| Paper 1 | | | |
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| **B1 Cell Structure and Transport**  **Specification pages 16-18 and 22-23** | **Analysis** | **Revision** | **☺** |
| Can describe the difference between eukaryotic and prokaryotic cells. |  |  |  |
| Can identify the scale and size of cells including the use of orders of magnitude. |  |  |  |
| Can recognise, draw and label plant and animal cells. |  |  |  |
| Can describe the functions of organelles in plant and animal cells. |  |  |  |
| Can judge the relative size of organelles in images from a scale. |  |  |  |
| *Can use a light microscope to observe, draw and label cells (RP1).* |  |  |  |
| Can give examples of specialised plant and animal cells. |  |  |  |
| Can explain how the structure of specialised plant and animal cells relates to their function. |  |  |  |
| Can describe how microscopy techniques have development over time. |  |  |  |
| Can explain the advantages of an electron microscope over a light microscope. |  |  |  |
| Can explain how electron microscopy has improved our understanding of cells. |  |  |  |
| Can calculate the magnification, real size and image size using a formula. |  |  |  |
| Can describe the process of diffusion. |  |  |  |
| Can identify substances which move by the process of diffusion, and state where they move about in the human body. |  |  |  |
| Can explain the different factors which affect the rate of diffusion. |  |  |  |
| Can calculate and compare surface area to volume ratios in different organisms. |  |  |  |
| Can explain why single celled organisms do not require specialist exchange surfaces whilst multi cellular organisms do. |  |  |  |
| Can describe how the small intestine and lungs in mammals, gills in fish, and roots in leaves in plants are adapted for exchanging materials. |  |  |  |
| Can explain how different adaptations increase the effectiveness of the exchange of materials. |  |  |  |
| Can describe the process of osmosis. |  |  |  |
| Can recognise, draw and interpret diagrams which show the process of osmosis taking place. |  |  |  |
| Can calculate percentage gain and loss of mass of plant tissues during osmosis. |  |  |  |
| Can plot and interpret graphs showing osmosis taking place. |  |  |  |
| *Can investigate the effect of changing solute concentrations on the mass of plant tissue (RP3).* |  |  |  |
| Can describe the process of active transport. |  |  |  |
| Can give examples of substances which move by active transport in plants and animals. |  |  |  |
| Can compare and contrast the process of diffusion, osmosis and active transport. |  |  |  |
| **B2 Cell Division**  **Specification pages 17 and 20-21** | **Analysis** | **Revision** | **☺** |
| Can identify the location of chromosomes and genes. |  |  |  |
| Can describe the three main stages of the cell cycle. |  |  |  |
| Can describe what happens during mitosis. |  |  |  |
| Can explain the importance of mitosis and give examples of when it might occur. |  |  |  |
| Can explain the importance of cell differentiation. |  |  |  |
| Can explain the differences between cell differentiation in plants and animals. |  |  |  |
| Can describe what a stem cell is. |  |  |  |
| Can describe the different functions of stem cells in embryos, adult animals and plants. |  |  |  |
| Can explain the differences between the action of stem cells in embryos, adult animals and plants. |  |  |  |
| Can name some conditions which could potentially be treated by stem cells. |  |  |  |
| Can describe the use of stem cells in therapeutic cloning. |  |  |  |
| Can describe the benefits of producing clones of plants using stem cells from plant meristems. |  |  |  |
| Can evaluate the benefits, risks social issues and ethical issues of the use of stem cells in medicine. |  |  |  |
| **B3 Organisation and the Digestive System**  **Specification pages 24-25** | **Analysis** | **Revision** | **☺** |
| Can state the different levels of organisation. |  |  |  |
| Can arrange the different levels of organisation into order. |  |  |  |
| Can label a diagram of the digestive system. |  |  |  |
| Can describe the role of different organs in the digestive system. |  |  |  |
| Can state where the enzymes carbohydrase, protease and lipase are produced and describe what they do. |  |  |  |
| Can describe what the products of digestion are used for in the body. |  |  |  |
| Can explain the lock and key theory of enzyme action. |  |  |  |
| Can describe and explain the effects of changing temperature and pH on enzyme action. |  |  |  |
| Can describe the role of bile and explain how it speeds up digestion of lipids. |  |  |  |
| *Can state the reagents used in food tests for starch, glucose, protein and fat and recall what a positive result looks like (RP4).* |  |  |  |
