LEARNING JOURNEY

Physical

Chemistry

Year 12 Spring Term / Summer Term

Equilibria, REDOX & Group 7

In contrast with kinetics, which is a study of how quickly reactions occur, a study of equilibria indicates how far reactions will go. Le Chatelier's principle can be used to predict the effects of changes in temperature, pressure and concentration on the yield of a reversible reaction. This has important consequences for many industrial processes. The further study of the equilibrium constant, Kc, considers how the mathematical expression for the equilibrium constant enables us to calculate how an equilibrium yield will be influenced by the concentration of reactants and products.

Equilibira

3.1.6.1 Chemical equilibria

3.1.6.2 Le Chatelier's principle

3.1.6.3 Equilibrium constant Kc

3.1.6.4 Equilibrium constant Kc and it's units

End of Unit assessment

Redox reactions involve a transfer of electrons from the reducing agent to the oxidising agent. The change in the oxidation state of an element in a compound or ion is used to identify the element that has been oxidised or reduced in each reaction. Separate half-equations are written for the oxidation or reduction processes. These half-equations can then be combined to give an overall equation for any redox reaction.

REDOX

3.1.7.1 Oxidation states

3.1.7.2 Writing half equations

3.1.7.3 Combining half equations

End of Unit assessment

The halogens in Group 7 are very reactive non-metals. Trends in their physical properties are examined and explained. Fluorine is too dangerous to be used in a school laboratory, but the reactions of chlorine are studied. Challenges in studying the properties of elements in this group include explaining the trends in ability of the halogens to behave as oxidising agents and the halide ions to behave as reducing agents.

Group 7

3.2.3.1 Group 7 – the halogens

3.2.3.2 Halide ions

3.2.3.3 Testing for Halide ions

3.2.3.4 Uses of chlorine and chlorate

End of Unit assessment

TUDOR HABITS

Tolerance - Science is a grand human project of contributions from people all over the world. In Group 7 we will look at both the positive and negative uses of the elements of group 7 over the course of history

VOCABULARY:

Dynamic equilibrium, yield, Reduction, oxidation, electronegativity, reducing agent, oxidising agent