



KS3 Science

	Content
Year 7 HT 1	Living Systems and Forces & Motion: Science capital, developing our scientific literacy skills, numeracy skills and laboratory skills. Living Systems; Cell structure and organisation, organisms, classification, cellular transport & processes and stem cells. Forces and Motion; calculating speed, distance-time graphs, what forces are and their effects, density, balanced and unbalanced forces.
Year 7 HT 2	Forces & Motion and Matter: (see Year 7 HT 1) Matter; Changes of state, mixtures and how to separate them.
Year 7 HT 3	Space and Atoms: Space; The Sun, main features of the Solar System, day and night, seasons, phases of the moon, eclipses and galaxies. Atoms elements and compounds; Structure of the atom, elements, compounds and molecules, the modern day Periodic Table, history of The Periodic Table, physical and chemical properties of metals and non-metals, conservation of mass.
Year 7 HT 4	Diet & Health: Continuation of Atoms elements and compounds; See Year 7 HT3. Diet and Health; Food groups coupled with balanced diet, qualitative food testing, the digestive system, enzymes, drugs and their effects with a focus on smoking and alcohol. How the body deals with communicable disease is also covered.
Year 7 HT 5	Reproduction and Acids & Alkalis: Reproduction; Structure and function of the male and female reproductive organs of mammals and flowering plants, gametes, fertilisation, pregnancy, birth, menstrual cycle, germination and seed dispersal. Acids and alkalis; Hazards associated with acids, properties of acids, indicators, pH scale, acid rain, reactions of metals/metal carbonates with acids, neutralisation.
Year 7 HT 6	Ecosystems: Continuation of Acids and alkalis; See Year 7 HT5 Ecosystems; biotic and abiotic factors, competition, food chains and webs, predator/prey cycles, pyramids of numbers, importance of insects in crops, population and sampling, the effects of an increasing population, bioaccumulation and eutrophication, pollution indicators
Year 8 HT 1	Chemical Reactions and Energy: Chemical reactions; Reversible and irreversible reactions, metal reactivity, displacement reactions, exothermic and endothermic reactions, rates of reactions, electrolysis Energy; Energy types and transfers, thermal energy transfers, insulation, work done, power, elastic energy, chemical energy, gravitational energy, energy resources.
Year 8 HT 2	Bioenergetics: Continuation of Energy: See Year 8 HT1. Bioenergetics: We will be learning about photosynthesis within plants, leaf structure, the respiratory system, respiration, the circulatory system and the effects of exercise.
Year 8 HT 3	Electricity and Genetics & Variation: Electricity; Static electricity, circuit symbols, current and voltage, series and parallel circuits, magnetism and electromagnetism. Genetics and Variation; genetic and environmental variation, chromosomes. genes and DNA, adaptation of organisms, natural selection, evolution, extinction, selective breeding
Year 8 HT 4	Waves: Continuation of Genetics and Variation: See Year 8 HT3. Waves; wave behaviour, reflection, refraction, lenses and their uses, dispersion, filters, colour combinations, sound waves, ultrasound



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Year 8 HT 5	Materials from Carbon and Earth & atmosphere: Materials from Carbon; formation of crude oil, fractional distillation, hydrocarbon families, cracking, evaluation of fuels, plastics, environmental issues, the carbon cycle. Earth and atmosphere; The Earth's structure, sedimentary, metamorphic and igneous rocks, the rock cycle, Earth's resources, recycling, the atmosphere and human activities
Year 8 HT 6	Moments & levers: Continuation of Earth and Atmosphere; See Year 8 HT5 Moments and Levers; Velocity and acceleration, simple machines, pulleys, pivots and levers, moments, pressure in solids, liquids and gases
Year 9 HT 1	Atomic structure & the Periodic Table: Atomic Structure and The Periodic Table; Subatomic particles, the development of the model of the atom, size and mass of atoms, electronic structure of atoms, the development of The Periodic Table, properties of groups including Group 1,7 and 0. Students in the X population will also learn about transition metals. Energy; Energy stores and systems, changes in energy, calculating power and work done, energy efficiency, national and global energy resources.
Year 9 HT 2	Cell Biology & Structure: Cell Biology; Specialised cells, function of cells, use of microscopes, cell division, use of stem cells alongside respiration. Students in the X population will also cover growing microorganisms and testing antibiotics. Structure, bonding and the properties of matter; chemical bonds including ionic, covalent and metallic bonding, properties of ionic compounds, small molecules and metals, giant covalent structures, structure and bonding of carbon. Students in the X population also cover properties and uses of nanoparticles
Year 9 HT 3	Bonding & the properties of matter: Continuation of Structure, bonding and the properties of matter; See Year 9 HT2 Particle model of matter; density of materials, internal energy and energy transfers, specific heat capacity, specific latent heat, pressure in gases, increasing the pressure of a gas.
Year 9 HT 4	Photosynthesis & Chemical quantities and calculations: Photosynthesis; photosynthetic reaction, rate of photosynthesis, the uses of glucose from photosynthesis, transport within the plant. Chemical quantities and calculations; balancing equations, relative formula mass, moles, amounts of substances in equations, concentrations of solutions including mol/dm ³ , percentage yield and atom economy, moles.
Year 9 HT 5	Atomic structure (radiation): Atoms and isotopes, the development of the periodic table, radioactive decay and radiation, nuclear equations and half-life, contamination and irradiation. Students in the X population also cover nuclear fusion and fission.
Year 9 HT 6	Moving & changing materials: Osmosis, the digestive system including organs, optimum conditions for enzyme activity, the circulatory system including the heart and blood vessels, blood, coronary heart disease, lifestyle, how plants use minerals, the respiratory system. Students in the X population also cover the respiratory systems of other animal types.