Biology Only Paper 2 Higher Revision Checklist

Paper 2 Content			
B10 The Human Nervous System	**Analysis**	**Revision**	☺
Can define the term homeostasis			
Can describe 3 internal conditions in the human body regulated during homeostasis			
Can state 3 features of control systems in the human body which may involve nervous or chemical responses.			
Can describe the role of the nervous system.			
Can state what makes up the central nervous system (CNS)			
Can describe the features of a neurone and explain how it is adapted to do it's job			
Can identify the pathway of a reflex arc from stimulus to response as a flow chart or on a diagram			
Can describe why reflex arcs are important			
Can describe the difference between voluntary and involuntary responses			
Can plan and carry out an investigation into the effect of a factor on human reaction time (RP7)			
BIO Can identify cerebral cortex, cerebellum and medulla and describe their functions			
BIO Can explain why it is difficult to investigate brain function and treat brain damage and disease			
BIO Can explain how neuroscientists have been able to map parts of the brain			
BIO Can identify the main parts of the eye and describe their function.			
BIO Can describe how the eye uses accommodation to focus on near and distant objects			
BIO Can describe how and explain why the eye adapts to dim light			
BIO Can describe the conditions myopia and hyperopia and how they are corrected			
BIO Can interpret ray diagrams of eye problems and demonstrate on a diagram how spectacles correct them			
B11 Hormonal Control	**Analysis**	**Revision**	☺
Can describe the role of the endocrine system			
Can describe what a hormone is, where it is produced, how it travels around the body and where it produces an effect			
Can state the role of the pituitary gland			
Can identify where the following glands are found: pituitary, pancreas, thyroid, adrenal, ovary and testes.			
Can compare and contrast messages sent by the endocrine and nervous system			
Can describe where blood glucose is monitored and controlled			
Can describe what insulin does and where it is released and why			
Can compare Type 1 and Type 2 diabetes and explain how they are treated			
Can interpret graph data showing the effect of insulin on blood glucose levels in people with or without diabetes			
Can describe the what Glucagon does and where it is released and why			

Biology Only Paper 2 Higher Revision Checklist

Can explain how glucagon and insulin interact with each other in a negative feedback cycle to control blood sugar levels			
Can describe what secondary sexual characteristics are developed during puberty in males and females			
Can describe where oestrogen and testosterone are released			
Can state the length of the menstrual cycle			
Can define the term ovulation and state when it happens during the menstrual cycle			
Can describe what a period is and when it happens during the menstrual cycle			
Can describe the role of FSH, LH, oestrogen and progesterone in the menstrual cycle			
Can explain how these hormones interact with each other in the control of the menstrual cycle			
Can interpret data from graphs showing hormone levels during the menstrual cycle			
Can describe and evaluate different hormonal methods of contraception			
Can describe and evaluate different non - hormonal methods of contraception			
Can explain why FSH and LH are referred to as 'fertility drugs'			
Can describe the process of In Vitro Fertilisation (IVF)			
Can evaluate the benefits and problems of undergoing IVF			
Can explain why there is an increased risk of multiple births from IVF and why this can cause problems			
Can explain the role of thyroxin and adrenaline in the body			
Can interpret and explain simple diagrams of negative feedback control, e.g. in Thyroxine levels			
BIO Can describe what a tropism is and describe the response of a plant in terms of phototropism and gravitropism			
BIO Can describe the role of auxin and explain how it causes unequal growth rates			
BIO Can describe the roles of gibberellins and ethene in plants			
BIO *Can plan and carry out an investigation into the effect of light or gravity on the growth of newly germinated seeds (RP8)*			
BIO Can describe how we can use auxins, gibberellins and ethane in agriculture and horticulture			
BIO Can explain why the everyday use of hormones as weedkillers has an effect on biodiversity			
B11 Homeostasis in action	**Analysis**	**Revision**	☺
BIO Can state where body temperature is monitored			
BIO Can describe ways the body can cool down if it gets too hot			
BIO Can describe ways the body can heat up if it gets too cold			
BIO Can explain how these mechanisms to raise or lower body temperature work			
BIO Can describe 3 ways water can leave the body			
BIO Can explain the effect on cells of osmotic changes in body fluids			
BIO Can describe the deanimation of excess amino acids into ammonia and why this is quickly converted into urea in the liver			
BIO Can describe the function of the kidneys in maintaining the water balance of the body			

