

Biology					
Big Idea	<b>B1 The cellular basis of life</b> Organisms are made of one or more cells. Multicellular organisms have a hierarchal organization of cells, tissues, organs and organ systems that work together to keep cells alive. Cells need a supply of energy and molecules to carry out life processes.	<b>B2 Heredity and life cycles</b> Each generation of organisms inherits characteristics from the one before, which arise from genetic information stored in the DNA of the genome and are affected by the environment. Organisms grow and develop as they get older; they pass genetic information to their offspring when they reproduce, and the life cycle begins again.	<b>B3 Organisms and their environment</b> All organisms, including humans, depend on, interact with and affect the environments in which they live and other organisms that live there.	<b>B4 Variation, adaptation and evolution</b> There is a great diversity of organisms, living and extinct, with many similarities and differences between them. These differences cause species to evolve by natural selection of individuals better adapted to compete for limited resources when environmental conditions change and the passing of advantageous heritable characteristics to subsequent generations.	<b>B5 Health and disease</b> Organisms must stay in good health to survive and thrive; the health of an individual organism results from interactions between the organism’s body, behaviour, environment and other organisms.
7	<b>B1.1: Cells</b> (Students learn about the 7 life processes, cell structure and function of organelles)	<b>B2.1 Inheritance and the genome</b> (students learn about the structure and function of the genome)	<b>B3.1 Interdependence of organisms</b> (Students learn about food chains and webs)	<b>B4.1 Variation</b> (students learn about the differences within species and the fossil evidence for changes in species over time)	<b>B5.1 Health and disease</b> (Students learn about good and ill health and disease)
8	<b>B1.2 Cells to organ systems</b> (Students learn about cells working together to form tissues, organs and systems)	<b>B2.2 Changes within an organism’s lifetime</b> (students learn about growth through mitosis and life cycles)	<b>B3.2 Ecosystems</b> (Students learn about ecosystem components and dynamics)	<b>B4.2 Classification</b> (Students learn how and why we identify and classify organisms)	<b>B5.2 Human lifestyles and health</b> (Students learn about the importance of health diet and exercise to health)
9	<b>B1.3 Biochemistry</b> (Students learn about processes within cells such as photosynthesis and respiration)	<b>B2.3 Reproduction</b> (Students learn about sexual reproduction, asexual reproduction and contraception)	<b>B3.3 Biodiversity and human impacts</b> (Students learn about biodiversity, conservation and sustainability)	<b>B4.3 Evolution</b> (Students learn about the process of natural selection and how this explains the evolution of species)	<b>B5.3 Infectious disease</b> (Students learn about the transmission of pathogens and preventing infection)
10	<b>CB1</b> Key concepts in Biology <b>CB2</b> Cells and Control	<b>CB3</b> Genetics		<b>CB4</b> Natural Selection and genetic modification	<b>CB5</b> Health, disease and the development of medicines
11	<b>CB6</b> Plant structure and their functions <b>CB8</b> Exchange and transport in animals		<b>CB9</b> Ecosystems and material cycles		<b>CB7</b> Animal coordination, control and homeostasis

Chemistry					
Big Idea	C1 Substances and properties Materials are either made of a single chemical substance or a mixture of substances which have distinctive properties.	C2 Particles and structure All matter is made up of atoms. The collective, structural arrangement and behaviour of the atoms explains the properties of different substances.	C3 Chemical reactions During chemical reactions atoms are rearranged and new substances are formed	C4 Earth chemistry Substances can move between Earth’s atmosphere, hydrosphere, geosphere and biosphere as part of large-scale systems	C5 Dynamic Earth The rocks and landscape around us appear unchanging and permanent, but careful observation can detect the effects of weathering and erosion on exposed rocks, and the laying down of sediments that in the right conditions can be changed into new rock. Longer term processes transform rocks deep underground and bring fresh rock to the surface. Understanding the dynamic Earth helps us to identify and utilize resources it contains and find ways to build a sustainable and environmentally stable future.
7	<b>C1.1 Solutions</b> (Students learn about substances, solutions and separating solutions) <b>C1.2 Solubility</b> (Students compare solubility)	<b>C2.1 Substances and mixtures</b> (Students learn about the particle model of matter, states of matter and particles in solutions) <b>C2.2 Atomic structure</b> (Students learn about the atomic model) <b>C2.3 Elements and compounds</b> (Students learn about atoms, molecules, symbols and formulae)	<b>C3.1 Chemical change</b> (Students learn about formation of new substances) <b>C3.2 Chemical reactions</b> (Students learn about reactions in solution and combustion)	<b>C4.1 Air pollution and the water cycle</b> (Students learn about air quality and water cycle processes)	<b>C5.1 Earth’s resources</b> (Students learn what is in a rick, inside the Earth and how rocks can be made by heating)
8	<b>C3.4 Periodic table</b> (Students learn about the patterns in the periodic table)	<b>C2.4 Evaporation</b> (Students learn to explain what happens during evaporation) <b>C2.5 Chemical change</b> (Students learn about the rearrangement of atoms)	<b>C3.3 Acids and alkalis</b> (Students learn about neutralization and the pH scale)	<b>C4.2 Chemical weathering</b> (Students learn about chemical weathering through acid rain)	<b>C5.2 Weathering and erosion</b> (Students learn about physical weathering and erosion)
9		<b>C2.6 Understanding chemical reactions</b> (Students learn to represent chemical reactions and the conservation of mass)	<b>C3.5 Energy and reactions</b> (Students learn about exothermic and endothermic reactions)		<b>C5.3 Rock changes</b> (Students learn about making rocks by pressure and cementing as well as making fossil fuels)
10	<b>CC2</b> Separating mixtures <b>CC4</b> The periodic table <b>CC5-7</b> Bonding and types of substance	<b>CC1</b> States of matter <b>CC3</b> Atomic structure	<b>CC8</b> Acids and Alkalis <b>CC9</b> Calculations involving masses		<b>CC10-12</b> Obtaining and using metals
11	<b>CC13</b> Groups in the periodic table		<b>CC14</b> Rates of reaction <b>CC15</b> Heat energy changes in chemical reactions	<b>CC17</b> Earth and atmospheric science	<b>CC16</b> Fuels

