

Curriculum Overview

Science

KS3

	Year 7	Year 8	Year 9
Half term 1	<p>7.01 Particles, Substances and mixtures</p> <p>Particle Model and States of Matter Properties of the States of Matter Changes of State Using a Bunsen Burner Melting and Boiling Points Heating Water Diffusion Gas Pressure Pure Substances and Mixtures Particle Model and Solutions Conservation of Mass in Solutions Saturation and Solubility Temperature and Solubility Filtration, Evaporation and Crystallisation Purifying Rock Salt Distillation Chromatography Interpreting Chromatograms</p>	<p>8PL Light and Sound</p> <p>Light waves Sound waves Reflection Refraction Vision Colour and dispersion</p>	<p>9CR Reactivity</p> <p>Explanation of why some atoms react and some don't in terms of electron Ion diagrams and descriptions RFM and balanced equations Conclusions from practical and equations for all reactions method and equations for reactions of metal oxides equations for reactions – self assessed method for practical already completed method to produce name salt Equations and species oxidized/reduced identified required practical - displacement reactions</p> <p>9PE Electricity and Magnetism</p> <p>Circuit Current in Series</p>

			<p>Current in Parallel Potential Difference and cells Ohm's Law Resistance in a wire Insulators and Static Electricity Magnetic Fields Electromagnets</p>
<p>Half term 2</p>	<p>7.02 Fundamentals in Physics Forces Cause Change Modelling Forces Measuring Forces Balanced and Unbalanced Forces Resultant Forces Forces that Deform Objects Friction Force Investigating Friction and Lubricants Interpreting the Friction and Lubricant Enquiry Energy Stores Energy Pathways Analysing Energy Transfers</p> <p>7.03 Cells and Organisation Organisms Introduction to the Microscope Proficiency with the Microscope Levels of Organisation Animal Cell Structures and Functions Plant Cell Structures and Functions Preparing a Slide to Observe Cells Comparing Cell Structure</p>	<p>8CP The periodic Table Atomic structure and elements Elements and compounds Compounds, formula mass and changes Conservation of mass Group 1 and 7</p> <p>8BD Digestion and Nutrition Diet Food tests – sugars and starch Food tests- protein and fats Digestion Chemical digestion How energy is released from food Model of respiration</p>	<p>9CE Energetics and Rates Measuring the Rate of Reaction Graphs and Rates Concentration and Rate Surface area and Rate Catalysts Energy Changes Combustion and Oxidation Thermal Decomposition</p>

	Needs of Cells Factors Affecting Diffusion 1 Factors Affecting Diffusion 2		
Half term 3	<p>7.04 Chemical Changes</p> <p>Atoms and Elements Element Properties Investigating Elements Compounds Chemical Formulae Naming Compounds Chemical Reactions Chemical Reactions as Rearrangement of Atoms Types of Chemical Reaction – Oxidation Types of Chemical Reaction – Thermal Decomposition Representing Reactions with Chemical Equations Combustion Reactions Investigating Conservation of Mass Exothermic and Endothermic Reactions Investigating Exothermic and Endothermic Reactions</p>	<p>8PS Space</p> <p>Light waves Reflection Refraction Gravity Space Stars</p> <p>8CM Materials and Earth</p> <p>Structure of the Earth Igneous rocks Sedimentary rocks Metamorphic rocks Fossils Fossil fuels Atmosphere changes Greenhouse effects and global warming Resources and recycling</p>	<p>9BB Biological Systems and Processes</p> <p>Musculoskeletal system Respiratory system Gas exchange The effect of exercise Anaerobic and Aerobic respiration Smoking and Alcohol DNA Inheritance</p>
Half term 4	<p>7.05 Organ Systems</p> <p>Sequence of Lessons Unicellular Organisms Multicellular Organisms Gas Exchange System 1 Gas Exchange System 2 Inhaled and Exhaled Air 1 Inhaled and Exhaled Air 2</p>	<p>8PM Matter</p> <p>States of matters Density Pressure and Brownian motion</p>	<p>B1 Cells</p> <p>1. Cell biology 1.1 Cell structure 1.1.1 Eukaryotes and prokaryotes <ul style="list-style-type: none"> • 1.1.1.1 Eukaryotic cells • 1.1.1.2 Prokaryotic cells • 1.1.1.3 Bacterial cells 1.1.2 Animal and plant cells</p>