Biology Only Paper 2 Higher Revision Checklist

BIO Can describe what selective reabsorption in the kidneys is and why it happens			
BIO Can translate graphical and numerical data on glucose, ions and urea before and after filtration			
BIO Can describe the effect of ADH on the permeability of the kidney tubules			
BIO Can describe how kidney dialysis works for people suffering with kidney failure			
BIO Can evaluate the advantages and disadvantages of kidney transplant and dialysis			
B13 Reproduction	**Analysis**	**Revision**	☺
Can compare and contrast mitosis and meiosis			
Can state the gametes in animals and plants			
Can explain why meiosis is used in the formation of gametes			
Can define what fertilisation is			
Can explain how meiosis halves the number of chromosomes and fertilisation restores the full number of chromosomes			
Can compare and contrast sexual and asexual reproduction			
BIO Can describe the advantages and disadvantages of sexual and asexual reproduction			
Can explain how meiosis halves the number of chromosomes and fertilisation restores the full number of chromosomes			
Can describe the structure of DNA			
Can define the term genome			
Can describe where DNA is found in cells			
Can describe the relationship between DNA, chromosomes and genes			
Can describe what a gene is and what it does			
Can describe what the Human Genome Project (HGP) is			
Can explain the benefits of studying the human genome			
BIO Can describe the structure of a nucleotide			
BIO Can state the 4 bases of DNA			
BIO Can describe what a triplet code is and what it codes for			
BIO Can interpret a diagram of DNA structure			
BIO Can recall a simple description of protein synthesis			
BIO Can explain simply how the structure of DNA affects the protein made			
BIO Can describe how genetic variants may influence phenotypes in coding DNA by altering protein activity			
BIO Can describe how genetic variants may influence phenotypes in non-coding DNA by altering how genes are expressed			
BIO Can state how the 4 bases pair up			
BIO Can explain how a change in the DNA structure may result in the change of the protein produced			
BIO Can state where proteins are made in cells			
BIO Can describe why completed protein chains are folded up into unique shapes			

Biology Only Paper 2 Higher Revision Checklist

BIO Can explain what a mutation is and when they happen			
BIO Can explain why a mutation can lead to an enzyme that no longer fits it's substrate			
BIO Can describe what non-coding parts of DNA do and why they are important			
BIO Can model insertions and deletions in chromosomes to illustrate mutations			
Can define the terms: gamete, chromosome, gene, allele			
Can define the terms: dominant, recessive, homozygous, heterozygous, genotype and phenotype. All in relation to inheritance			
Can describe characteristics that are the result of multiple genes or single genes			
Can predict the outcome of genetic crosses by using simple ratios and direct proportion			
Can explain why using Punnett squares to predict the outcome of genetic crosses is limited			
Can extract and interpret information from family trees and genetic crosses to complete Punnett square diagrams			
Can construct Punnett squares and use them to make predictions using theories of probability			
Can describe what an inherited disorder is			
Can describe the genetic diseases Polydactyly and Cystic Fibrosis and describe how they are caused			
Can describe the benefits and drawbacks of genetic screening for the above conditions			
Can state the sex chromosomes in males and females			
Can carry out a genetic cross to show sex inheritance			
B14 Variation and Evolution	**Analysis**	**Revised**	☺
Can describe that the phenotype of an organism is developed from a combination of the genome and the influence of the environment and give examples			
Can define the term variation			
Can describe how variation arises through mutations			
Can identify when a mutation will have a positive/negative/no effect on the organism			
Can define the term evolution			
Can describe the theory of natural selection			
Can describe the process of selective breeding in both animals and plants			
Can explain the benefits and risks of selective breeding			
Can give examples of the ways humans have selectively bred organisms in farming, agriculture and horticulture			
Can define genetic engineering and give an example in plants and bacterial cells on how it has been useful			
Can explain the benefits and risks of genetic engineering			
Can describe the process of genetic engineering simply			
Can describe what a GM crop is			
Can describe the main steps in genetic engineering using the words; enzyme, plasmid, vector and gene			
BIO Can describe what tissue culture is and why it is a useful technique			

Biology Only Paper 2 Higher Revision Checklist

BIO Can describe what cutting is			
BIO Can describe the process of embryo transplants			
BIO Can describe the process of adult cell cloning			
B15 Genetics and Evolution	**Analysis**	**Revised**	☺
BIO Can describe how Darwin came up with his theory of natural selection			
BIO Can describe how other scientists influenced Darwin prior to him formulating his theory			
BIO Can name the book Darwin published in 1859 and suggest why it was so controversial			
BIO Can describe some of the evidence Darwin had to support his theory at the time of publishing his book			
BIO Can describe later evidence we now have that Darwin did not that further supports his theory of natural selection			
BIO Can describe the theory put forward by Jean-Baptiste Lamarck and compare how it differs to Darwin's			
BIO Can describe why Alfred Russel Wallace prompted Darwin to publish his book			
BIO Can define what a species is			
BIO Can describe Wallace's theory of speciation and how new species are formed			
BIO Can describe the work of Gregor Mendel and describe it's impact on our understanding of genetics			
BIO Can explain why the importance of Mendel's discoveries was not recognised until after his death			
Can describe what a fossil is and how they are formed			
Can explain why we do not have much evidence of early forms of life			
Can explain how the fossil record provides evidence for evolution			
Can define the term extinction			
Can describe factors which can contribute to the extinction of a species			
Can explain why bacteria evolve quickly			
Can describe how antibiotic resistance develops through natural selection			
Can explain how antibiotic resistance in bacteria provides evidence for evolution			
Can describe what MRSA is			
Can describe ways to slow down the evolution of antibiotic resistant bacteria			
Can explain why we classify organisms			
Can describe Carl Linnaeus' classification system: KPCOFGS			
Can explain what the binomial system of naming organisms is			
Can explain why classification systems have developed over the years since Linnaeus			
Can describe the 'three-domain system' by Carl Woese			
Can interpret evolutionary trees to extract information about how organisms have changed over time			
B16 Adaptation, Interdependence and Competition	**Analysis**	**Revised**	☺
Can define the terms: organism, habitat, population, community and ecosystem and suggest how they relate to each other			

