Subject	Science		
	Interpretation of National Curriculum into Year group Endpoints		
Year	**Term 1**	**Term 2**	**Term 3**
10	Students will describe and explain the concepts of: **B2 Organisation** •carbohydrates, proteins and lipids as key biological molecules • enzymes • factors affecting the rate of enzymatic reactions • the relationship between the structure and functions of the human circulatory system **B4 Bioenergetics** • the importance of cellular respiration; the processes of aerobic and anaerobic respiration • photosynthesis as the key process for food production and therefore biomass for life • the process of photosynthesis • factors affecting the rate of photosynthesis **Chemistry of the atmosphere** • The Earth's atmosphere is dynamic and forever changing. • The causes of these changes are sometimes man-made and sometimes part of many natural cycles. • Scientists use very complex software to predict weather and climate change as there are many variables that can influence this. • The problems caused by increased levels of air pollutants require scientists and engineers to develop solutions that help to reduce the impact of human activity.	Students will describe and explain the concepts of: **B3 Infection and response** • the relationship between health and disease • communicable diseases including sexually transmitted infections in humans (including HIV/AIDs) • non-communicable diseases • bacteria, viruses and fungi as pathogens in animals and plants • body defences against pathogens and the role of the immune system against disease • reducing and preventing the spread of infectious diseases in animals and plants • the process of discovery and development of new medicines • the impact of lifestyle factors on the incidence of non-communicable diseases **Using resources and Equilibrium (Chemistry)** • Industries use the Earth's natural resources to manufacture useful products. • In order to operate sustainably, chemists seek to minimise the use of limited resources, use of energy, waste and environmental impact in the manufacture of these products. • Chemists also aim to develop ways of disposing of products at the end of their useful life in ways that ensure that materials and stored energy are utilised. • Pollution, disposal of waste products and changing land use has a significant effect on the environment, and environmental chemists study how human activity has affected the Earth's natural cycles, and how damaging effects can be minimised.	Students will describe and explain the concepts of: **B5 Homeostasis and response** • principles of nervous coordination and control in humans • the relationship between the structure and function of the human nervous system • the relationship between structure and function in a reflex arc • principles of hormonal coordination and control in humans • hormones in human reproduction, hormonal and non-hormonal methods of contraception **Bonding & Structures (Chemistry)** • Chemists use theories of structure and bonding to explain the physical and chemical properties of materials. • Analysis of structures shows that atoms can be arranged in a variety of ways, some of which are molecular while others are giant structures. • Theories of bonding explain how atoms are held together in these structures. • Scientists use this knowledge of structure and bonding to engineer new materials with desirable properties. • The properties of these materials may offer new applications in a range of different technologies.

Subject	Science		
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	P4 Atomic structure • the nuclear model and its development in the light of changing evidence • masses and sizes of nuclei, atoms and small molecules • differences in numbers of protons, and neutrons related to masses and identities of nuclei, isotope characteristics and equations to represent changes • ionisation • radioactive nuclei: emission of alpha or beta particles, neutrons, or gamma rays, related to changes in the nuclear mass and/or charge • radioactive materials, half-life, irradiation, contamination and their associated hazardous effects, waste disposal • nuclear fission, nuclear fusion and our Sun's energy	**P5 Forces** • forces and fields: electrostatic, magnetic, gravity • forces as vectors • calculating work done as force x distance; elastic and inelastic stretching speed of sound, estimating speeds and accelerations in everyday contexts • pressure in fluids acts in all directions: variation in Earth's atmosphere with height, with depth for liquids, up-thrust force (qualitative). • interpreting quantitatively graphs of distance, time, and speed • acceleration caused by forces; Newton's First Law • weight and gravitational field strength • decelerations and braking distances involved on roads, safety.	**P6 Waves** • amplitude, wavelength, frequency, relating velocity to frequency and wavelength • transverse and longitudinal waves • electromagnetic waves, velocity in vacuum; waves transferring energy; wavelengths and frequencies from radio to gamma-rays • uses in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma ray regions, hazardous effects on bodily tissues.