	<p>Digestive System 1 Digestive System 2 Circulatory System 1 Circulatory System 2 Skeletal System Joints and Movement Muscles and Movement Investigating Muscle Strength</p> <p style="text-align: center;">7.06 Sound and Light</p> <p>Observing Sound Transmission of Sound Distance and Absorption of Sound Sound, Reflection and Scattering Speed of Sound Sound and Hearing Observing Light Transmission of Light Reflection of Light Coloured Light Coloured Objects Reflected Images Refraction of Light Focussing Seeing</p>		<ul style="list-style-type: none"> • 1.1.2.1 Required practical: Using a light microscope to observe cells • 1.1.2.2 Cell ultrastructure • 1.1.2.3 Specialised cells <p>1.1.3 Cell specialisation</p> <ul style="list-style-type: none"> • 1.1.3.1 Sperm cells • 1.1.3.2 Nerve cells • 1.1.3.3 Muscle cells • 1.1.3.4 Root hair cells <p>1.1.4 Cell differentiation</p> <ul style="list-style-type: none"> • 1.1.4.1 Differentiation in animals • 1.1.4.2 Differentiation in plants • 1.1.4.3 Stem cells <p>1.2 Cell division</p> <p>1.2.1 Mitosis and the cell cycle</p> <ul style="list-style-type: none"> • 1.2.1.1 Growth and DNA replication • 1.2.1.2 Mitosis • 1.2.1.3 Cell cycle stages • 1.2.1.4 Cancer (uncontrolled cell division) <p>1.2.2 Stem cells</p> <ul style="list-style-type: none"> • 1.2.2.1 Embryonic stem cells • 1.2.2.2 Adult stem cells • 1.2.2.3 Meristem cells in plants • 1.2.2.4 Stem cell uses and issues (ethics, risks) <p>1.3 Transport in cells</p> <p>1.3.1 Diffusion</p> <ul style="list-style-type: none"> • 1.3.1.1 Factors affecting diffusion • 1.3.1.2 Diffusion in living organisms <p>1.3.2 Osmosis</p>
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			<p>5.1.3 The development of the model of the atom</p> <ul style="list-style-type: none">5.1.3.1 Historical models (Dalton, Thomson, Rutherford, Bohr)5.1.3.2 Nuclear model and evidence <p>5.1.4 Relative electrical charges of subatomic particles</p> <ul style="list-style-type: none">5.1.4.1 Protons, neutrons, electrons and charges <p>5.1.5 Size and mass of atoms</p> <ul style="list-style-type: none">5.1.5.1 Atomic radius and mass5.1.5.2 Relative atomic mass <p>5.1.6 Electronic structure</p> <ul style="list-style-type: none">5.1.6.1 Electron shells and configuration <p>5.1.7 The periodic table</p> <ul style="list-style-type: none">5.1.7.1 Arrangement and groups5.1.7.2 Periods and properties5.1.7.3 Metals and non-metals5.1.7.4 Group 0 – noble gases5.1.7.5 Group 1 – alkali metals5.1.7.6 Group 7 – halogens
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<p>Half term 5</p>	<p>7.07 Materials</p> <p>Ceramics Polymers Polymer Properties and Uses Testing Polymers Problems with Polymers Composite Materials Predicting Properties of Composite Materials Investigating Composite Materials</p>	<p>9BE Ecological Relationships and classification</p> <p>Food webs and impact on food webs Field work Decay Adaptations Classification Natural selection and evolution Impact on biodiversity</p>	<p>P4 Atomic Structure</p> <p>6.4 Atomic structure</p> <p>6.4.1 Atoms and isotopes</p> <ul style="list-style-type: none"> • 6.4.1.1 Structure of the atom • 6.4.1.2 Atomic number and mass number • 6.4.1.3 Isotopes <p>6.4.2 The development of the model of the atom</p> <ul style="list-style-type: none"> • 6.4.2.1 Historical models (Dalton, Thomson, Rutherford, Bohr) • 6.4.2.2 Evidence for the nuclear model <p>6.4.3 Radioactive decay</p> <ul style="list-style-type: none"> • 6.4.3.1 Types of radiation (alpha, beta, gamma) • 6.4.3.2 Properties and uses of radiation • 6.4.3.3 Half-life and radioactive decay • 6.4.3.4 Required practical: Radiation and half-life <p>6.4.4 Hazards and uses of radioactive emissions</p> <ul style="list-style-type: none"> • 6.4.4.1 Dangers of ionising radiation • 6.4.4.2 Medical and industrial uses
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<p>Half term 6</p>	<p>7.08 Life Cycles</p> <p>Heredity The Genome Variation Discontinuous and Continuous Variation Discontinuous Variation: Data Analysis Growth and Development Sexual Reproduction in Humans Male and Female Reproductive Systems Adolescence and Puberty in Humans Fertilisation and Embryo Formation Menstrual Cycle Pregnancy and Foetal Development Birth Flowers and Pollination Fertilisation and Germination Seed Dispersal Asexual Reproduction</p>	<p>9PF Forces</p> <p>What is a force? Balanced and unbalanced forces $W = m \times g$ Pressure friction in moving objects calculating speed Distance time graphs</p>	<p>B2 Organisation</p> <p>2. Organisation</p> <p>2.1 Principles of organisation</p> <p>2.1.1 Levels of organisation</p> <ol style="list-style-type: none"> 1. 2.1.1.1 Cells 2. 2.1.1.2 Tissues 3. 2.1.1.3 Organs 4. 2.1.1.4 Organ systems <p>2.2 Animal tissues, organs and organ systems</p> <p>2.2.1 The human digestive system</p> <ol style="list-style-type: none"> 5. 2.2.1.1 Structure and function of digestive organs 6. 2.2.1.2 Enzymes and digestion 7. 2.2.1.3 Required practical: Food tests 8. 2.2.1.4 Required practical: pH and enzyme activity <p>2.2.2 Enzymes</p> <ol style="list-style-type: none"> 9. 2.2.2.1 Lock and key theory

