

# Chemistry

## Year 12 Curriculum Map

Term 1	Term 2	Term 3
<p><b>Module 1 – PAGs</b> PAG 1.2, 2.1, 3.2</p> <p><b>Module 2</b> Students will study the foundations of Chemistry including;</p> <p>2.1.1 Atomic structure and isotopes; 2.1.3 Amount of substance 2.2 Electrons, bonding and structure</p> <p>2.1.4 Acids 2.2 Electrons, bonding and structure; 3.1.1 Periodicity</p> <p>atomic structure, RAM, isotopes, electron configuration, ionic and covalent bonding, dot cross diagrams, moles, Avogadro's constant, reacting masses, concentration and titrations electron configuration, basic geometry, concentration, acids and bases, pH scale, Redox, the periodic table</p>	<p><b>Module 1 – PAGs</b> PAG 4.2, 5.3, 5.2</p> <p><b>Module 3</b> Students will study the foundations of Physical Chemistry including;</p> <p>3.1 The periodic table; 3.2.1 Enthalpy changes</p> <p>3.2.2 Reaction rates; 3.2.3 Chemical equilibrium</p> <p><b>Module 4</b> Students will study the foundations of Organic Chemistry including;</p> <p>4.1.1 Basic concepts of organic chemistry; 4.1.2 Alkanes; 4.1.3 Alkenes</p> <p>4.2 Alcohols, haloalkanes and analysis; 4.2.4 Analytical techniques</p> <p>The periodic table, bond enthalpies, reaction profile diagrams, activation energy and energy changes, catalysts, endothermic and exothermic reactions. alkanes, alkenes, polymers, IUPAC rules for naming organic compounds, functional groups, stereoisomerism, mechanisms, mass spectra, infrared spectroscopy, use of quick fit apparatus, oxidation reactions rates of reaction, dynamic equilibrium, Le Chatelier's principle, alkanes, alkenes, polymers, mechanisms, curly arrow, analytical technique</p>	<p><b>Revision</b></p>



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<p><b>Module 1 – PAGs</b> PAG 9.3, 10.3</p> <p>Module 5 Students will study in depth advanced Physical Chemistry including;</p> <p>5.1.1 How fast?; 5.2.3 Redox and electrode potentials; 5.1.3 Acids, bases and buffers 5.3.1 Transition elements; 5.2.2 Enthalpy and entropy</p> <p>Rates of Reaction, K<sub>c</sub>, K<sub>p</sub>, Dynamic Equilibrium, Le Chatelier's principle, Enthalpy Changes, ionisation energies, Oxidation states, shapes in transition metals, qualitative analysis, Acids and Bases, K<sub>a</sub>, K<sub>w</sub>, Buffers, Redox Titrations, Making Standard Solutions, Clock reactions, Initial rates method, Oxidation states, stereoisomerism in transition metals, Ligan substitution reactions, precipitation reactions</p>	<p><b>Module 1 – PAGs</b> PAG 8.2, 12.1</p> <p>Module 6 Students will study in depth advanced Organic Chemistry including;</p> <p>6.1.2 Carbonyl compounds; 6.2.1 Amines 6.1.1 Aromatic compounds; 6.2.5 Organic synthesis 6.3 Analysis 6.2.5 Organic synthesis</p> <p>IUPAC rules for naming organic compounds, functional groups, stereoisomerism, mechanisms, mass spectra, infrared spectroscopy, use of quick fit apparatus, purification techniques of organic liquids and solids, carbonyl compounds and their derivatives, aromatic compounds, Carbon and Proton NMR, Chromatography, combined analytical techniques, reactions and mechanisms of Nitrogen based organic compounds</p>	<p><b>Module 1 - PAGs</b> <b>PAG 6.1</b></p> <p><b>Revision</b></p>

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<p><b>Issues and Debates</b> Gender and culture in Psychology – androcentrism and alpha - beta. Free will determinism: psychic biological and environmental. The scientific emphasis on causality. The nature-nurture debate: the; the interactionist approach. Holism and reductionism: levels. Idiographic and nomothetic. Ethics, including social sensitivity</p> <p><b>Biopsychology</b> Divisions of the nervous system: central and peripheral (somatic and autonomic). Sensory, relay, motor neurons. Synaptic transmission including excitation and inhibition. Endocrine glands and hormones. The fight or flight response. Localisation of brain function Hemispheric lateralisation: Broca's and Wernicke's area Split brain research by Sperry Plasticity and recovery. Brain scans; fMRI, EEGs, ERPs and post-mortem examinations. Biological rhythm; circadian, infradian and ultradian Endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle.</p> <p><b>Schizophrenia</b> Classification of schizophrenia. Positive symptoms of schizophrenia, including hallucinations and delusions. Negative symptoms of schizophrenia, including speech poverty and avolition. Reliability and validity in diagnosis and classification of schizophrenia, including reference to co-morbidity, culture and gender bias and symptom overlap. Biological explanations for schizophrenia: genetics and neural correlates, including the dopamine hypothesis. Psychological explanations for schizophrenia: family dysfunction and cognitive explanations, including dysfunctional thought processing. Drug therapy: typical and atypical anti-psychotics. Cognitive behaviour therapy and family therapy as used in the treatment of schizophrenia. Token economies as used in the management of schizophrenia. The importance of an interactionist approach in explaining and treating schizophrenia; the diathesis-stress model.</p>	<p><b>Aggression</b> Neural and hormonal mechanisms in aggression, including the roles of the limbic system, serotonin and testosterone. Genetic factors in aggression, including the MAOA gene. The ethological explanation of aggression, including reference to innate releasing mechanisms and fixed action patterns. Evolutionary explanations of human aggression. Social psychological explanations of human aggression, including the frustration-aggression hypothesis, social learning theory as applied to human aggression, and de-individuation. Institutional aggression in the context of prisons: dispositional and situational explanations. Media influences on aggression, including the effects of computer games. The role of desensitisation, disinhibition and cognitive priming.</p> <p><b>Gender</b> Sex-role stereotypes. Androgyny and measuring androgyny including the Bem Sex Role Inventory. The role of chromosomes and hormones (testosterone, oestrogen and oxytocin) in sex and gender. Atypical sex chromosome patterns: Klinefelter's syndrome and Turner's syndrome. Cognitive explanations of gender development, Kohlberg's theory, gender identity, gender stability and gender constancy; gender schema theory. Psychodynamic explanation of gender development, Freud's psychoanalytic theory, Oedipus complex; Electra complex; identification and internalisation. Social learning theory as applied to gender development. The influence of culture and media on gender roles. Atypical gender development: gender dysphoria; biological and social explanations for gender dysphoria.</p>	<p><b>Revision</b></p>