School  
Science Department



# Biology Combined Foundation

This document will help you work with students to assess their understanding of the science curriculum for their exam. The students have their personal learning checklist from their mock exams. They need to revise these topics, then they can use these questions to test their understanding.

# Paper 2

Question	Answer	Topic
Define 'homeostasis'.	Maintenance of internal environment relatively stable at optimum conditions through negative feedback	B10.1 Principles of homeostasis
Name three key internal conditions that need to be controlled through homeostasis.	Temperature; Water levels; Blood glucose level	B10.1 Principles of homeostasis
Name the cell type that detects stimuli in the internal or external environment.	Receptor	B10.1 Principles of homeostasis
Name the component in the nervous system that processes the stimuli information.	Coordination centre	B10.1 Principles of homeostasis
Name the component in the nervous system that bring about responses to stimuli.	Effectors	B10.1 Principles of homeostasis
State the function of a neurone.	Transmit electrical impulses	B10.2 The structure and function of the human nervous system
Name the type of neurone that carries impulses to the central nervous system.	Sensory neurone	B10.2 The structure and function of the human nervous system
Name the type of neurone that carries impulses away from the central nervous system.	Motor neurone	B10.2 The structure and function of the human nervous system
Name two types of effectors.	Muscle; Glands	B10.2 The structure and function of the human nervous system
Name the two coordination centres that make up the central nervous system.	Brain + Spinal cord	B10.2 The structure and function of the human nervous system
Where is the cell body found in the sensory neurone?	Along/On the neurone fibre	B10.2 The structure and function of the human nervous system
Where is the cell body found in the motor neurone?	At the beginning of the motor neurone	B10.2 The structure and function of the human nervous system
Name one factor that may affect human reaction time.	Energy or sugary drinks/Practise beforehand etc.	B10.3 Reflex actions
What are reflex actions?	Automatic and rapid actions that do not involve the conscious parts of the brain	B10.3 Reflex actions

Name the three types of neurones that are involved in coordinating reflexes.	Sensory, relay, motor neurones	B10.3 Reflex actions
Where is the relay neurone found in a reflex arc?	Spinal cord	B10.3 Reflex actions
Illustrate the reflex pathway in a flowchart, showing all the components involved.	(Stimulus -->) Receptor --> Sensory neurone --> Relay neurone --> Motor neurone --> Effector (--> Response)	B10.3 Reflex actions
What are synapses?	The junction/physical gap between neurones	B10.3 Reflex actions
How is information passed through the synapse?	Neurotransmitters/Chemicals are released, which travel across the synapse to the receptor sites on the next neurone	B10.3 Reflex actions
How does the endocrine system bring about a change in our internal environment?	Glands release hormones into bloodstream, which then travel to the target organ to produce an effect	B11.1 Principles of hormonal control
What are hormones?	#REF!	B11.1 Principles of hormonal control
Name the 'master gland' that secretes a variety of hormones.	Pituitary gland	B11.1 Principles of hormonal control
Name the hormone that affects the amount of urine produced by the kidney.	ADH	B11.1 Principles of hormonal control
State one difference between the effects of hormones compared to the nervous system.	Hormonal effects are slower/last longer	B11.1 Principles of hormonal control
Name the hormone that decreases blood glucose level.	Insulin	B11.2 The control of blood glucose levels
Name the organ that produces hormones to control blood glucose level.	Pancreas	B11.2 The control of blood glucose levels
What is type 1 diabetes?	Condition where pancreas does not make enough/any insulin	B11.2 The control of blood glucose levels
What is type 2 diabetes?	Condition where body cells stop responding to insulin properly	B11.2 The control of blood glucose levels
Name one symptom of diabetes.	Excess urine/Feeling thirsty/Lack energy/Lose weight/Fatigue	B11.2 The control of blood glucose levels
Name a risk factor for type 2 diabetes.	Lack of exercise/Sugary diet/Obesity	B11.2 The control of blood glucose levels
Name a treatment for type 1 diabetes but not type 2 diabetes.	Insulin injection	B11.3 Treating diabetes
Name a method to cure type 1 diabetes.	Pancreas or pancreatic cell transplant	B11.3 Treating diabetes
Name one treatment for type 2 diabetes.	Carbohydrate-controlled diet/Lose weight/Regular exercise/Medicine	B11.3 Treating diabetes
Name the main female reproductive hormone.	Oestrogen	B11.5 Human reproduction
Name the process where a matured egg is released from the ovaries.	Ovulation	B11.5 Human reproduction
Name the hormone that causes egg maturation in the ovaries.	FSH (follicle stimulating hormone)	B11.5 Human reproduction