			<p>10. 2.2.2.2 Factors affecting enzyme action</p> <p>11. 2.2.2.3 Digestive enzymes</p> <p>12. 2.2.2.4 Role of bile</p> <p>2.2.3 The heart and blood</p> <p>13. 2.2.3.1 Heart structure and function</p> <p>14. 2.2.3.2 Blood vessels</p> <p>15. 2.2.3.3 Components of blood</p> <p>16. 2.2.3.4 Coronary heart disease</p> <p>17. 2.2.3.5 Treatments for heart disease</p> <p>18. 2.2.3.6 Artificial hearts</p> <p>2.2.4 The lungs</p> <p>19. 2.2.4.1 Gas exchange system</p> <p>20. 2.2.4.2 Alveoli and diffusion</p> <p>21. 2.2.4.3 Mechanism of ventilation</p> <p>2.3 Plant tissues, organs and systems</p> <p>2.3.1 Plant tissues</p> <p>22. 2.3.1.1 Epidermal tissue</p> <p>23. 2.3.1.2 Palisade mesophyll</p> <p>24. 2.3.1.3 Spongy mesophyll</p> <p>25. 2.3.1.4 Xylem and phloem</p> <p>26. 2.3.1.5 Meristem tissue</p> <p>2.3.2 Plant organ systems</p> <p>27. 2.3.2.1 Root system</p>
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Curriculum Overview