| *Can use a continuous sampling technique to investigate the effects of pH on enzyme action (RP5).* |  |  |  |
| **B4 Organising Animals and Plants**  **Specification pages 26-27 and 29-30** | **Analysis** | **Revision** | **☺** |
| Can describe the role of the heart. |  |  |  |
| Can label a diagram of the circulatory system. |  |  |  |
| Can describe the structure of the heart including the major blood vessels going in and out of it. |  |  |  |
| Can describe the role of the pacemaker. |  |  |  |
| Can describe and explain the differences between arteries, veins and capillaries. |  |  |  |
| Can carry out calculations of blood flow from rate and volume. |  |  |  |
| Can recognise, and recall the names of, the different components of blood. |  |  |  |
| Can describe the roles of the different components of blood and explain how they are adapted for their function. |  |  |  |
| Can describe the causes and effects of coronary heart disease (CHD). |  |  |  |
| Can describe and evaluate the different treatments for coronary heart disease (CHD). |  |  |  |
| Can describe and evaluate the different treatments for a faulty heart valve. |  |  |  |
| Can describe and evaluate the use of artificial hearts and transplant hearts. |  |  |  |
| Can label a diagram of the respiratory system. |  |  |  |
| Can describe the structure of the lungs. |  |  |  |
| Can recall and describe the function of different tissues found in a plant. |  |  |  |
| Can label a diagram of a leaf. |  |  |  |
| Can describe the roles of the different parts of a leaf. |  |  |  |
| Can describe how root hair cells, xylem and phloem cells are adapted to their functions. |  |  |  |
| Can describe and explain how factors such as temperature, light intensity, humidity and air movement affect the rate of transpiration. |  |  |  |
| Can describe how the rate of transpiration can be measured. |  |  |  |
| Can carry out calculations of transpiration from rate and volume. |  |  |  |
| Can explain the distribution of stomata on different sides of the leaf. |  |  |  |
| Can explain how stomata and guard cells control transpiration and gas exchange. |  |  |  |
| Can compare and contrast transpiration and translocation. |  |  |  |
| **B5 Communicable Diseases**  **Specification pages 19, 31-33 and 36-37** | **Analysis** | **Revised** | **☺** |
| Can describe the difference between communicable and non-communicable diseases. |  |  |  |
| Can give examples of types of pathogen which cause disease. |  |  |  |
| Can describe some of the ways that pathogens can spread. |  |  |  |
| Can explain how bacteria and viruses can make us feel ill. |  |  |  |
| Can describe the effects of the viral diseases measles, HIV and tobacco mosaic virus (TMV) and explain how they are spread and treated. |  |  |  |
| Can describe the effects of the bacterial diseases salmonella and gonorrhoea and explain how they are spread and treated. |  |  |  |
| BIO Can describe how bacteria multiply by binary fission. |  |  |  |
| BIO Can describe how the action of antiseptics and antibiotics are tested on an agar gel plate. |  |  |  |
| *BIO Can measure zones of inhibition on agar gel plates to investigate the effectiveness of antiseptics or antibiotics (RP2)* |  |  |  |
| BIO Can describe how to prepare an uncontaminated culture of bacteria on an agar gel plate. |  |  |  |
| BIO Can calculate the cross sectional areas of colonies of bacteria on an agar gel plate. |  |  |  |
| BIO Can calculate the estimated number of bacteria in a population after a given time. |  |  |  |
| **BIO Can express the estimated number of bacteria in a population in standard form.** |  |  |  |
| Can describe the effects of the fungal disease rose black spot and explain how it is spread and treated. |  |  |  |
| Can describe the effects of the protest disease malaria and explain how it is spread and treated. |  |  |  |
| Can describe the non-specific defence mechanisms of the human body found on/in the skin, nose, trachea, bronchi and stomach. |  |  |  |
| Can explain the role of the immune system in the defence against disease. |  |  |  |
| Can describe the role of white blood cells in the immune system. |  |  |  |
| BIO Can give examples of how plants can be infected by pathogens and insects. |  |  |  |
| **BIO Can describe how plant diseases can be detected in a plant.** |  |  |  |
| **BIO Can describe how plant diseases can be identified.** |  |  |  |
| BIO can describe how plants can be damaged by mineral ion deficiencies such as nitrate and magnesium deficiency. |  |  |  |
| BIO can describe physical, chemical and mechanical adaptations that plants have to defend themselves against microorganisms and animals. |  |  |  |