Name the hormone that stimulates ovulation.	LH (luteinising hormone)	B11.5 Human reproduction
Name the hormone that stimulates the build-up of the uterus lining.	Oestrogen	B11.5 Human reproduction
Name the hormone that maintains the uterus lining.	Progesterone	B11.5 Human reproduction
Name the main male reproductive hormone.	Testosterone	B11.5 Human reproduction
Which organ produces testosterone?	Testes	B11.5 Human reproduction
Which hormone(s) are used as contraceptive pills?	Oestrogen and progesterone	B11.7 The artificial control of fertility
Name a chemical method of contraception.	Spermicides	B11.7 The artificial control of fertility
Name a barrier method of contraception.	Condom/Diaphragm	B11.7 The artificial control of fertility
By which cell division type does asexual reproduction rely on?	Mitosis	B13.1 Types of reproduction
How are gametes formed?	Meiosis	B13.1 Types of reproduction
How is a gamete different from a normal body cell?	Half genetic information	B13.1 Types of reproduction
Name the structure formed by fertilisation (fusion of male and female gametes).	Zygote	B13.1 Types of reproduction
State one difference between asexual and sexual reproduction.	A: no fertilisation/genetically identical offspring; S: fertilisation/genetic variation	B13.1 Types of reproduction
Name the gametes in plants.	Egg + Pollen	B13.1 Types of reproduction
Name the organ that produces egg cells.	Ovaries	B13.2 Cell division in sexual reproduction
Name the organ that produces sperm cells.	Testes	B13.2 Cell division in sexual reproduction
How many divisions do a cell undergo in meiosis?	Twice	B13.2 Cell division in sexual reproduction
Name the process where a sperm and an egg cell fuse together.	Fertilisation	B13.2 Cell division in sexual reproduction
How many chromosomes are there in a human gamete?	23	B13.2 Cell division in sexual reproduction
Define 'gametes'.	Sex cells	B13.2 Cell division in sexual reproduction
Name the gametes in animals.	Sperm + Egg	B13.2 Cell division in sexual reproduction
Describe the cells produced by meiosis.	4 cells, genetically different.	B13.2 Cell division in sexual reproduction
Describe the cells produced by mitosis.	2 cells, genetically identical (clones).	B13.2 Cell division in sexual reproduction
State the three key steps in meiosis.	1. Copies of the DNA are made. 2. The cell divides twice to form 4 gametes, each with a single set of chromosomes. 3. All 4 cells are genetically different from each other.	B13.2 Cell division in sexual reproduction
When a new cell is formed through fertilisation, how does it divide?	Mitosis.	B13.2 Cell division in sexual reproduction

The genetic material in the nucleus of a cell is....	DNA	B13.4 DNA and genome
Describe the structure of DNA.	A polymer made up of two strands forming a double helix.	B13.4 DNA and genome
Name the structure within which DNA is contained.	Chromosomes.	B13.4 DNA and genome
What is a gene?	A small section of DNA on a chromosome.	B13.4 DNA and genome
What is the function of a gene?	To code for a particular sequence of amino acids in order to make a specific protein.	B13.4 DNA and genome
What is a genome?	The entire genetic material of an organism.	B13.4 DNA and genome
State 3 ways in which understanding of the human genome will be important.	1. To search for genes linked to different types of disease 2. To understand and treat inherited disorders 3. To trace early human migration patterns	B13.4 DNA and genome
What is a chromosome?	A thread-like structure which contains coiled up DNA and proteins.	B13.7 Inheritance in action
What is an allele?	A different version of a gene.	B13.7 Inheritance in action
What does the term "dominant" mean?	The individual only needs one copy of this allele for its phenotype to be seen.	B13.7 Inheritance in action
What does the term "recessive" mean?	The individual needs two copies of this allele for its phenotype to be seen.	B13.7 Inheritance in action
What does the term "homozygous" mean?	The individual has two identical alleles for this gene.	B13.7 Inheritance in action
What does the term "heterozygous" mean?	The individual has two different alleles for this gene.	B13.7 Inheritance in action
What is a genotype?	The genetic makeup of an organism for a particular gene (e.g. RR).	B13.7 Inheritance in action
What is a phenotype?	The displayed characteristic due to the interactions between alleles (e.g. red flowers).	B13.7 Inheritance in action
How many pairs of chromosomes does an ordinary human body cell have?	23	B13.8 More about genetics
How many pairs of chromosomes determine the sex of the individual?	1	B13.8 More about genetics
What is the genotype of a female?	XX	B13.8 More about genetics
What is the genotype of a male?	XY	B13.8 More about genetics
What is polydactyly?	A condition that causes the individual to have extra fingers or toes.	B13.9 Inherited disorders
Is polydactyly a dominant or recessive condition?	Dominant.	B13.9 Inherited disorders

