

SB5: **Health Disease and Development of Medicines (Paper 1)**

Lesson	Objectives Tracker Sheet	Date covered	I know this well	I need to do more work on this
SB5a Health and disease	B5.1 Describe health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, as defined by the World Health Organization (WHO)			
	B5.2 Describe the difference between communicable and non-communicable diseases.			
	B5.3 Explain why the presence of one disease can lead to a higher susceptibility to other diseases			
SB5b Non-communicable diseases	B5.23 Describe that many non-communicable human diseases are caused by the interaction of a number of factors including cardiovascular diseases, many forms of cancer, some lung and liver diseases and diseases influenced by nutrition.			
	B5.24 Explain the effect of lifestyle factors on non-communicable diseases at local, national and global levels, including: diet on malnutrition, alcohol on liver diseases.			
SB5c Cardiovascular diseases	B5.24 Explain the effect of lifestyle factors on non-communicable diseases at local, national and global levels, including: exercise and diet on obesity, including BMI and waist : hip calculations smoking on cardiovascular diseases.			
	B5.25 Evaluate some different treatments for cardiovascular disease including: <ul style="list-style-type: none"> • life-long medication • surgical procedures • lifestyle changes. 			
SB5d Pathogens	B5.4 Describe a pathogen as a disease-causing organism including viruses, bacteria, fungi and protists.			
	B5.5 Describe some common infections, including: <ul style="list-style-type: none"> cholera (bacteria) causes diarrhoea tuberculosis (bacteria) causes lung damage chalara ash dieback (fungi) causes leaf loss and bark lesions malaria (protists) causes damage to blood and liver 			

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	HIV (virus) destroys white blood cells, leading to the onset of AIDS.			
SB5e Spreading pathogens	B5.6 Explain how pathogens are spread and how this spread can be reduced or prevented, including: cholera (bacteria) – water tuberculosis (bacteria) – airborne chalara ash dieback (fungi) – airborne malaria (protists) – animal vectors.			
SB5f Virus life cycles	B5.7B Describe the lifecycle of a virus, including lysogenic and lytic pathways.			
	B5.19B Calculate cross-sectional areas of bacterial cultures and clear agar jelly using πr^2			
SB5g Plant defences	B5.9B Describe how some plants defend themselves against attack from pests and pathogens by physical barriers, including the leaf cuticle and cell wall.			
	B5.10B Describe how plants defend themselves against attack from pests and pathogens by producing chemicals, some of which can be used to treat human diseases or relieve symptoms.			
	B5.17B Explain the aseptic techniques used in culturing microorganisms in the laboratory, including the use of an autoclave to prepare sterile growth medium and Petri dishes, the use of sterile inoculating loops to transfer microorganisms and the need to keep Petri dishes and culture vials covered.			
SB5h Plant diseases	B5.11B H Describe different ways plant diseases can be detected and identified, in the lab and in the field, including the elimination of possible environmental causes, distribution analysis of affected plants, observation of visible symptoms and diagnostic testing to identify pathogens.			
SB5i Physical and chemical barriers	B5.8 Explain how sexually transmitted infections (STIs) are spread and how this spread can be reduced or prevented, including: Chlamydia (bacteria) HIV (virus).			
	B5.12 Describe how the physical barriers and chemical defences of the human body provide protection from pathogens, including: physical barriers including mucus, cilia and skin			

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	chemical defence including lysozymes and hydrochloric acid.			
SB5j The immune system	B5.13 Explain the role of the specific immune system of the human body in defence against disease, including: exposure to pathogen the antigens trigger an immune response which causes the production of antibodies the antigens also trigger production of memory lymphocytes the role of memory lymphocytes in the secondary response to the antigen.			
	B5.14 Explain the body's response to immunisation using an inactive form of a pathogen.			
SB5k Antibiotics	B5.16 Explain that antibiotics can only be used to treat bacterial infections because they inhibit cell processes in the bacterium but not the host organism.			
	B5.20 Describe that the process of developing new medicines, including antibiotics, has many stages including discovery, development, preclinical and clinical testing.			
SB5k Antibiotics – Core Practical	Core Practical			
SB5l Monoclonal antibodies	B5.21B H Describe the production of monoclonal antibodies, including: use of lymphocytes which produce desired antibodies but do not divide production of hybridoma cells hybridoma cells produce antibodies as they divide.			
	B5.22B H Explain the use of monoclonal antibodies, including: in pregnancy testing in diagnosis including locating the position of blood clots and cancer cells and in treatment of diseases including cancer the advantages of using monoclonal antibodies to target specific cells compared to drug and radiotherapy treatments.			