

CHS Curriculum Intent

SUCCESSFUL: Learners who gain deep and powerful knowledge in preparation for life; combining academic rigour, curiosity and creative flair.

CREATIVE: Learners who are imaginative, optimistic and inventive; finding their voice to become effective communicators prepared for lifelong adaptability

HAPPY: Learners who are confident, resilient, well-rounded citizens; they understand the world's communities and are ready to discover their place in it.

CHS Curriculum Area Framework for Learning – Year 10

SUBJECT	Science
INTENT	<p>The intent of the science department is to convey to students that Science underpins everything. At Chorlton High School we study</p> <p>Physics: to be able to understand the fundamental principles that govern all energy and matter in the Universe. Physics gives us tools to understand nature from the scale of sub-atomic particles up to the inter-galactic scale of the Universe.</p> <p>Chemistry: to be able to understand the nature of substances: how they are composed, their behaviour, and their physical and chemical properties. Chemistry allows us to identify unknown substances, monitor concentrations and synthesise new chemicals. Above all, Chemistry is about finding solutions to the problems that concern us and our surroundings.</p> <p>Biology: to be able to understand life and thereby understand ourselves. Biology allows us an understanding of the amazing complexity of many life processes and mechanisms. Biology encourages us to seek out reasons for strange, surprising and sometimes unusual observations.</p>

Year Group	10					
	SDO 201920					
Rationale/ Narrative	Students continue to explore new subject content in biology, chemistry and physics, tackling more challenging concepts at a greater depth than they have done so previously. Students continue to develop scientific skills, directly linked to their required practicals including forming hypotheses, clear written methods, knowledge and use of scientific equipment as well as presenting and analyzing results.					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KNOWLEDGE	Biology – Ecology, digestion & circulation Adaptations Ecosystems Sampling techniques Cycling materials Classification Evolution Evidence for evolution Fossils Extinction Digestive system Digestive enzymes Respiratory system Osmosis RP osmosis Transporting substances Heart and blood vessels Blood and heart rate Heart disease Drug development Drug investigation	Physics – Internal energy Energy stores Specific heat capacity Required practical SHC Latent heat Chemistry – neutralisation, electrolysis, energy transfer pH scale Strong and weak acids Neutralisation Preparation of a salt required practical Acids and metals Soluble salts Insoluble salts Development of periodic table Periodic table	Physics – current electricity and the national grid Circuit symbols Building circuits and testing voltage Voltage in series and parallel Current in series and parallel Resistance Calculating the resistance in a wire Circuits revision Circuit problems Voltage / current graphs Investigating the IV characteristics of a filament bulb EOT AC/DC Mains Energy transfer	Combined Chemistry – Reversible reactions Energy changes in reversible reactions Equilibrium Rates of reaction 1 Rates of reaction 2 Rates of reaction 3 Rates of reaction graph skills	(Physics) Forces Resolving forces work done Forces and elasticity Hooke's Law Speed and distance time graphs velocity and displacement velocity and acceleration terminal velocity Gravity	Chemistry – Quantitative chemistry and chemical analysis. Atomic mass and formula mass Conservation of mass Balancing equations Moles Empirical formula EOT Pure substances Paper chromatography Potable water Sustainable development Waste water treatment Distillation Chemical tests Progress Test

	EOT	Exothermic and endothermic reactions Reaction profiles Energy change of reactions Reversible reactions Energy changes and reversible reactions Equilibrium EOT Process of electrolysis Using electrolysis to extract metals Evaluating electrolysis Electrolysis of aqueous solutions Representation of reactions at Electrode Progress Test	power		stopping distances	
SKILLS	Using models to explain enzyme action. RP- Investigating the effect of pH on enzyme action RP- Investigating the effect of different concentrations of salt and sugar solution on mass of plant tissue	RP- Investigating specific heat capacity RP- electrolysis of an aqueous solution with specific focus on forming hypothesis and predicting products formed Representing reactions at electrodes using half equations.	Knowledge and use of circuit symbols Recall and apply: Q=It V= IR P= VI P= I ² R E= Pt E= QV	Drawing and interpreting appropriate graphs from data to determine rate of reaction. Plot two variables from experimental or other data.	Modelling. Comprehension exercises. Practical completion. Calculations. Using equations. Graph drawing Rearranging equations Using formulae	Calculate Rf value using: Distance moved by substance/ distance moved by solvent Use of ratios, fractions and percentages in chemistry calculations Use of relative formula mass to calculate the moles in a given mass and vice versa.

	Calculating percentage gain and loss of plant tissue linked to RP.		RP- Investigating the effect of length of wire on resistance Interpret current/potential difference graphs including that of a filament bulb and a diode Investigate the effect of light on an LDR and temperature on a thermistor	Determine the slope and intercept of a linear graph. Draw and use the slope of a tangent to a curve as a measure of rate of change.		Safe use of a range of scientific apparatus to separate chemical mixtures
ASSESSMENTS	Required Practical Sampling write up. Required practical-effect of pH on enzymes	Electrolysis write up Specific heat capacity Write up.	Resistance in a wire write up. Filament Bulb Write up.	Electrolysis Write Up. Progress Test- year 9 and autumn/spring of y 10	Hooke's Law write-up stopping distances write-up	Distillation write up. Progress Test. Content of paper 1's Combined Science specification 8464