GCSE (9-1) Biology

Health, disease and the development of medicines

Specification/Revision Checklist



Checklist. I can ….

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| --- | --- | --- | --- | --- | --- |
| Reference | Description | I understand this | I need to check this | I need help with this | Revised  [http://www.clipartbest.com/cliparts/nTE/64d/nTE64d8TA.png](http://www.google.co.uk/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwiv6I6g1sfKAhVFvRoKHRFoCQwQjRwIBw&url=http://www.clipartbest.com/powerpoint-check-mark-symbol&psig=AFQjCNE2-K8HbMWKNvaBznntFTbUu74vpg&ust=1453904435498135) |
| 5.1 | 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 Organisation (WHO) |  |  |  |  |
| 5.2 | Describe the difference between communicable and non-communicable diseases |  |  |  |  |
| 5.3 | Explain why the presence of one disease can lead to a higher susceptibility to other diseases |  |  |  |  |
| 5.4 | Describe a pathogen as a disease-causing organism, including viruses, bacteria, fungi and protists |  |  |  |  |
| 5.5 | Describe some common infections, including:   1. Cholera (bacteria) causes diarrhoea 2. Tuberculosis (bacteria) causes lung damage 3. Chalara ash dieback (fungi) causes leaf loss and bark lesions 4. Malaria (protists) causes damage to blood and liver 5. HIV (virus) destroys white blood cells, leading to the onset of AIDS 6. Stomach ulcers caused by Helicobacter (bacteria) 7. Ebola (virus) causes haemorrhagic fever |  |  |  |  |
| 5.6 | Explain how pathogens are spread and how this spread can be reduced or prevented, including:   1. Cholera (bacteria) - water 2. Tuberculosis (bacteria) - airborne 3. Chalara ash dieback (fungi) - airborne 4. Malaria (protists) – animal vectors 5. Stomach ulcers caused by Helicobacter (bacteria) – oral transmission 6. Ebola (virus) – body fluids |  |  |  |  |
| 5.7B | Describe the lifecycle of a virus, including lysogenic and lytic pathways. |  |  |  |  |
| 5.8 | Explain how sexually transmitted infections (STIs) are spread and how this spread can be reduced or prevented, including:   1. *Chlamydia* (bacteria) 2. HIV (virus) |  |  |  |  |
| 5.9B | Describe how some plants defend themselves against attack from pests and pathogens by  physical barriers, including the leaf cuticle and cell wall. |  |  |  |  |
| 5.10B | 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. |  |  |  |  |
| **5.11B** | **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.** |  |  |  |  |
| 5.12 | Describe how the physical barriers and chemical defences of the human body provide protection from pathogens, including;  a) physical barriers including mucus, cilia and skin  b) chemical defence, including lysozymes and hydrochloric acid. |  |  |  |  |
| 5.13 | Explain the role of the specific immune system of the human body in defence against disease, including:  a) exposure to pathogen  b) the antigens trigger an immune response which causes the production of antibodies  c) the antigens also trigger production of memory lymphocytes  d) the role of memory lymphocytes in the secondary response to the antigen. |  |  |  |  |
| 5.14 | Explain the body’s response to immunisation using an inactive form of a pathogen. |  |  |  |  |
| 5.15B | Discuss the advantages and disadvantages of immunisation, including the concept of herd immunity. |  |  |  |  |
| 5.16 | Explain that antibiotics can only be used to treat bacterial infections because they inhibit cell processes in the bacterium but not the host organism. |  |  |  |  |
| 5.17B | 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. |  |  |  |  |
| 5.18B | *Core Practical: Investigate the effects of antiseptics, antibiotics or plant extracts on microbial cultures*. |  |  |  |  |
| 5.19B | Calculate cross-sectional areas of bacterial cultures and clear agar jelly using πr2. |  |  |  |  |
| 5.20 | Describe that the process of developing new medicines, including antibiotics, has many stages including discovery, development, preclinical and clinical testing. |  |  |  |  |
| **5.21B** | **Describe the production of monoclonal antibodies, including:**   1. **use of lymphocytes which produce desired antibodies but do not divide** 2. **production of hybridoma cells** 3. **hybridoma cells produce antibodies as they divide.** |  |  |  |  |
| **5.22B** | **Explain the use of monoclonal antibodies, including:**   1. **in pregnancy testing** 2. **in diagnosis including locating the position of blood clots and cancer cells and in treatment of diseases including cancer** 3. **the advantages of using monoclonal antibodies to target specific cells compared to drug and radiotherapy treatments** |  |  |  |  |
| 5.23 | 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. |  |  |  |  |
| 5.24 | Explain the effect of lifestyle factors on non-communicable diseases at local, national and global levels, including:  a)exercise and diet on obesity and malnutrition, including BMI and waist : hip calculations, including the BMI calculation  b) diet on malnutrition  c) alcohol on liver diseases. |  |  |  |  |
| 5.25 | Evaluate some different treatments for cardiovascular disease including:  a) life-long medication  b) surgical procedures  c) lifestyle changes. |  |  |  |  |