State the genotype(s) that would result in polydactyly.	PP or Pp (homozygous dominant or heterozygous for this gene).	B13.9 Inherited disorders
What is cystic fibrosis?	A condition which causes sticky mucus to build up in the lungs.	B13.9 Inherited disorders
Is cystic fibrosis a dominant or recessive condition?	Recessive.	B13.9 Inherited disorders
State the genotype(s) that would result in cystic fibrosis.	cc (homozygous recessive).	B13.9 Inherited disorders
State one method of screening embryos.	Amniocentesis/Chorionic villus sampling/IVF	B13.10 Screening for genetic disorders
State one concern of screening embryos.	Causing miscarriage/Ethical concerns/Inaccurate results/Expensive	B13.10 Screening for genetic disorders
State one benefit of embryo screening.	Know if child will have disorder/Able to decide if proceed with pregnancy or abortion	B13.10 Screening for genetic disorders
Genes determine the phenotype of an organism – true or false?	False – the environment also plays a role.	B14.1 Variation
What is variation within a population?	Differences in the characteristics of individuals in a population.	B14.1 Variation
State three causes of variation in a population.	1. Genes 2. The environment 3. A combination of both	B14.1 Variation
Within a population, there is normally very little genetic variation – true or false?	False – just look around you at humans!	B14.1 Variation
What causes variation within a population?	Mutations.	B14.2 Evolution by natural selection
What is evolution?	A change in the inherited characteristics of a population over time through a process of natural selection which may result in the formation of a new species.	B14.2 Evolution by natural selection
True or false – does the theory of evolution by natural selection state that all living things evolved from simple life forms more than three billion years ago?	True.	B14.2 Evolution by natural selection
Would the best organism within a species to survive and reproduce be: a) the strongest? b) the one which reproduces the fastest? c) the best adapted to the environment?	c)	B14.2 Evolution by natural selection
Define 'species'.	Organisms that can interbreed to produce fertile offspring.	B14.2 Evolution by natural selection

Define 'natural selection'.	The process by which evolution takes place - Nature chooses those with favourable characteristics (best suited to environment) to survive and reproduce, passing on their genes	B14.2 Evolution by natural selection
What is selective breeding?	The process by which humans breed plants and animals for particular genetic characteristics.	B14.3 Selective breeding
Name two historic examples of selective breeding.	1. Breeding food crops from wild plants 2. Domesticating animals	B14.3 Selective breeding
State four modern examples of selective breeding.	1. Disease resistance in food crops 2. Animals which produce more meat or milk 3. Domestic dogs with a gentle nature 4. Large or unusual flowers	B14.3 Selective breeding
State a drawback to selective breeding.	Inbreeding – some breeds are prone to disease or inherited defects (e.g. some pugs have breathing problems).	B14.3 Selective breeding
What is genetic engineering?	The process which involves modifying the genome of an organism by introducing a gene from another organism to give a desired characteristic.	B14.4 Genetic engineering
State three traits' plants might be genetically engineered to have.	1. Resistant to insect attack 2. Resistant to herbicides 3. Increased yields	B14.4 Genetic engineering
Give one example of the use of genetically engineered bacterial cells.	To produce useful substances such as human insulin to treat diabetes.	B14.4 Genetic engineering
Into what is the gene inserted?	A vector	B14.4 Genetic engineering
Give two examples of vectors used in genetic engineering.	A bacterial plasmid, a virus	B14.4 Genetic engineering
State two benefits of genetic engineering.	Improved growth rates/Increased yield/Increased food quality/Produce human proteins/enzymes as medicine	B14.7 Ethics of genetic technologies
State three concerns around genetically engineering plants.	1. Unknown effects on populations of wildflowers 2. Unknown effects on populations of insects 3. Some people feel the effects of eating GM crops on human health have not been fully explored	B14.7 Ethics of genetic technologies
What are fossils?	Remains of organisms from millions of years ago that are found preserved (in rocks, ice etc.)	B15.5 Evidence for evolution
What are criteria for decay to occur?	Oxygen, bacteria (decomposers), correct temperature	B15.5 Evidence for evolution

