



Year 9 Curriculum Grid – 3 teachers

Combined Science

Year/Term	Unit	Intent
Curriculum purpose		<ul style="list-style-type: none"> • Ensure students have a secure understanding of the key concepts of Biology, Chemistry and Physics building on knowledge from KS3. • Encourage students to carry out practical work safely with increasing independent skills. • Enthuse students with a love of the Sciences by incorporating a holistic approach and relating concepts to actions and behaviours.
Autumn	CB1 – Key concepts in Biology CB2 – Cells and control (start) CC1 - States of matter CC2 - Methods of separating and purifying substances CC3 - Atomic structure CP1 - Motion CP2 – Forces and motion	<ul style="list-style-type: none"> • Explain how the structures of eukaryotic and prokaryotic cells are related to their function • Explain the importance of enzymes as biological catalysts • Describe the stages in the cell cycle and the importance of mitosis • Describe the arrangement, movement and the relative energy of particles in each of the three states of matter • Explain the experimental techniques for separation of mixtures • Describe the structure of an atom and isotopes • Explain the difference between vector and scalar quantities • Interpret distance time graphs and velocity time graphs • Recall Newton’s Laws and use them in appropriate situations
Spring	CB2 – Cells and control (continued) CB3 – Genetics CC4 - The periodic table CC5 - Ionic bonding CC6 - Covalent bonding (start) CP3 – Conservation of energy CP4 - Waves	<ul style="list-style-type: none"> • Describe the structures and functions of the nervous system • Outline the structure of DNA and explain its role • Describe the impacts of gene mutations and the outcomes of the Human Genome Project • Describe how Mendeleev arranged the elements in a periodic table • Understand the different aspects of the modern periodic table • Explain how ionic and covalent bonds are formed and the properties shown by these compounds • Describe how energy is transferred between stores of energy • Compare the advantages and disadvantages of energy resources • Define and use appropriate terms associated with waves • Explain uses of ultrasound and infrasound
Summer	CB4 – Natural selection and genetic modification CB1-CB4 revision CC6 - Covalent bonding (continued) CC7 - Types of substance CC1-CC7 revision CP5 – Light and the electromagnetic spectrum CP1-CP5 revision	<ul style="list-style-type: none"> • Describe the evidence for human evolution • Describe the work of Darwin in the development of the theory of evolution by natural selection • Evaluate the benefits and risks of genetic engineering and selective breeding • Describe the structure of simple polymers • Describe the structures of graphite, diamond, fullerenes and graphene and explain their properties • Explain the properties of metals • Explain, with the aid of ray diagrams, reflection and refraction • Recall the order of the continuous electromagnetic spectrum • Describe some uses and dangers of electromagnetic radiation