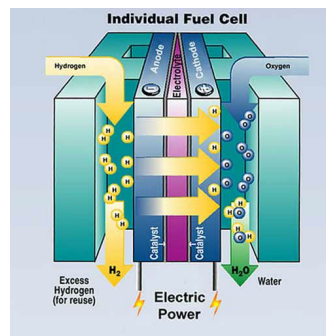


# Redox and Electrode Potentials

The key areas of study in this topic are:

- Redox reactions and titrations
- Electrode Potentials
- Storage and Fuel Cells



By the end of this topic I should be able to:

	Start	End
Explain and use of the terms <i>oxidising agent</i> and <i>reducing agent</i>		
Construct redox equations using half-equations and oxidation numbers		
Interpret and predict reactions involving electron transfer		
Understand the techniques and procedures used when carrying out redox titrations including those involving <ul style="list-style-type: none"> <li>• <math>\text{Fe}^{2+} / \text{MnO}_4^-</math></li> <li>• <math>\text{I}_2 / \text{S}_2\text{O}_3^{2-}</math></li> </ul>		
Perform structured and non-structured titration calculations, based on experimental results of redox titrations involving: <ul style="list-style-type: none"> <li>• <math>\text{Fe}^{2+} / \text{MnO}_4^-</math></li> <li>• <math>\text{I}_2 / \text{S}_2\text{O}_3^{2-}</math></li> <li>• non-familiar redox systems</li> </ul>		
Define the term <i>standard electrode (redox) potential</i> , $E^\ominus$ and understand how it is measured using a hydrogen electrode		
Understand the techniques and procedures used for the measurement of cell potentials of: <ul style="list-style-type: none"> <li>• metals or non-metals in contact with their ions in aqueous solution</li> <li>• ions of the same element in different oxidation states in contact with a Pt electrode</li> </ul>		
Calculate a standard cell potential by combining two standard electrode potentials		
Predict the feasibility of a reaction using standard cell potentials and the limitations of such predictions in terms of kinetics and concentration		
Apply the principles of electrode potentials to modern storage cells		
Explain 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.		

**In all topic areas you should be able to demonstrate and apply your knowledge and understanding.**