

Subject	Year	Term
Chemistry	13	3 and 4
Topic		
5.2.3 Redox & 5.2.3 Electrode potentials		
Content (Intent)		
Prior Learning (Topic) 1.1,1.2, 2.1 (especially 2.1.5), 2.2.1 Electron structure, 3.2.1 Enthalpy changes, 3.2.2 Rates, 3.2.3 Equilibrium		
<p>Redox</p> <p>(a) explanation and use of the terms oxidising agent and reducing agent (see also 2.1.5 Redox)</p> <p>(b) construction of redox equations using half equations and oxidation numbers</p> <p>(c) interpretation and prediction of reactions involving electron transfer</p> <p>Electrode potentials</p> <p>(f) use of the term standard electrode (redox) potential, E^\ominus, including its measurement using a hydrogen electrode</p> <p>(g) the techniques and procedures used for the measurement of cell potentials of:</p> <ul style="list-style-type: none"> (i) metals or non-metals in contact with their ions in aqueous solution (ii) ions of the same element in different oxidation states in contact with a Pt electrode <p>(h) calculation of a standard cell potential by combining two standard electrode potentials</p> <p>(i) prediction of the feasibility of a reaction using standard cell potentials and the limitations of such predictions in terms of kinetics and concentration</p> <p>Storage and fuel cells</p> <p>(j) application of principles of electrode potentials to modern storage cells</p> <p>(k) explanation that a fuel cell uses the energy from the reaction of a fuel with oxygen to create a voltage and the changes that take place at each electrode</p>		
Future Learning (Topic) 5.3.1 Transition elements		
How will knowledge and skills be taught? (Implementation)	How will your understanding be assessed & recorded (Impact)	
<p>Practical work</p> <p>Making an electrochemical cell</p> <p>Changing the concentration of a cell</p> <p>PAG 8.2</p> <p>Written</p> <p>Presentations</p> <p>Worked through examples</p> <p>Past paper question examples and answers</p> <p>Explanation of how to calculate a cell potential.</p> <p>Explanation of how to determine if a reaction is feasible using SEPs.</p> <p>Explanation of how changes in concentration affect the cell potential.</p>	<p>- 1 x standard homework (Grade given. Written feedback. Response expected.)</p> <p>-1 x Paper 1 (Grade given. Verbal feedback to class and individuals.)</p> <p>PAG 8.2</p>	

How to construct balanced redox reactions.

How can parents help at home?

Look at the topic specific resources on the VLE

Use appropriate websites: MachemGuy, Allery Chemistry, Chemistry World – by Royal Society of Chemistry, ChemGuide.

Take an interest! Ask your children what they have learnt and be curious about their learning.

Helpful further reading/discussion

Reading

Text book: A level chemistry for OCR by Rob Ritchie and Dave Gent. Chapter 23 p.372-375 and 386-399

The Science of Everyday Life by Marty Jopson

Why Chemical Reactions Happen by Keeler and Wothers

Vocabulary Lists

redox
oxidising agent
reducing agent
electron
half equation
oxidation number
electrode potential
cell potentials
electrode
fuel cell

Careers Links

Medicine
Veterinary science
Material science
Biomedical sciences
Environmental science
Toxicologist
Pharmacist
Dentist
Patent law
Forensic science