Chemistry

Year 12

AQA

Half Term 1

Atomic Structure

Fundamental particles

Mass number and isotopes

Electron configuration

Amount of substrate

Relative atomic mass and relative molecular mass

The mole and the Avogadro constant

The ideal gas equation

Empirical and molecular formula

Balanced equations and associated calculations

Half Term 2

Bonding

Ionic bonding

Nature of covalent and dative covalent bonds

Metallic bonding

Bonding and physical properties

Shapes of simple molecules and ions

Bond polarity

Forces between molecules

Progress Update 1 issued (November)

Half Term 3

Alkanes

Fractional distillation of crude oil

Modification of alkanes by cracking

Combustion of Alkanes

Chlorination of Alkanes

Halogenoalkanes

Nucleophilic substitution

Elimination

Ozone depletion

Half Term 4

Alkenes

DNA, genes and chromosomes

Oxidation reduction and redox equations

Periodicity

Group 2, the alkaline earth metals

Group 7

Trends and properties

The uses of chlorine and chlorate

Progress Update 2 issued (March)

Half Term 5

Kinetics

Collision theory

Maxwell-Boltzmann distribution

Effect of temperature on reaction range

Effect of concentration and pressure

Catalysts

Year 12 Mocks (April)

Progress Update 3 issued (May)

Half Term 6

Chemical equilibria and Le Chatelier's principle and Kc

Equilibrium constant Kc for homogeneous systems

Alcohols

Organic analysis

Identification of functional groups by test-tube

Mass spectrometry

Infrared spectrometry

Chemistry

Year 13

Half Term 1

Thermodynamics

Born-Haber cycles

Gibbs free-energy change and entropy change

Rate equations

Determination of rate equation

Optical Isomerism

Half Term 2

Progress Update 1 issued (November)

Aldehydes and ketones

Carboxylic acids and derivatives

Carboxylic acids and esters

Equilibrium constant Kp for homogeneous systems

Year 13 Mocks (November)

Half Term 3

Progress Update 2 issued (January)

Acids and bases

Bronsted-Lowry acid-base equilibria in aqueous solution

Definition and determination of pH

The ionic product of water, KW

Weak acids and bases Ka for weak acids

pH curves, titrations and indicators

Buffer action

Aromatic chemistry

Bonding

Electrophilic substitution

Half Term 4

Amines

Preparation

Base properties

Nucleophilic properties

Polymers

Amino acids, proteins and DNA

Action of anticancer drugs

Half Term 5

Transition Metals

Variable oxidation states

Catalysts

Reactions of ions in aqueous solution

Properties of Period 3 elements and their oxides

Nuclear magnetic resonance spectroscopy

Chromatography

Organic synthesis

Electrode potentials and electrochemical cells

Commercial applications of electrochemical cells

Transition metals

Substitution reactions

Shapes of complex ions

Formation of coloured ions

Year 13 Mocks (February)

Progress Update 3 issued (March)

Exams

3 x 2 hour exams (equally weighted)

Results Day (August)