

## The English Martyrs Catholic School and Sixth Form College



<u>Chemistry Year 13 - A</u>	<u>Module 1</u>	<u>Module 2</u>	<u>Module 3</u>
<b><u>Topic Theme and Intent</u></b>	Students learn about <b>thermodynamics, rate equations, equilibria and electrochemistry</b> . These topics are studied so that students start to understand why some chemical processes take place and others don't. The students also learn how to quantify their ideas of rate and equilibria.	Students learn about <b>acids, bases and buffers, properties of period 3 elements and oxides, transition metal complexes and the reactions of metal ions</b> . These topics are studied so that students can understand and quantify pH. They also learn about the chemistry of transition metals and where we encounter these ions in real life.	In this module students consolidate their learning and revise <b>key concepts</b> in the build up to their exams. Students look at <b>specific areas</b> identified in the mocks as weaknesses and complete broader revision of specific topics identified on an <b>individual</b> basis.
<b><u>Knowledge</u></b>	<ul style="list-style-type: none"> <li>• Born-Haber Cycles</li> <li>• Free energy</li> <li>• Rate equations</li> <li>• Equilibrium constant <math>K_p</math> for homogeneous systems</li> <li>• Electrode potentials and electrochemical cells</li> </ul>	<ul style="list-style-type: none"> <li>• pH calculations including buffer solutions</li> <li>• Properties of Period 3 elements and their oxides</li> <li>• Transition metals properties and complexes</li> <li>• Reactions of ions in aqueous solution</li> </ul>	<ul style="list-style-type: none"> <li>• Physical chemistry</li> <li>• Inorganic chemistry</li> <li>• Required practicals</li> <li>• Exam technique</li> </ul>
<b><u>Skills</u></b>	Students will complete an investigation to determine the rate equation for a chemical reaction.	Students complete an investigation to draw a pH curve for the neutralisation of an acid.	Students practice their exam technique to better prepare them for their exams. They focus on command words and an understanding of mark schemes.
<b><u>Literacy Links</u></b>	<p><b>Reading</b> – Students will read about the feasibility of redox reactions.</p> <p><b>Writing</b> – Students start to communicate scientific ideas and concepts through writing.</p> <p><b>Oracy</b> – Students start to use scientific vocabulary in discussion and question and answering.</p>	<p><b>Reading</b> – Students will read about the uses of transition metals.</p> <p><b>Writing</b> – Students practise communicating scientific ideas and concepts through writing.</p> <p><b>Oracy</b> – Students practise the use of scientific vocabulary in discussion and question and answering.</p>	<p><b>Reading</b> – Students will read about the key ideas they have covered.</p> <p><b>Writing</b> – Students practise communicating scientific ideas and concepts through writing.</p> <p><b>Oracy</b> – Students practise the use of scientific vocabulary in discussion and question and answering.</p>
<b><u>Essential Vocabulary</u></b>	Lattice enthalpy, Hydration enthalpy, Entropy, Free energy, Partial pressure, Mole fraction, EMF, Electrode potential.	pH, $K_a$ , $pK_a$ , pH curve, Buffer, Complex, Ligand, Coordination, Multidentate, Chelate, Heterogeneous, Homogeneous	Kinetics, Thermodynamics, Acids, bases and buffers, Equilibria, Atomic structure, Periodicity, Aqueous ions.

### Disciplinary Reading

CGP Books – A level Chemistry, & Oxford Revise A level Chemistry.



### Reading for Pleasure

P. Ball - H<sub>2</sub>O: A Biography of Water



P. Atkins - Chemistry: A very short introduction



B. Bryson – A short history of nearly everything

