Science – Year 7

Chesterton Community Sports College

Curriculum Intent

	What?	Key knowledge that EVERYONE must know	Why?
Term 1-1	• **7B1 Cells, Organs & Systems** – Living things are made of cells, structure of animal & plant cells and function of organelles, microscopes and calculating magnification, tissues, organs, main organ systems – circulatory, respiratory, digestive, central nervous	• Draw and label animal and plant cells	Foundation topic for biology – cells (plant & animal), organs (plant & animal), organ systems, microscopes. Underpins many other units and is a key topic at GCSE.
	• **7C1 Atoms, elements & particles** – symbols from the Periodic Table, definition of element, compound, molecule, metals and non-metals, chemical formulae	• An element is a pure substance made from one type of atom only	Fundamental topic in chemistry, built on in all other topics.
	• **7P1 Energy** – energy types, units, conservation of energy, efficiency, fuels, renewable and non-renewable resources. Relevant equations GPE=mgh, Kinetic energy	• Types of energy - Kinetic, thermal, light, gravitational potential, chemical, sound, elastic potential, electrical, nuclear	Foundation topic for physics – types of energy – law of conservation of energy – physics formula. This topic crosses over into the fundamental GCSE topics (P1, P2). Maths skills in science introduced – including calculator use

Term 1-2	• **7B2 Sexual reproduction** – sex organs, sex cells, fertilisation, pregnancy, birth, menstrual cycle, contraception, STIs • **7C2 Separating mixtures** – Definition of a mixture, methods of separation include filtration, crystallisation, distillation, chromatography	• Sperm and egg are gametes – fertilisation is joining of these • A mixture can be separated by physical methods, a compound cannot	Important topic for all KS3 students. Builds on the cells topic. PSCHE links. Fundamental practical methods – expanded on at GCSE
Term 2-1	• **7P2 Electricity** – series and parallel circuits, circuit symbols, calculating current and voltage, V=IR, resistance, safety, fuses • **7B3 Muscles & bones** – Names of major muscles, breathing, lungs, structure of the heart, the circulatory system, strength of bones	• Current is the flow of electrons • The heart pumps blood around the body to deliver oxygen to the cells	Safety at home. This unit expanded on at GCSE – a good unit to stretch high ability students with physics equations and complex circuits. Career links for peope interested in medicine etc. Lungs and heart recapped from previous and built on at GCSE
Term 2-2	• **7C3 Acids & alkalis** – names and formulas of common acids and alkalis, neutralisation, making and naming salts, pH scale, indicators • **7P3 Forces** – Types of force, Hooke's Law, friction, balanced and unbalanced forces, resultant, measuring forces, free body diagrams, W=mg	• Acid + alkali → salt + water • Forces include weight, friction, upthrust, air resistance, and are measured in newtons	Expanded on at GCSE Lots of variations of this basic formula Very important physics topic that underpins many others. Physics equations. Expanded on at GCSE.

Term 3-1	• **7B4 Ecosystems** – Variation, adaptations, sampling - quadrats, food chains, food webs, pyramids of number and biomass • **7C4 Rates of Reaction –** factors that increase the rate of reaction include temperature, concetration and surface area	• Food chains start with producers • Rate of reaction is how fast a reaction occurs in a set time	GCSE links Geography links Expanded on at GCSE – this is a new topic we have included in our Scheme of Work, so that students are better prepared for this at GCSE
Term 3-2	• **7P4 Sound & Light** – Types of waves. Longitudinal waves, calculating speed of sound using formula, detecting sounds, structure of the ear, ultrasound and infrasound properties and uses. Reflection, law of reflection, refraction, colours in light, UV and infrared, lenses and how they work, the structure of the eye, standard form. • **7B5 Food & nutrition** – balanced diet, food groups, food tests – carbohydrates, fat, protein. Enzyme action and factors that affect enzymes, digestive system • Recap Y7 work	• Angle of incidence = angle of reflection • Enzymes break down food	Expanded on at GCSE – recaps previous knowledge Maths Expanded on at GCSE – recaps previous knowledge Expands/recaps previous topics Links with KS3 Food