Describe the five steps of fossilisation by mineralisation.	1. Organism dies and falls to the ground; 2. Flesh decays, leaving the skeleton behind; 3. Bones are covered in sand/soil; 4. Bones become mineralised and turns into rock (fossil); 5. Rock with fossil emerges due to geological movement (e.g. earthquake) and erosion occurs to reveal fossil	B15.5 Evidence for evolution
What are the three different types of fossils that can be formed?	Mineralised skeleton; Undecayed due to trapped in ice or amber; Preserved traces of organisms (e.g. footprints, leaves)	B15.5 Evidence for evolution
Give 4 reasons why the fossil record is incomplete.	1. Many earliest life forms are soft-bodied; 2. Most organisms did not become fossilised; 3. Most early fossils were destroyed by geological activity; 4. Many fossils are not yet found	B15.5 Evidence for evolution
How is the fossil record helpful?	It shows how much organisms have changed and developed over time, and can show the environment and climate then	B15.6 Fossils and extinction
Define 'extinction'.	Permanent loss of all members of a species	B15.6 Fossils and extinction
State three causes of extinction.	New predators; New diseases/pathogens; New/successful competitors	B15.6 Fossils and extinction
What causes mass extinction? Suggest two examples of this cause.	Single catastrophic event that also affects climate over a long period (e.g. asteroid collision, volcanic eruption)	B15.7 More about extinction
Suggest a chain of events imitated by an asteroid collision that could lead to the extinction of dinosaurs.	Asteroid impact causes huge fires and earthquakes --> volcanic eruptions --> dust/ash cloud covers atmosphere --> less sunlight reaches the Earth surface --> temp drop massively + plants die --> loss of food source led to other animals' extinction	B15.7 More about extinction
What is antibiotic resistance?	Bacteria becoming resistant means it cannot be killed by a certain antibiotic	B15.8 Antibiotic resistant bacteria
What causes antibiotic resistance?	Random mutations in bacteria/Bacteria sharing resistant genes	B15.8 Antibiotic resistant bacteria
Describe the steps in which a bacteria strain develops resistance to an antibiotic.	1. Mutation occurs in an individual bacterium within a population; 2. It survives and reproduces rapidly, making more bacteria with its resistant gene; 3. Overtime, all bacteria within the population have that gene	B15.8 Antibiotic resistant bacteria
Why can bacteria evolve quicker than other organisms?	Because bacteria can reproduce at a quick rate	B15.8 Antibiotic resistant bacteria

Suggest 3 methods to prevent and slow down the development of antibiotic-resistant strains.	1. Do not overuse antibiotics; 2. Patients finish antibiotic course every time; 3. Restrict agricultural use of antibiotics	B15.8 Antibiotic resistant bacteria
Why must patients finish their course of antibiotics every time?	To ensure all bacteria are killed by the antibiotic, so none can survive to mutate and develop resistance	B15.8 Antibiotic resistant bacteria
Suggest 3 ways in which a hospital can reduce the spread of antibiotic-resistant strains.	Only use antibiotics if really needed; Use strain-specific antibiotics; Maintain high hygiene standards (e.g. wash hands between patient visits); Isolate patients infected with resistant strain; Visitors wash hands as they enter and leave	B15.8 Antibiotic resistant bacteria
Why is it difficult to develop new antibiotics to combat the appearance of new antibiotic-resistant strains of bacteria?	The development of new antibiotics is expensive and slow (won't be able to keep up)	B15.8 Antibiotic resistant bacteria
What does classification of organisms mean?	Organisation of living things into groups based on their similarities	B15.9 Classification
Name the person who developed the classification system.	Carl Linnaeus	B15.9 Classification
State the 7 hierarchical levels of the Linnaean classification system.	Kingdom, phylum, class, order, family, genus, species	B15.9 Classification
Every organism has a scientific name using a binomial system. What does binomial mean?	Two names	B15.9 Classification
Which language does the binomial naming system use?	Latin	B15.9 Classification
The binomial name of an organism is made up of two words. What does each word represent of that organism?	The first word is the genus; second word is the species	B15.9 Classification
What are the three rules of writing a binomial scientific name of a species?	First letter of the genus should be in capital; First letter of the species should be in small letter; Both need to be in italics when printed or underlined when hand-written	B15.9 Classification
Why do we use the binomial naming system?	Every organism's name would vary in different languages, but Latin is considered to be the old common language in which everyone can use/understand	B15.9 Classification
How many domains and kingdoms do scientists now consider in classification?	3 domains; 6 kingdoms	B15.10 New systems of classification
Based on what knowledge were the three domains set?	Different biochemistry of cell and ribosomes, and how cells reproduce differently	B15.10 New systems of classification
What are the three domains?	Archaea, bacteria, eukaryote	B15.10 New systems of classification
What are the six kingdoms?	Archaeobacteria, eubacteria, Protista, fungi, plants, animals	B15.10 New systems of classification