Science

KS4

	Year 10	Year 11
Half term 1	<p>P1 Energy</p> <p>6.1.1 Energy changes in a system</p> <ul style="list-style-type: none"> 6.1.1.1 Energy stores (kinetic, gravitational, elastic, thermal, chemical, nuclear) 6.1.1.2 Calculating kinetic energy 6.1.1.3 Calculating gravitational potential energy 6.1.1.4 Elastic potential energy and Hooke's law 6.1.1.5 Specific heat capacity 6.1.1.6 Required practical: Specific heat capacity <p>6.1.2 Conservation and dissipation of energy</p> <ul style="list-style-type: none"> 6.1.2.1 Conservation of energy principle 6.1.2.2 Energy transfers in closed systems 	<p>C6 Rates</p> <p>5.6 The rate and extent of chemical change</p> <p>5.6.1 Rate of reaction</p> <ul style="list-style-type: none"> 5.6.1.1 Measuring rates 5.6.1.2 Factors affecting rate 5.6.1.3 Required practical: Rate of reaction <p>5.6.2 Collision theory and activation energy</p> <ul style="list-style-type: none"> 5.6.2.1 Particle collisions and energy <p>5.6.3 Catalysts</p> <ul style="list-style-type: none"> 5.6.3.1 Role and benefits of catalysts

- 6.1.2.3 Dissipation and wasted energy
- 6.1.2.4 Reducing unwanted energy transfers (insulation, lubrication)
- 6.1.2.5 Required practical: Investigating insulation

6.1.3 National and global energy resources

- 6.1.3.1 Renewable energy resources
- 6.1.3.2 Non-renewable energy resources
- 6.1.3.3 Environmental impacts of energy use
- 6.1.3.4 Trends in energy use
- 6.1.3.5 Evaluating energy resources

C2 Bonding

5.2 Bonding, structure and the properties of matter

5.2.1 Chemical bonds

- 5.2.1.1 Ionic bonding
- 5.2.1.2 Covalent bonding
- 5.2.1.3 Metallic bonding

5.2.2 How bonding and structure are related to properties

- 5.2.2.1 Structure and melting/boiling points
- 5.2.2.2 Properties of ionic compounds
- 5.2.2.3 Properties of simple molecules
- 5.2.2.4 Giant covalent structures
- 5.2.2.5 Properties of metals and alloys
- 5.2.2.6 Conductivity in metals and ionic compounds

5.6.4 Reversible reactions and dynamic equilibrium

- 5.6.4.1 Reversible reactions
- 5.6.4.2 Energy changes in reversible reactions
- 5.6.4.3 Equilibrium and Le Chatelier's Principle

B7 Ecology

7.1 Adaptations, interdependence and competition

- 7.1.1.1 Structural, behavioural, functional adaptations
- 7.1.1.2 Competition in animals and plants

7.2 Organisation of an ecosystem

- 7.2.1.1 Food chains and trophic levels
- 7.2.1.2 Pyramids of biomass
- 7.2.1.3 Required practical: Field investigations

7.3 Biodiversity and the effect of human interaction

- 7.3.1.1 Biodiversity importance
- 7.3.1.2 Pollution
- 7.3.1.3 Land use
- 7.3.1.4 Global warming
- 7.3.1.5 Conservation strategies

B5 Homeostasis

5.1 Homeostasis

- 5.1.1.1 Control systems
- 5.1.1.2 Negative feedback

5.2 The human nervous system

- 5.2.1.1 Structure of the nervous system
- 5.2.1.2 Reflex arc
- 5.2.1.3 Required practical: Reaction time

5.3 Hormonal coordination

- 5.3.1.1 Endocrine system
- 5.3.1.2 Blood glucose control

5.2.3 Structure and bonding of carbon

- 5.2.3.1 Diamond and graphite
- 5.2.3.2 Graphene and fullerenes

5.2.4 Nanoparticles

- 5.2.4.1 Uses and risks of nanoparticles

P2 Electricity

6.2 Electricity

6.2.1 Current, potential difference and resistance

- 6.2.1.1 Electric current and charge flow
- 6.2.1.2 Potential difference and resistance
- 6.2.1.3 Ohm's law and resistance calculations
- 6.2.1.4 Required practical: Resistance in circuits