Biology Only Paper 2 Higher Revision Checklist

Can state factors organisms will compete for in a habitat			
Can define the term interdependence and why it is important in a community of organisms			
Can describe what an abiotic factor is and give examples			
Can describe what a biotic factor is and give examples			
Can identify and explain adaptations organisms have for the habitat they live in			
Can describe whether an adaptation is behavioural, structural or functional			
Can describe what an extremophile is and give an example			
B17 Organising an Ecosystem	**Analysis**	**Revised**	☺
Can define the term producer in a food chain			
Can define the term primary, secondary and tertiary consumer and identify them in food chains			
Can interpret predator-prey cycle graphs and describe what is happening at different points			
Can describe how to use a quadrat to determine the distribution and abundance of species in an area			
Can describe how to use a transect to determine the distribution and abundance of species in an area			
Can calculate mean, median and mode for sampling data from quadrats and transects			
Can measure population size using sampling techniques and plan an investigation into the effect of a factor on species distribution (RP9)			
Can describe the main stages of the water cycle			
Can describe how carbon is cycled and the role of plants, animals and microorganisms in this			
Can interpret and explain processes in diagrams of the carbon and water cycles			
BIO Can explain how temperature, water and oxygen availability affect the rate of decay			
BIO Can calculate rate changes of decay			
BIO Can plot graphs showing rates of decay and select appropriate scales and axes			
BIO Can describe what composting is and suggest how the optimum conditions for decay are provided by farmers and gardeners			
BIO Can describe what gas anaerobic decay produces and how we can use it in biogas generators			
BIO Can plan an investigation into the effect of temperature on the rate of decay of fresh milk by measuring pH change (RP10)			
BIO Can evaluate the impact of temperature changes, availability of water and composition of atmospheric gases on the distribution of species			
BIO Can identify whether these changes are seasonal, geographic or caused by human interaction			
B18 Biodiversity and Ecosystems	**Analysis**	**Revised**	☺
Can define the term biodiversity			
Can explain why having high biodiversity in an ecosystem is important in keeping it stable			
Can describe the human activities that have a negative impact on global biodiversity			
Can describe what steps we can take to reduce this negative impact			

Biology Only Paper 2 Higher Revision Checklist

Can describe the impact on resources that a rapidly growing human population will have and why levels of pollution will increase			
Can describe how pollution occurs in water, on land and in the air			
Can explain how pollution reduces biodiversity			
Can explain how humans reduce the amount of land available to other organisms			
Can describe what a peat bog is			
Can explain how the burning of peat as a fuel contributes to global warming			
Can describe what deforestation is and why it happens			
Can explain how deforestation can contribute to global warming			
Can describe what some of the biological consequences of global warming can be			
Can explain why global warming is not fully accepted as a theory by everyone			
Can describe ways in which humans attempt to conserve high levels of biodiversity			
Can explain why humans should try to conserve high levels of biodiversity			
BIO Can describe what trophic levels are in a food chain			
BIO Can describe what an apex predator is			
BIO Can describe how decomposers break down dead plant and animal matter			
BIO Can describe what a pyramid of biomass represents			
BIO Can construct accurate pyramids of biomass from data			
BIO Can explain how biomass is lost between different trophic levels			
BIO Can explain why only 1% of light energy that hits the Earth is transferred into food chains			
BIO Can explain why only about 10% of biomass is transferred on to the next trophic level			
BIO Can calculate efficiency of biomass transfers			
BIO Can link this efficiency to explain how it effects the numbers of organisms at each trophic level			
BIO Can define the term food security			
BIO Can describe biological factors that threaten food security around the world			
BIO Can explain why sustainable methods of food production must be used			
BIO Can describe what intensive farming is and how it reduces energy transfer into the environment			
BIO Can evaluate modern farming techniques and describe why people may object to them ethically			
BIO Can explain why it is important to maintain fish stocks			
BIO Can explain how humans can help maintain fish stocks			
BIO Can describe how we could use genetic modification to meet the demands of a growing human population			
BIO Can describe how to produce mycoprotein and how this could provide food			