How is classification helpful?	Helps us to understand evolutionary and ecological relationships	B15.10 New systems of classification
Name the type of models that are used to show how different organisms are related.	Evolutionary trees	B15.10 New systems of classification
How are evolutionary trees made?	By looking at similarities and differences between different groups of organisms	B15.10 New systems of classification
What aspects of knowledge would be considered when suggesting evolutionary relationships?	Similarities and differences in physical structures, genetics and biochemistry	B15.10 New systems of classification
Define 'community'.	A group of interdependent organisms that are made of different species	B16.1 The importance of communities
Define 'ecosystem'.	The interaction of a community with the abiotic parts of the environment	B16.1 The importance of communities
What are abiotic factors? State two examples.	Non-living factors in an environment (e.g. light intensity, soil pH, wind, humidity, temperature)	B16.1 The importance of communities
What are biotic factors? State two examples.	Living factors in an environment (e.g. predators, competitors, pathogens/microorganisms)	B16.1 The importance of communities
Define 'population'.	A group of organisms of one species that interbreed and live in the same place at the same time	B16.1 The importance of communities
What is interdependence?	A relationship that describes how all species within a community depend on each other to survive	B16.1 The importance of communities
What is meant by a stable community?	Where all the species and environmental factors are in balance, hence population sizes remain fairly constant	B16.1 The importance of communities
A disease causes large areas of trees to die. Is their death cause by an abiotic or biotic factor?	Biotic (as diseases are caused by pathogens, which are living beings)	B16.1 The importance of communities
Briefly explain why low light intensity may decrease animal populations.	Less light, less photosynthesis by plants --> poor plant growth --> less plant available for animals to eat --> less herbivores grow and survive --> further affects higher levels in the food chain	B16.2 Organisms in their environment
Sort the following into abiotic and biotic factors: soil pH, availability of food, oxygen availability, wind intensity, new competitors, carbon dioxide levels	Ab: soil pH, CO2 levels, O2 availability, wind intensity; Bio: food availability, new competitors	B16.2 Organisms in their environment
State three biotic factors.	New pathogens, new predators, new competitors, food availability	B16.2 Organisms in their environment
State an equipment that is commonly used to investigate a population of plants in a particular area.	Quadrat	B16.3 Distribution and abundance

What is quantitative sampling?	A technique to record and estimate the number of organisms in a particular area	B16.3 Distribution and abundance
How can the distribution of a species be measured?	Sampling along a transect	B16.3 Distribution and abundance
State a difference between quantitative sampling and transect sampling.	Quantitative sampling takes samples at random coordinates; Transect sampling takes samples at specific intervals along the line (not random)	B16.3 Distribution and abundance
What are the three things that animals compete for?	Food, mates, territory	B16.4 Competition in animals
Give one characteristic of a lion that makes it a good competitor.	Sharp teeth/claws	B16.4 Competition in animals
Give one characteristic of a deer that makes it a good competitor.	Horns/Antlers	B16.4 Competition in animals
Give one characteristic of a peacock that makes it a good competitor, and state what it is competing for using this trait.	Behaviour (e.g. mating dance)/Attractive, colourful feathers to attract mate	B16.4 Competition in animals
Tigers urinating on trees is a behaviour adaptation to compete for...?	Territory	B16.4 Competition in animals
Wasps building nests is a behaviour adaptation to compete for...?	Shelter/Habitat	B16.4 Competition in animals
Owls' sharp hearing is an adaptation to compete for...?	Food	B16.4 Competition in animals
What are the four things that plants compete for?	Light, space, water, mineral ions	B16.5 Competition in plants
Some small plants in woodlands grow only in winter and dies before spring comes. Suggest why this occurs.	To avoid competition for sunlight when large trees grow leaves and block out sunlight in spring/summer	B16.5 Competition in plants
Suggest why plants may have different root depths.	To avoid competition for water and/or mineral ions at the same soil depth	B16.5 Competition in plants
Suggest why seed dispersal is considered an adaptation to avoid competition.	Seed is carried far away instead of landing right next to parent plant, so offspring plant doesn't compete with parent plant	B16.5 Competition in plants
Cactus' long roots is a feature to help compete for...?	Water	B16.5 Competition in plants
Large flowers are a feature to help compete for...?	(attract) Pollinators	B16.5 Competition in plants
Weeds' rapid growth in height is a feature to help compete for...?	Light	B16.5 Competition in plants
What are extremophiles?	(micro)organisms that live in environments that are very extreme (e.g. high temp, pressure, salt conc)	B16.6 Adapt and survive
Which domain tends to include most extremophiles?	Archaea	B16.6 Adapt and survive