6.2.2 Series and parallel circuits

- 6.2.2.1 Characteristics of series circuits
- 6.2.2.2 Characteristics of parallel circuits
- 6.2.2.3 Current and potential difference in circuits

6.2.3 Domestic uses and safety

- 6.2.3.1 Mains electricity and plug components
- 6.2.3.2 Power and energy transfers
- 6.2.3.3 Electrical safety features

6.2.4 Energy transfers

- 6.2.4.1 Power, energy and time calculations

- 5.3.1.3 Diabetes

5.4 Reproduction

- 5.4.1.1 Sexual and asexual reproduction
- 5.4.1.2 Meiosis
- 5.4.1.3 DNA and genome

5.5 Hormones in human reproduction

- 5.5.1.1 Menstrual cycle
- 5.5.1.2 Fertility treatments

- 6.2.4.2 Efficiency of electrical devices
- 6.2.5 The National Grid
- 6.2.5.1 Structure and function of the National Grid
 - 6.2.5.2 Transformers and transmission efficiency

P6 Waves

6.6 Waves

6.6.1 Properties of waves

- 6.6.1.1 Transverse and longitudinal waves
- 6.6.1.2 Wave speed, frequency and wavelength
- 6.6.1.3 Required practical: Measuring waves

6.6.2 Reflection and refraction

- 6.6.2.1 Wavefronts and ray diagrams
- 6.6.2.2 Refraction at boundaries

6.6.3 Sound waves

- 6.6.3.1 Properties and uses of sound
- 6.6.3.2 Ultrasound and applications

6.6.4 Seismic waves

- 6.6.4.1 Types of seismic waves
- 6.6.4.2 Earth structure and wave behaviour

6.6.5 Electromagnetic waves

- 6.6.5.1 EM spectrum and wave properties
- 6.6.5.2 Uses and dangers of EM radiation

	<ul style="list-style-type: none"> 6.6.5.3 Required practical: EM radiation and absorption 	
<p>Half term 2</p>	<p>B3 Organisation and Response</p> <p>3. Infection and response</p> <p>3.1 Communicable diseases</p> <ul style="list-style-type: none"> 3.1.1.1 Pathogens and disease 3.1.1.2 Bacteria and viruses 3.1.1.3 Fungi and protists 3.1.1.4 How diseases spread <p>3.2 Viral, bacterial, fungal and protist diseases</p> <ul style="list-style-type: none"> 3.2.1.1 Measles 3.2.1.2 HIV 3.2.1.3 Tobacco mosaic virus 3.2.2.1 Salmonella 3.2.2.2 Gonorrhoea 3.2.3.1 Rose black spot 3.2.4.1 Malaria <p>3.3 Human defence systems</p> <ul style="list-style-type: none"> 3.3.1.1 Skin and physical barriers 3.3.1.2 White blood cells 3.3.1.3 Antibodies and antitoxins <p>3.4 Vaccination</p> <ul style="list-style-type: none"> 3.4.1.1 How vaccines work 3.4.1.2 Herd immunity <p>3.5 Antibiotics and painkillers</p> <ul style="list-style-type: none"> 3.5.1.1 Antibiotics and resistance 3.5.1.2 Painkillers and symptom relief <p>3.6 Discovery and development of drugs</p> <ul style="list-style-type: none"> 3.6.1.1 Drug sources 3.6.1.2 Preclinical testing 3.6.1.3 Clinical trials 	<p>P5 Forces</p> <p>6.5 Forces</p> <p>6.5.1 Forces and their interactions</p> <ul style="list-style-type: none"> 6.5.1.1 Contact and non-contact forces 6.5.1.2 Vector and scalar quantities 6.5.1.3 Resultant forces <p>6.5.2 Work done and energy transfer</p> <ul style="list-style-type: none"> 6.5.2.1 Calculating work done 6.5.2.2 Power and energy transfer <p>6.5.3 Forces and elasticity</p> <ul style="list-style-type: none"> 6.5.3.1 Hooke's law and elastic potential energy 6.5.3.2 Required practical: Force and extension <p>6.5.4 Moments, levers and gears</p> <ul style="list-style-type: none"> 6.5.4.1 Turning effects and moment calculations 6.5.4.2 Levers and gears in systems <p>6.5.5 Pressure and pressure differences in fluids</p> <ul style="list-style-type: none"> 6.5.5.1 Pressure in liquids and gases 6.5.5.2 Atmospheric pressure

