



# CHORLTON HIGH SCHOOL: CURRICULUM

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## 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

<b>SUBJECT</b>	Science
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<b>Year Group</b>	<b>10</b> <b>AIR 201920</b>					
<b>Rationale/ Narrative</b>	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 analysing results.					
	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>KNOWLEDGE</b>	<b>Biology – Ecology, digestion &amp; circulation</b>  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 EOT	<b>Chemistry – Groups, reactivity and bonding</b>  Group 1 Group 7 Comparing Group 1 and Group 7 Metallic bonding Ionic bonding Covalent bonding Chemical bonds Chemical bonds comparison Properties of ionic compounds Properties of covalent compounds Diamond and graphite Fullerenes and graphene  Progress Test	<b>Physics – Development of the atom, ionising radiation, heat</b>  Atomic structure Atomic mass and atomic number Model of the atom Radioactive decay – alpha, beta and gamma Nuclear equations for alpha beta and gamma radiation Uses of nuclear radiation Radioactive irradiation and contamination Half-life and decay Energy stores Specific heat capacity Required practical SHC Latent heat EOT	<b>Chemistry – neutralisation, electrolysis, energy transfer</b>  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 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	<b>Physics – current electricity and the national grid</b>  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 power	<b>Chemistry – Quantitative Chemistry and chemical analysis.</b>  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



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<b>SKILLS</b>	<p>Using models to explain enzyme action.</p> <p>RP- Investigating the effect of pH on enzyme action.</p> <p>RP- Investigating the effect of different concentrations of salt and sugar solution on mass of plant tissue.</p> <p>Calculating percentage gain and loss of plant tissue linked to RP.</p>	<p>Predict properties down periodic table groups.</p> <p>Visualise and represent 2D and 3D forms of chemical bond.</p> <p>Be able to draw dot and cross diagrams to represent ionic and covalent bonds.</p>	<p>RP- Investigating specific heat capacity.</p> <p>Recognise expressions in standard form.</p> <p>Use of nuclear equations to show alpha and beta decay.</p> <p>Interpret half-life graphs and use these to calculate half-life of a radioactive source.</p>	<p>Investigate pH changes during neutralisation</p> <p>RP- electrolysis of an aqueous solution with specific focus on forming hypothesis and predicting products formed</p> <p>Representing reactions at electrodes using half equations.</p> <p>RP- Investigate the temperature change during different chemical reactions.</p>	<p>Knowledge and use of circuit symbols</p> <p>Recall and apply:  <math>Q=It</math>  <math>V= IR</math>  <math>P= VI</math>  <math>P= I^2R</math>  <math>E= Pt</math>  <math>E= QV</math></p> <p>RP- Investigating the effect of length of wire on resistance.</p> <p>Interpret current/potential difference graphs including that of a filament bulb and a diode.</p> <p>Investigate the effect of light on an LDR and temperature on a thermistor.</p>	<p>Calculate Rf value using: Distance moved by substance/ distance moved by solvent.</p> <p>Use of ratios, fractions and percentages in Chemistry calculations.</p> <p>Use of relative formula mass to calculate the moles in a given mass and vice versa.</p> <p>Safe use of a range of scientific apparatus to separate chemical mixtures.</p>
<b>ASSESSMENT S</b>	<p>Required Practical Sampling write up.</p> <p>Required practical Enzymes write up.</p>	<p>Required practical Osmosis write up.</p> <p>Progress Test- Year 9 and Autumn of Year 10</p>	<p>Specific heat capacity Write up.</p> <p>Nuclear Equations Assessment.</p>	<p>Electrolysis Write Up.</p> <p>Progress Test- Year 9 and Autumn/Spring of Year 10</p>	<p>Resistance in a wire write up.</p> <p>Filament Bulb Write up.</p>	<p>Distillation write up.</p> <p>Progress Test. Content of paper 1s Combined Science specification 8464</p>