State the specific name given to extremophiles that are adapted to live in high temperatures.	Thermophiles	B16.6 Adapt and survive
Suggest one adaptation that thermophiles have to help them live in high temperatures.	Special enzymes with higher optimal temp (don't denature at high temp)/Specially structured cell membrane and/or cell wall	B16.6 Adapt and survive
Suggest one adaptation that halophiles have to help them survive in salty areas.	Special cytoplasm to prevent water loss by osmosis/Special cell membrane/cell wall	B16.6 Adapt and survive
For animals that living in cold climates, would they have adaptations to increase or decrease their surface area to volume ratio?	Decrease	B16.7 Adaptation in animals
Why do animals that live in hot climates adapt to have a high SA:V ratio?	Increase heat loss	B16.7 Adaptation in animals
State an adaptation that polar bears have to survive in cold climates.	More insulation (thick fat layer + fur)	B16.7 Adaptation in animals
Give a behavioural adaptation of penguins.	Huddling	B16.7 Adaptation in animals
What is stored in camels' humps and what is it for?	Fat store --> can be metabolised to make water	B16.7 Adaptation in animals
Apart from their humps, give one other adaptation of camels to help them reduce water loss.	Specially adapted kidneys / Very little sweating	B16.7 Adaptation in animals
Arctic foxes' fur coat changes from grey to white during winter. Suggest two reasons why.	Reduce heat loss by radiation + Better camouflage in the snow	B16.7 Adaptation in animals
What is the major way in which plants lose water in hot, dry conditions?	Transpiration	B16.8 Adaptations in plants
Why do plants in dry and hot conditions have curled leaves?	Traps moist air --> reduce water vapour conc gradient --> Reduce transpiration	B16.8 Adaptations in plants
Why do some plants have thorns?	Prevent predation by herbivores	B16.8 Adaptations in plants
Why do some plants have long roots?	Increase water uptake	B16.8 Adaptations in plants
Why do cacti have swollen stems?	Store water	B16.8 Adaptations in plants
Why do cacti have spine-like leaves?	Reduce SA --> reduce water loss	B16.8 Adaptations in plants
Define 'biomass'.	Amount of biological material in an organism (without water)	B17.1 Feeding relationships
What are producers?	Organisms that can make food/biomass from raw materials such as CO <sub>2</sub> and water (e.g. plants, algae)	B17.1 Feeding relationships
How do producers make biomass?	By doing photosynthesis	B17.1 Feeding relationships
What are primary consumers? Give an example.	Animals that eat producers + Any herbivores (e.g. cows, sheep, rabbits)	B17.1 Feeding relationships

