

Year 9			
1	<p>Biology 5 State what chromosomes are made of. State the number of pairs of chromosomes in most human cells. Describe where genes are found. Describe how genes control characteristics (in terms of containing instructions). Describe how gas exchange occurs in plants. Describe the adaptations of leaves and plant cells for photosynthesis. Describe the test for starch. Explain the need for the different resources by a seed as it germinates.</p>	<p>Biology 5 Describe the roles played by Watson, Crick, Franklin and Wilkins in the discovery of the structure of DNA. Use a model to illustrate the relationship between DNA, chromosomes, genetic information and genes. Explain how wilting occurs. Explain how the features of leaves and plant cells are adaptations for photosynthesis. Explain how roots and stems are adapted for their function. Explain the importance of nitrates to plants.</p>	<p>Biology 5 Evaluate the evidence for suggested physical and behavioural adaptations of extinct species. Explain how natural selection can lead to evolution. Explain how evidence from fossils supports Darwin's theory. Use a knowledge of diffusion to explain how different conditions cause different rates of transpiration. Describe the synthesis of starch and proteins in plants (only in terms of the monomers involved). Recall some functions of different proteins.</p>
2	<p>Chemistry 5 State what is meant by a ceramic, polymer and composite material and give some examples. Recall how the manufacture and use of materials has an impact on the environment including global warming, acid rain and the advantages of recycling. Recall examples of physical and chemical changes including the reaction of metals with water, oxygen and acid and displacement reactions</p>	<p>Chemistry 5 Describe the properties and uses of ceramics, polymers and composite materials. Explain how the manufacture and use of materials has an impact on the environment including global warming, acid rain and the advantages of recycling. Use information from the reactivity series of metals to place metals in an order of reactivity and use this to explain why a displacement reaction may or may not occur.</p>	<p>Chemistry 5 Explain the properties of ceramics, polymers and ceramic materials using ideas about atoms and bonding. Analyse data and evaluate methods to reduce pollutant levels in the atmosphere and compare recycling of different materials. Use ideas about reactivity to explain how metals can be extracted and used. Write balanced symbol equations for the reactions of metals with water, oxygen and acids and displacement reactions</p>
3	<p>Physics 5 Recall the two types of charges and their effects on each other. Describe the relationship between resistance and current. Recall ways in which energy can be stored and transferred. Use distance and time data to calculate speed Describe the use of levers as force or distance multipliers.</p>	<p>Physics 5 Explain why a conducting object cannot be given a charge of static electricity. Describe a current as a flow of electrons Use the formula relating voltage, current and resistance. Explain the law of conservation of energy using examples. Plot the motion of objects on a simple graph and explain the object's motion at each point. Use the principle of moments correctly and link with equilibrium.</p>	<p>Physics 5 State what is meant by electric field, and recall the shape and direction of the electric field around a charged object Describe how voltage and energy are linked. Interpret a voltage–current graph for resistors of different values. Link energy stores and transfers with efficiency. Explain the difference between distance and displacement with examples of each. Apply the principle of moments to simple machines and make links with energy transfers.</p>
4	<ul style="list-style-type: none"> • CB1 identify sub-cellular components of cells, describe the importance of enzymes in plant and animal cells & describe how substances move in and out of cells. • C1, describe atomic structure, patterns in the periodic table, ionic and covalent bonding & how to identify properties of substances, make simple chemical calculations • P2, recall, calculate and describe velocity, acceleration and the laws of motion, and describe how to stop a vehicle 	<ul style="list-style-type: none"> • CB1 describe sub-cellular components of cells, explain the importance of enzymes in eukaryotic cells & explain how substances move in and out of cells. • C1, explain atomic structure & isotopes, patterns in the periodic table, ionic and covalent bonding & properties of ionic & covalent substances, make complex chemical calculations • P2, recall, calculate and explain velocity, acceleration, momentum, circular motion and the laws of motion, and explain how to stop a vehicle 	<ul style="list-style-type: none"> • CB1, compare the functioning of sub-cellular components, explain the importance of enzymes in all cells & explain how molecules move within and between cells. • C1, explain atomic structure & isotopes & calculate RAM, predict electron configurations in the periodic table, ionic and covalent bonding & deduce properties of ionic & covalent substances, make chemical calculations using the mole. • P2, recall, calculate, manipulate and explain velocity, acceleration, momentum, and the laws of motion, and explain how to stop a vehicle
5	<ul style="list-style-type: none"> • CB2, describe the process of mitosis, describe how cells become specialised & describe the nervous system • C2a, describe the arrangement, movement & energy of particles during changes of state • P3, recall, calculate and describe ΔGPE, KE, efficiency, the conservation of energy, energy resources 	<ul style="list-style-type: none"> • CB2, explain the importance of mitosis, explain the importance of stem cells & explain the structure of the reflex arc • C2a, explain the arrangement, movement & energy of particles during changes of state, describe how to identify a pure and mixed substance; • P3, recall, calculate and explain ΔGPE, KE, efficiency, the conservation of energy, energy changes, energy resources 	<ul style="list-style-type: none"> • CB2, explain the importance of mitosis & asexual reproduction, the importance of stem cells & the functioning of the nervous system • C2a, predict the state of a substance from data and explain how to identify a pure and mixed substance using melting points • P3, recall, calculate, manipulate and explain ΔGPE, KE, efficiency, the conservation of energy, energy changes and how efficiency can be increased