



Personalised Learning Checklist

WJEC (Double Award) Biology 2 – Unit 4: Topics 4.1-4.8

Topic	Student Checklist	R	A	G
Topic 4.1 Classification and Biodiversity	Describe how living organisms are grouped into plants (flowering & non-flowering) and animals (invertebrates and vertebrates)			
	State how organisms are be classified using their features, behaviour and DNA. Organisms can be grouped into Kingdom, Phylum, Class, Order, Genus and species			
	<i>State an organism's name in Latin using their Genus and Species e.g. Homo Sapiens</i>			
	Describe a range of morphological and behavioural adaptations			
	Describe ways organisms compete for resources using intraspecific and interspecific			
	Explain the term biodiversity and how we can protect biodiversity			
	Describe how to use quadrats to investigate abundance of species			
	Use the equation mark release recapture to estimate population size			
	State how biological control might be used explain the impact on the environment			
	<i>Spec prac: Investigation into the distribution and abundance of organisms</i>			
Topic 4.2 Cell division and stem cells	Describe the structure of a chromosomes and how genes are arranged			
	Describe the steps in mitosis and meiosis			
	State what is produced in mitosis and meiosis			
	Compare mitosis and meiosis			
	Explain how mitosis can result in cancer			
	State the word equation for anaerobic respiration			
	Describe the purpose of the respiratory system			
	Label key structures in the respiratory system			
	Explain what stems are and examples of where stem cells can be found in humans			
Discuss the benefits and issues with using stem cells to treat damaged or diseased tissue.				
Topic 4.3 DNA and inheritance	Describe the full structure of DNA to include bases A,T,C,G (adenine, thymine, cytosine and guanine)			
	State that DNA gives the order of different amino acids to put together to form a protein			
	Describe the complementary base pairing between bases A=T and C=G			
	Describe 'DNA profiling' and be able to recognise the pattern of banding			
	Describe the uses of 'DNA profiling' e.g. in criminal cases, paternity cases etc			
	Discuss the benefits of 'DNA profiling'			

	State that DNA is used to determine inherited characteristics.			
	Use the term allele- an alternative (different) form of a gene. <i>Remember every gene is in pairs</i>			
	Use a range of genetic terms; gene, allele, dominant, recessive, homozygous, heterozygous, genotype, phenotype, f1, f2, selfing			
	Use a punnet square to show inheritance			
	Explain that many features are controlled by more than 1 gene			
	Show how sex is determined using a punnet square			
	Describe genetic modification			
	Describe variation between individuals of the same species			
	Use the terms discontinuous and continuous variation			
	Compare sexual and asexual reproduction			
	Describe how DNA can be mutated			
	Discuss the genetic condition Cystic fibrosis, to include: Symptoms How it is inherited Use punnet square to show inheritance Use of gene therapy to treat			
Topic 4.4 Variation and Evolution	Describe the steps in natural selection			
	Describe the process of evolution through inheritance and natural selection			
	Understand that both Charles Darwin and Alfred Russel Wallace described the process of evolution through natural selection			
	Give examples of natural selection that we can see today: Antibiotic resistance in bacteria Pesticide resistance Warfarin resistance in rats			
	Describe the importance of understanding the human genome			
	<i>Spec prac: investigation into variation in organisms</i>			
	Define how the body detects stimuli (change in the environment)			
	Describe the parts of the central and peripheral nervous system			
	Describe a reflex action and why it is important			
	Describe the reflex arc and be able to label a reflex arc diagram			
Topic 4.5 Response and Regulation	Describe homeostasis			
	Explain the body's response to a change in glucose levels in the blood			
	State how to test urine for glucose using the Benedict's test			
	Describe the 2 types of diabetes, the cause of each and how each might be treated.			
	Label a diagram of the skin to include sweat gland, sweat duct, sweat pore, hair, erector muscle and blood vessels			
	Explain how the structures in the skin control temperature			
	Explain negative feedback using the examples of glucose and the skin			

	State the meaning of the term drug			
	Discuss the effect that lifestyle may have on health, to include; alcohol and drug abuse and the relationship between lifestyle and diabetes			
	<i>Spec prac: Investigation into factors affecting reaction time</i>			
	Discuss the positive role of micro-organisms and negatives: pathogens			
	What are pathogens?			
	Describe and label the structure of bacteria and viruses			
	State how micro-organisms can be spread			
	Explain how the body can defend itself from disease. To include: Skin Blood clots Phagocytes Lymphocytes which produce antibodies			
Topic 4.6 Disease, defence and treatment	Describe the process of vaccination			
	Describe the process of creating memory cells after vaccination			
	Describe the role of antibiotics			
	Describe how the bacterium MRSA has developed and give ways in which it can be controlled			
	A basic understanding of how some conditions can be prevented			
	Describe how new drugs are developed			