What are secondary consumers? Give an example.	Animals that eat primary consumers + Any carnivores (e.g. lions, foxes, eagles)	B17.1 Feeding relationships
Secondary consumers may be eaten by...?	Tertiary consumers	B17.1 Feeding relationships
Describe and explain how prey population changes as predator population increases.	Prey population decreases as more predator eats more prey	B17.1 Feeding relationships
Describe and explain how predator population changes as prey population decreases.	Predator population decreases, as less prey/food available, more predators die	B17.1 Feeding relationships
Describe and explain how prey population changes as predator population decreases.	Prey population increases, as less predators hunting them, more prey can survive and reproduce	B17.1 Feeding relationships
Describe and explain how predator population changes as prey population increases.	Predator population increases, as more food/prey available, more predator and eat to survive and reproduce	B17.1 Feeding relationships
What are decomposers?	Microorganisms that break down waste products and dead bodies	B17.2 Materials cycling
Name the type of organism that decomposes dead material.	Microorganisms	B17.2 Materials cycling
As decomposers break down organic material, what is released into the air? How does it return to organisms?	Carbon dioxide --> taken into producers for photosynthesis	B17.2 Materials cycling
As decomposers break down organic material, what is released into the soil? How does it return to organisms?	Mineral ions (e.g. nitrates) --> taken into producers through roots to build biomass (e.g. proteins)	B17.2 Materials cycling
Name two ways in which organic material is returned to the soil for decomposers to break down.	Death + Excretion	B17.2 Materials cycling
Name two ways in which water gets released from plants to the environment.	Transpiration + Respiration	B17.2 Materials cycling
Name the process where water escapes into the ocean through gaps between soil and rocks.	Percolation	B17.2 Materials cycling
Name the process where water is rained down from the clouds.	Precipitation	B17.2 Materials cycling
Name the process(es) where water escapes from the oceans and into the clouds.	Evaporation and condensation	B17.2 Materials cycling
How does carbon get from the air into plants?	Photosynthesis	B17.3 The carbon cycle
How does carbon from plants get into animals?	Feeding/Eating	B17.3 The carbon cycle
How does carbon from animals get into the atmosphere?	Respiration/Decay (or decomposition)	B17.3 The carbon cycle
How does carbon from plants and animals get formed into rocks?	Fossilisation	B17.3 The carbon cycle
How does carbon from fossil fuels get into the air?	Combustion	B17.3 The carbon cycle

In what form is carbon in the air?	Carbon dioxide	B17.3 The carbon cycle
Define 'biodiversity'.	A measure of the variety of all the different species of organisms within an ecosystem	B18.1 The human population explosion
Why is having a high biodiversity important to form stable ecosystems?	Each species becomes less dependent on specific species for food/shelter --> less pressure on certain species which could've led to extinction --> all species populations are balanced	B18.1 The human population explosion
What are two major problems from the exponential increase in human population?	More natural resources are used up + Produce more wastes --> decrease biodiversity	B18.1 The human population explosion
State four sources of land pollution.	Human sewage + Household wastes + Industrial wastes + Pesticides and herbicides in farming	B18.2 Land and water pollution
How does land pollution affect our biodiversity?	Less (clean) food available / Loss of habitat / Global warming leading to migration	B18.2 Land and water pollution
How does human sewage contribute towards land pollution?	Harmful microbes and bad chemicals lead to spread of diseases on land	B18.2 Land and water pollution
Explain how household and industrial wastes pollute land.	Take up space in landfills + Toxic/radioactive chemicals --> poison soils + destroys habitats	B18.2 Land and water pollution
State four sources of water pollution.	Untreated sewage + Fertilisers + Industrial wastes + Pesticides and herbicides	B18.2 Land and water pollution
Name the situation where a body of water has low oxygen levels, leading to marine organisms' death.	Eutrophication	B18.2 Land and water pollution
What causes eutrophication?	Fertilisers leaked into lakes, excess nutrients cause excessive plant growth, leading to an increase in competition/algae covering water surface (less light allowed into lake for water plants)	B18.2 Land and water pollution
What is bioaccumulation?	Accumulation of chemicals in an organism	B18.2 Land and water pollution
Name a chemical that gets built up in organisms in bioaccumulation.	Heavy metals/Fertilisers/Pesticides/Herbicides	B18.2 Land and water pollution
Why is bioaccumulation bad?	Chemical conc increases each trophic levels --> may reach fatal levels when get to the top consumer	B18.2 Land and water pollution
Name a source of air pollution.	Combustion of fossil fuels	B18.3 Air pollution
How is acid rain formed?	Acidic gases released from burning fossil fuels are dissolved in rainwater	B18.3 Air pollution
Name three acidic gases released from burning fossil fuels.	Carbon dioxide + sulphur dioxide + Nitric oxides	B18.3 Air pollution

