KS3 Science

	Content
Year 7 HT 1	Introduction to Science; 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.
Year 7 HT 2	Forces and Motion; calculating speed, distance-time graphs, what forces are and their effects, density, balanced and unbalanced forces. Matter: We will be learning about changes of state, mixtures and how to separate them
Year 7 HT 3	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. 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	Energy; Energy types and transfers, thermal energy transfers, insulation, work done, power, elastic energy, chemical energy, gravitational energy, energy resources.
Year 7 HT 5	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	Space; The Sun, main features of the Solar System, day and night, seasons, phases of the moon, eclipses and galaxies
Year 8 HT 1	Energy; Energy types and transfers, thermal energy transfers, insulation, work done, power, elastic energy, chemical energy, gravitational energy, energy resources.
Year 8 HT 2	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 and selective breeding
Year 8 HT 3	Materials from Carbon; Formation of crude oil, fractional distillation, hydrocarbon families, cracking, evaluation of fuels, plastics, environmental issues and the carbon cycle.
Year 8 HT 4	Energy; Energy types and transfers, thermal energy transfers, insulation, work done, power, elastic energy, chemical energy, gravitational energy, energy resources.

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	Content
Year 8 HT 5	Waves; Wave behaviour, reflection, refraction, lenses and their uses, dispersion, filters, colour combinations, sound waves, ultrasound 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 and pollution indicators
Year 8 HT 6	Earth and Atmosphere; The Earth's structure, sedimentary, metamorphic and igneous rocks, the rock cycle, Earth's resources, recycling, the atmosphere and human activities Moments and Levers; Velocity and acceleration, simple machines, pulleys, pivots and levers, moments, pressure in solids, liquids and gases
Year 9 HT 1	Cell Biology; Specialised cells, function of cells, use of microscopes, cell division and the use of stem cells 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.
Year 9 HT 2	Energy; Energy stores and systems, changes in energy, calculating power and work done, energy efficiency, national and global energy resources.
Year 9 HT 3	Photosynthesis; Photosynthetic reaction, rate of photosynthesis, the uses of glucose from photosynthesis, transport within the plant 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, properties and uses of nanoparticles.
Year 9 HT 4	Particle model of matter; Density of materials, internal energy and energy transfers, specific heat capacity, specific latent heat, pressure in gases and increasing the pressure of a gas
Year 9 HT 5	Moving and 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
Year 9 HT 6	Chemical quantities and calculations; Balancing equations, relative formula mass, moles, amounts of substances in equations, concentrations of solutions. Triple students will also learn about titrations, percentage yield, atom economy, moles and volumes of gases Atomic structure (radiation); Atoms and isotopes, the development of the periodic table, radioactive decay and radiation, nuclear equations and half-life, contamination and irradiation, nuclear fission and fusion.