Physics					
Big Idea	<b>P1 Forces and motion</b> Force is the key to explaining changes in the motion of an object or in its shape. The motion of an object can be explained or predicted if you know the sizes and directions of all the forces that act on it. Understanding forces helps us to predict and control the physical world around us.	<b>P2 Matter</b> The world is made of matter. Anything that can be stored in a container, or weighed, is matter. Scientific ideas can help to explain why a given material behaves as it does, and may help scientists develop new materials with specific properties.	<b>P3 Sound, light and waves</b> Waves are key to explaining how energy can be transferred from one object to another by radiation, even when the objects are not touching, Waves carry information that can be detected by humans or manufactured detectors. Understanding waves helps us to communicate, explore the universe and transfer energy to where we want it.	<b>P4 Electricity and magnetism</b> Matter is held together by electrostatic forces, and these influence chemical changes. Electricity and magnetism initially seem to be distinct phenomena, but are later found to be closely interrelated. Understanding electricity and magnetism helps us to develop our technology and find application that can transform our everyday lives.	<b>P5 Earth in space</b> Earth is the only planet known to have abundant and complex life. Understanding how the Earth and space systems interact, how they affect us and how we affect them is vital for our survival. Exploring our origins and our place in the universe feeds the intrinsic curiosity of humans and develops a sense of wonder.
7	<b>P1.1 Forces</b> (Students learn about what forces do, balanced and unbalanced forces, friction and transfers of energy)	<b>P2.1 Heating and Cooling</b> (Students learn about temperature, thermal conduction and thermal store of energy)	<b>P3.1 Sound and light</b> (Students learn about the production and transmission of sound and the characteristics of light)	<b>P4.1 Circuits</b> (Students learn about making simple series circuits and the basics of current, voltage and static electricity)	<b>P5.1 Solar system and beyond</b> (Students learn about the planets, solar system, gravity, the night sky, stars and galaxies)
8	<b>P1.2 Moving by force</b> (Students learn about changing motion, describing speed and the effects of drag)	<b>P2.2 Floating and sinking</b> (Students learn about density, pressure in fluids and convection)	<b>P3.2 How we see</b> (Students learn about the passive eye model of vision and seeing in colour)	<b>P4.2 Further circuits</b> (Students learn about resistance and parallel circuits)	<b>P5.2 Earth and sun</b> (Students learn about days, seasons and time)
9	<b>P1.3 Further forces</b> (Students learn about mass and weight, hidden forces and turning effects)		<b>P3.3 Making images</b> (Students learn about the ray model of light to explain images, refraction and lenses) <b>P3.4 Waves</b> (Students learn about waves on eater and ropes and the wave model of sound)	<b>P4.3 Magnets and electromagnets</b> (Students learn about magnetic fields and how electromagnets work)	
10	<b>CP1-2</b> Motion and forces	<b>CP6</b> Radioactivity	<b>CP3</b> Conservation of energy <b>CP4</b> Waves <b>CP5</b> light and the electromagnetic spectrum		
11	<b>CP7-8</b> Forces doing work and their effects	<b>CP12</b> Particle Model <b>CP13</b> Forces and matter		<b>CP9</b> Electricity and circuits <b>CP10</b> Magnetism and the motor effect <b>CP11</b> Electromagnetic induction	