



Curriculum Intent

Subject: Science
Year 10

	What?	Why?	National Curriculum Links
Term 1-1	B5 Homeostasis & Response – structure of nerves, adaptations of nerves, synapses, reaction time ruler drop practical, what is a hormone, names/functions/glands of hormones, menstrual cycle stages, hormones that control the menstrual cycle, IVF and contraception, control of blood glucose, type 1 and 2 diabetes, BMI, waist:hip ratio	Life knowledge – health, menstrual cycle Recaps KS3 topic 7B2 Knowledge of circulatory system (B2) needed to fully understand how hormones are transported in the body	Coordination and control
	C6 Rate of chemical change – collision theory, factors affecting rates of reaction, practicals, catalysts, activation energy diagrams, dynamic equilibrium, conditions needed for equilibrium, balancing equations	Knowledge of atoms (C1, P1) needed to fully understand collision theory. By this time students will be competent in using relevant apparatus in order to successfully measure the rate of a reaction.	Energy changes in chemistry Rate and extent of chemical change
Term 1-2	B6 Inheritance, variation & evolution – sexual and asexual reproduction, meiosis, structure of DNA, genes, inheritance, Punnet squares, family pedigree charts, theory of evolution, evolutionary trees, evidence for evolution, classification, selective breeding, genetic engineering	Recaps and builds on KS3 Maths – probability, ratios	Evolution, inheritance and variation
	C7 Organic chemistry – definition of a hydrocarbon, how fractional distillation works, names and uses of fractions, properties of fractions, naming alkanes, reactions with oxygen, cracking, test for alkenes, balancing equations	Builds on knowledge of other chemistry topics (C1, C2, C3). Topics C7, C8 and C9 are so closely related that they are taught in a single larger block.	Chemical and allied industries
Term 2-1	C8 Chemical analysis – definition of pure substance, mixture, formulation. Chromatography. Gas tests – hydrogen, oxygen, chlorine, carbon dioxide	Essential gas tests – can come up in several questions	Chemical analysis



	C9 The atmosphere – where the early atmosphere came from, composition of it, how it changes, composition of atmosphere today, complete and incomplete combustion, climate change – causes and effects	Builds on knowledge of C7	Earth and atmospheric science
Term 2-2	P5 Forces – vectors and scalars, calculating speed, acceleration, distance-time graphs, velocity-time graphs, resultant forces, vector diagrams, Newton's Laws of motion, mass and weight, work done, momentum, stopping distances, elastic and inelastic, bending and stretching of springs	Builds on knowledge from KS3. Large topic, brings together lots of mathematical skills – graph work, equations and calculations. Much of this topic studied in basic detail at KS3	Forces Forces and motion
	B7 Ecology – abiotic and biotic factors, sampling methods – quadrats and line transects. Adaptations to hot and cold environments. Extremophiles. Biodiversity and how humans are affecting this. Water cycle. Carbon cycle.	Links knowledge of photosynthesis, respiration (B2, B4) and the atmosphere (C9) so needs to be at the end of the course. Also more likely to have nicer weather to go outside and sample organisms.	Photosynthesis Ecosystems
Term 3-1	P6 Waves – longitudinal and transverse waves, calculating wave speed, refraction, EM spectrum, naming EM waves, properties of EM waves, uses and dangers of EM waves	Builds on KS3 Maths skills – standard form	Wave motion
Term 3-2	C10 Using resources – what is potable water, how to make water potable, methods of extracting metals, life cycle assessments, recycling methods	Builds on C1 and C4	Chemical and allied industries
	P7 Magnets & electromagnets – Magnetic field shape, drawing magnetic field, electromagnets, how to make electromagnets stronger, magnetic forces, equations for this	Builds on KS3 topics, also knowledge of current essential (P2)	Magnetism and electromagnetism