Year 7

Science

1 **Biology (1)**	• Identify the cell wall, cell membrane, cytoplasm and nucleus. • Recognise that the cell is the fundamental unit of living organisms. • Identify and label structures of the male and female reproductive systems. • Describe the secondary sexual characteristics associated with puberty.	• Identify and describe the functions of cell wall, cell membrane, cytoplasm, nucleus, vacuole and chloroplast. • Explain what an organ is. • Describe the process of Fertilisation, Gestation and Birth. • Describe and explain the adaptations of the Gametes.	• Identify, annotate and explain similarities and differences between plant and animal cells. • Explain how ciliated epithelial cells, nerve cells and root hair cells are adapted to their functions. • Describe and explain the effect of maternal lifestyle on the foetus through the placenta. • Compare the advantages and disadvantages of internal and external fertilisation.
2 **Chemistry (1)**	• Draw simple particle diagrams to represent the states of matter. • Describe a dilution series with respect to water particles. • Describe the differences between atoms, elements, molecules and compounds. • Use chemical symbols for common elements.	• Describe the differences between the physical states of matter. • Suggest the effect of heat on changes between states of matter. • Relate the use of an element to its properties. • Suggest how air is a mixture of atoms, elements, molecules and compounds.	• Describe and explain the changes in state in water with respect to particle theory. • Explain the role of air particles on air pressure. • Identify elements, mixtures and compounds from descriptions and particle diagrams. • Use and understand word equations for chemical reactions.
3 **Physics (1)**	• Describe what an electric current is and state that it is measured in Amperes. • Describe what potential difference is and state that it is measured in volts. • Draw series and parallel circuits and state the expected current in all parts of the circuit. • State that some foods contain more energy than others. • Describe the difference between a renewable and non-renewable energy source.	• Describe the differences in resistance between conducting and insulating materials. • Explain why metals are good conductors. • State that a higher resistance makes it more difficult for the current to flow. • Describe what resistance is and state that it is measured in ohms. • State all 9 energy forms and that energy must always be conserved. • Compare renewable energy resources by considering their advantages and disadvantages.	• Calculate resistance using R = V/I formulae • Describe how the change in the current will impact on the bulbs in the series/parallel circuits. • Explain how changing the way we use energy sources impacts on the environment. • Describe how fossil fuels are formed. Explain how the carbon was locked up in the fossil fuels.

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4 **Biology (2)**	• Produce a simple food chain and use the words producer and consumer. • Describe and explain the physical adaptations of animals and plants to hot and cold environments. • Describe the functions of different bones in the skeleton. • Describe how different drugs affect the body.	• Explain how heredity leads to variation between individuals of the same species. • Use pyramids of numbers to describe how energy is lost in a food chain. • Describe what happens during gas exchange in the lungs. • Describe how muscles in the gas exchange system allow ventilation.	• Suggest the effect of either removing or adding an organism from a food web. • Suggest why species have evolved named mechanisms to deal with the daily and seasonal effect of the environment on their lifestyles. • Explain how antagonistic pairs of muscles operate and are controlled to allow movement. • Describe the functions of the different parts of blood and where the different parts are made.
5 **Chemistry (2)**	• Identify the solvent and solute in a solution. • Describe the processes of filtering, distillation and evaporating. • Recognise some common hazard symbols. • Name some common examples of acids and alkalis.	• Describe the effects of different variables on solubility. • Describe the difference between evaporation and boiling. • Describe how indicators can be used to test for acidic, alkaline and neutral solutions. • Describe what happens during neutralisation.	• Explain how chromatography works and draw conclusions from results of chromatography. • Describe how soluble substances can form solutions. • Write word equations for neutralisation reactions. • Describe how pH can be measured, what the pH scale is and how the pH scale is useful.
6 **Physics (2)**	• Draw arrows to show how the forces are acting on an object. • Use the speed = distance/time formulae. • Describe what the frequency of a wave means and state that frequency is measured in Hertz. • Describe how a sound wave travels in a medium.	• Describe how balanced/unbalanced forces are needed to change the motion of an object. • Interpret a distance - time graph. • Explain how humans detect sound waves using the structure of the ear. • Explain why the speed of sound is different in solids, liquids and gases.	• Calculate speed using a distance - time graph. • Describe Hooke's law as an example of a force-extension linear relationship. • Explain how some animals use echolocation. • Describe what affects the wavelength and amplitude have on the sound that can be heard.