| **B6 Preventing and Treating Disease**  **Specification pages 33-35** | **Analysis** | **Revised** | **☺** |
| Can describe the role of vaccinations. |  |  |  |
| Can describe and explain how vaccinations work. |  |  |  |
| Can describe the action and limitations of antibiotics. |  |  |  |
| Can explain why the emergence of antibiotic resistant strains of bacteria is a concern. |  |  |  |
| Can describe the role of painkillers. |  |  |  |
| Can recall that many traditional drugs were obtained from plants and microbes but modern drugs may be synthesised. |  |  |  |
| Can explain why new drugs are tested. |  |  |  |
| Can describe the stages in the development of a new drug including the stages of preclinical and clinical testing. |  |  |  |
| **BIO Can describe what monoclonal antibodies are.** |  |  |  |
| **BIO Can describe how monoclonal antibodies are produced.** |  |  |  |
| **BIO Can describe how monoclonal antibodies can be used.** |  |  |  |
| **BIO Can evaluate the advantages and disadvantages of monoclonal antibodies.** |  |  |  |
| **B7 Non-Communicable Diseases**  **Specification pages 27-29** | **Analysis** | **Revised** | **☺** |
| Can describe the relationship between disease and health. |  |  |  |
| Can recall some of the causes of ill health, including diet, stress and life situations. |  |  |  |
| Can describe how health can be both physical and mental. |  |  |  |
| Can explain how different causes of ill health can interact, such as poor physical health leading to poor mental health. |  |  |  |
| Can interpret diagrams and graphs show incidences of disease, including identifying correlations. |  |  |  |
| Can explain the impact that ill health has on an individual, community and global scale. |  |  |  |
| Can describe the effects of smoking on health, including the health of unborn babies. |  |  |  |
| Can describe the effects of poor diet and lack of exercise on health. |  |  |  |
| Can describe the effects of excessive alcohol on health, including the health of unborn babies. |  |  |  |
| Can describe the effect of other carcinogens such as ionising radiation on health. |  |  |  |
| Can explain what cancer is and identify risk factors which increase the risk of developing it. |  |  |  |
| Can describe the difference between benign and malignant tumours. |  |  |  |
| **B8 Photosynthesis**  **Specification pages 37-38** | **Analysis** | **Revised** | **☺** |
| Can recall the word and symbol equations for photosynthesis. |  |  |  |
| Can describe what the process of photosynthesis is and what it is needed for. |  |  |  |
| Can explain the effects of changing light intensity, temperature, carbon dioxide concentration and amount of chlorophyll present on the rate of photosynthesis. |  |  |  |
| Can draw and interpret graphs which demonstrate the effects of different factors on the rate of photosynthesis. |  |  |  |
| **Can explain what a limiting factor is.** |  |  |  |
| **Can identify a limiting factor from a series of graphs.** |  |  |  |
| **Can explain and use the inverse square law when discussing the effects of light intensity on the rate of photosynthesis.** |  |  |  |
| **Can explain how limiting factors are considered when enhancing conditions inside a greenhouse to obtain maximum rate of photosynthesis and greatest profit.** |  |  |  |
| *Can investigate the effects of changing light intensity on the rate of photosynthesis (RP6).* |  |  |  |
| Can describe how the glucose produced in photosynthesis is put to use in the plant. |  |  |  |
| Can recall that in order to produce proteins nitrate ions absorbed from the soil are needed as well as glucose. |  |  |  |
| **B9 Respiration**  **Specification pages 39-40** | **Analysis** | **Revised** | **☺** |
| Can recall the word and symbol equations for aerobic respiration. |  |  |  |
| Can describe what the process of aerobic respiration is and what it is needed for. |  |  |  |
| Can recall the word equation for anaerobic respiration happening in muscles. |  |  |  |
| Can recall the word equation for anaerobic respiration happening in plants and yeast cells and explain the importance of the process of fermentation. |  |  |  |
| Can compare and contrast aerobic respiration with anaerobic respiration happening in muscles, and in plants and yeast cells. |  |  |  |
| Can describe the changes that happen to heart rate, breathing rate and breathing volume when you exercise. |  |  |  |
| Can describe what happens in muscles when they receive insufficient oxygen during exercise. |  |  |  |
| **Can explain what happens to the oxygen debt following exercise.** |  |  |  |
| Can describe what metabolism is. |  |  |  |
| Can describe the chemical reactions which form the process of metabolism. |  |  |  |