YEAR 12 CHEMISTRY

MAGHULL HIGH SCHOOL – CURRICULUM MAP

Unit: **Inorganic** **LESSONS**	1. Classification 2. Physical properties of period 3 elements	3. Trends of group 2 elements 4. Reactions of group 2 elements	5. Trends in properties of group 7 6. Uses of chlorine and chlorate(I)
Knowledge & Skills Development	• Know an element is classified as s, p, d or f block according to its position in the Periodic Table, which is determined by its proton number. • Know the trends in atomic radius, first ionisation energy and melting point of the elements Na–Ar • Know the reasons for these trends in terms of the structure of and bonding in the elements. • Explain the trends in atomic radius and first ionisation energy • Explain the melting point of the elements in terms of their structure and bonding. • Know the trends in atomic radius, first ionisation energy and melting point of the elements Mg–Ba • Explain the trends in atomic radius and first ionisation energy Explain the melting point of the elements in terms of their structure and bonding. • Know the reactions of the elements Mg–Ba with water. • Know the use of magnesium in the extraction of titanium from $TiCl_4$ • Know the relative solubilities of the hydroxides of the elements Mg–Ba in water. • Know $Mg(OH)_2$ is sparingly soluble. • Know the use of $Mg(OH)_2$ in medicine and of $Ca(OH)_2$ in agriculture. • Know the use of CaO or $CaCO_3$ to remove SO_2 from flue gases. • Know the relative solubilities of the sulfates of the elements Mg–Ba in water. • Know the trends in electronegativity and boiling point of the halogens. • Explain the trend in electronegativity • Explain the trend in the boiling point of the elements in terms	• Know the trend in reducing ability of the halide ions, including the reactions of solid sodium halides with concentrated sulfuric acid. • Know the use of acidified silver nitrate solution to identify and distinguish between halide ions. • Know the trend in solubility of the silver halides in ammonia. • Explain why: silver nitrate solution is used to identify halide ions, the silver nitrate solution is acidified, ammonia solution is added. • Carry out test-tube reactions of solutions of the halogens (Cl_2, Br_2, I_2) with solutions containing their halide ions (eg KCl, KBr, KI). • Record observations from reactions of NaCl, NaBr and NaI with concentrated sulfuric acid. • Carry out tests for halide ions using acidified silver nitrate, including the use of ammonia to distinguish the silver halides formed. • Know the reaction of chlorine with water to form chloride ions and chlorate(I) ions. • Know the reaction of chlorine with water to form chloride ions and oxygen. • Appreciate that society assesses the advantages and disadvantages when deciding if chemicals should be added to water supplies. • Know the use of chlorine in water treatment. • Appreciate that the benefits to health of water treatment by chlorine outweigh its toxic effects. • Know the reaction of chlorine with cold, dilute, aqueous NaOH and uses of the solution formed. • Investigate the treatment of drinking water with chlorine. • Investigate the addition of sodium fluoride to water supplies.

	of their structure and bonding. • Know the trend in oxidising ability of the halogens down the group, including displacement reactions of halide ions in aqueous solution.	• **Required practical 4** Carry out simple test-tube reactions to identify: cations – Group 2, NH_4^+, anions – Group 7 (halide ions), OH^-, CO_3^{2-}, SO_4^{2-}
Assessment / Feedback Opportunities	**Formative Assessment** Teacher questioning Quizzes Exam style questions	**Summative assessment** End of topic assessment Exam questions in future end of topic assessments to assess recall
Key Vocabulary	Periodicity, alkaline earth metals, halogens, trends, ionisation, toxicity, electronegativity, haloalkanes, acidified, properties, cations, anions, Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest, Absolute, Uncertainty, Error	
Literacy/Reading Opportunities	Subject specific vocabulary introduced before reading of related texts Word etymology from Latin and Greek roots Reading of simple and complex sentences, paragraphs, articles Scientific writing including structuring methods, comparisons and evaluations	
Cross Curricular Themes	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators, significant figures	
Personal Development (Including British Values, RSE, Citizenship)	None	
Career Opportunities	Pharmacist, medical supplies manufacture, water treatment engineer	