Give 3 effects of acid rain.	Kills plants; Destroys roots in soil; Acidifies bodies of water, killing marine organisms; Affects neighbouring countries; Acid snow kills young plants	B18.3 Air pollution
What is global dimming?	Particulates made from combustion covers the atmosphere, reflecting sunlight so less light reaches the surface	B18.3 Air pollution
What causes global dimming?	Particulates	B18.3 Air pollution
Name two conditions that particulates can cause.	Global dimming + Smog	B18.3 Air pollution
Explain how global dimming affect plant growth.	Cooling temperatures + Less sunlight --> Plants die due to insufficient photosynthesis	B18.3 Air pollution
What is smog?	Particulates + Acidic gases	B18.3 Air pollution
How does smog affect our health?	Inhaling particulates damages our lungs and cardiovascular systems	B18.3 Air pollution
Name a toxic gas that is released from incomplete combustion.	Carbon monoxide	B18.3 Air pollution
How does carbon monoxide cause an effect in our body?	Binds to haemoglobin irreversibly --> less Hb available to bind to oxygen --> suffocation	B18.3 Air pollution
Suggest two ways to reduce air pollution.	Use low-sulphur fuels / Set strict emission levels / Use biofuels / Use exhaust gas filters in power stations / Catalytic converters in cars	B18.3 Air pollution
Suggest two alternative power source that reduces air pollution.	Low-sulphur fuels / Biofuels / Renewable energy	B18.3 Air pollution
What is meant by a 'carbon sink'?	A place that stores carbon	B18.4 Deforestation and peat destruction
Give two examples of good carbon sinks.	Forests + Peat bogs	B18.4 Deforestation and peat destruction
Give a reason for deforestation.	Provide resources / Provide land for agriculture / Provide land to make biofuel	B18.4 Deforestation and peat destruction
Give a reason for peat destruction.	Provide fuel/garden compost	B18.4 Deforestation and peat destruction
Name two major impacts deforestation and peat destruction have on the environment and our biodiversity.	More CO2 release (more global warming and acid rain) + Decrease biodiversity	B18.4 Deforestation and peat destruction
How does a decrease in biodiversity have a negative impact on humans?	Loss of potential new sources of food and medicine / Loss of resources	B18.4 Deforestation and peat destruction
Name three major greenhouse gases.	Carbon dioxide + Methane + Water vapour	B18.5 Global warming
Suggest a source of carbon dioxide release.	Burning fossil fuels/Deforestation/Peat destruction etc.	B18.5 Global warming
Suggest a natural source of methane.	Growing rice and cattle	B18.5 Global warming

What is the greenhouse effect?	Thermal energy from the sun reaches the earth and some are reflected. Greenhouse gases absorb this reflected thermal energy and keep Earth warm	B18.5 Global warming
Any greenhouse effect is bad for the Earth. True or false? Explain.	FALSE (essential to keep earth warm, vital for life)	B18.5 Global warming
What causes global warming?	Too much greenhouse gases --> trap too much heat within atmosphere (enhance greenhouse effect)	B18.5 Global warming
State three effects of global warming.	Climate change / Ice caps melt / Warming seas dissolve less carbon dioxide	B18.5 Global warming
What biological consequences does climate change bring about?	Changes in migration patterns and species distribution	B18.5 Global warming
What biological consequences does melting of ice caps bring about?	Loss of habitat --> some animals die --> reduce biodiversity	B18.5 Global warming
State three methods to maintain biodiversity.	Breeding programmes / Protect and regenerate rare habitats / Grow hedgerows / Reduce deforestation and CO2 emission / Recycling	B18.7 Maintaining biodiversity
Why is important to protect and regenerate rare habitats?	To allow specifically adapted species to live in nature again (as they cannot live in "normal" conditions)	B18.7 Maintaining biodiversity
Give one impact on the environment by removing hedgerows.	Soil erosion / Reduce soil fertility	B18.7 Maintaining biodiversity
What problem is solved by recycling?	Avoiding landfills becoming full, which leads to pollution	B18.7 Maintaining biodiversity
Suggest a possible challenge in breeding programmes.	Animals do not reproduce easily or fast / Must avoid inbreeding / No natural habitats for them to return to	B18.7 Maintaining biodiversity
Suggest a possible challenge in reintroducing hedgerows.	Loss of land available for growing crops (less profit)	B18.7 Maintaining biodiversity
Suggest a possible challenge in buying lands to restrict deforestation.	Resistance from businesses to maintain profit or demand / Money needed	B18.7 Maintaining biodiversity
Suggest a possible challenge in reducing carbon dioxide emission.	Lack of scientific research on better engines or methods to reduce emission	B18.7 Maintaining biodiversity