Chemistry: Curriculum Overview

Year 10

Term	Topic studied	What will I learn?	How will I be assessed?
Year 10 Autumn	*Energy Changes*	*Exothermic and endothermic reactions* *Reaction profiles and the activation energy.* *Be able to calculate the energy changes in reactions.* *What an electrochemical cell and a battery is. The differences between non-rechargeable and rechargeable cells.* *What a fuel cell is*	*End of topic test*
	Quantitative Chemistry	*Conservation of mass and how to balance equations. Relative formula mass. Moles and Avogadro's number. Mole calculations, including gas volumes. What limiting reactants are and how to identify them. Concentration of solutions. The pH scale, neutralisation, how to do a titration and titration calculations. Percentage yield, atom economy.*	*End of topic test*
Year 10 Spring	*The rate and extent of chemical change*	*How to measure the rate of a chemical reaction* *How concentration of reactants in solution, the pressure of reacting gases, the surface area of solid reactants, the temperature and catalysts can affect the rates of chemical reactions. Collison theory and activation energy. That catalysts are not used up in chemical reactions and provide an alternative reaction pathway with a lower activation energy.* *What a reaction profile is and how to interpret them.* *Reversible reactions and dynamic equilibrium.* *Energy changes and reversible reactions.* *Equilibrium. The effect of changing conditions, concentration, temperature and pressure on equilibrium and the use of Le Chatelier's principle.*	*End of topic test*
	Organic chemistry	*Crude oil, alkanes. Cracking and the production of alkenes.* *Alcohols.*	
Year 10 Summer	*Organic chemistry (cont)*	*Carboxylic acids, esters.* *Synthetic and naturally occurring polymers.* *Addition polymerisation of alkenes* *Condensation polymers.* *Amino acids, polypeptides and proteins.* *DNA* *Other naturally occurring polymers important for life include proteins, starch and cellulose.*	*End of topic test (end of year exam)*