C3 Quantitative

5.3 Quantitative chemistry

5.3.1 Conservation of mass and balanced equations

- 5.3.1.1 Mass conservation in reactions
- 5.3.1.2 Balancing chemical equations

5.3.2 Relative formula mass

- 5.3.2.1 Calculating relative formula mass

5.3.3 Mass changes when a reactant or product is a gas

- 5.3.3.1 Apparent mass changes in open systems

5.3.4 Chemical measurements

- 5.3.4.1 Uncertainty and accuracy

5.3.5 Moles

- 5.3.5.1 The mole and Avogadro constant
- 5.3.5.2 Calculating moles

5.3.6 Amounts in reactions

- 5.3.6.1 Using moles to calculate masses

5.3.7 Limiting reactants

- 5.3.7.1 Identifying limiting reagents

5.3.8 Concentration of solutions

- 5.3.8.1 Calculating concentration in g/dm^3

6.5.6 Forces and motion

- 6.5.6.1 Distance, displacement, speed and velocity
- 6.5.6.2 Acceleration and motion graphs
- 6.5.6.3 Newton's laws of motion
- 6.5.6.4 Required practical: Acceleration

6.5.7 Momentum

- 6.5.7.1 Conservation of momentum
- 6.5.7.2 Collisions and safety applications

B6 Inheritance

1 Variation and evolution

- 6.1.1.1 Causes of variation
- 6.1.1.2 Natural selection
- 6.1.1.3 Speciation

6.2 Genetics

- 6.2.1.1 DNA structure
- 6.2.1.2 Genetic inheritance
- 6.2.1.3 Punnett squares

6.3 Selective breeding

- 6.3.1.1 Process
- 6.3.1.2 Advantages and disadvantages

6.4 Genetic engineering

- 6.4.1.1 GM organisms
- 6.4.1.2 Ethical issues

6.5 Fossils and extinction

- 6.5.1.1 Fossil formation
- 6.5.1.2 Causes of extinction

Half term 3	<p>C4 Chemical Change 5.4 Chemical changes</p> <p>5.4.1 Reactivity of metals</p> <ul style="list-style-type: none"> • 5.4.1.1 Metal and acid reactions • 5.4.1.2 Metal and water reactions • 5.4.1.3 Reactivity series • 5.4.1.4 Displacement reactions <p>5.4.2 Extraction of metals and reduction</p> <ul style="list-style-type: none"> • 5.4.2.1 Carbon reduction and electrolysis <p>5.4.3 Oxidation and reduction in terms of electrons</p> <ul style="list-style-type: none"> • 5.4.3.1 Definitions of oxidation and reduction <p>5.4.4 Reactions of acids</p> <ul style="list-style-type: none"> • 5.4.4.1 Acids with metals, bases and carbonates • 5.4.4.2 Soluble salt preparation <p>5.4.5 Strong and weak acids</p> <ul style="list-style-type: none"> • 5.4.5.1 pH scale and acid strength <p>B4 Bioenergetics 4.1 Photosynthesis</p> <ul style="list-style-type: none"> • 4.1.1.1 Photosynthesis equation 	<p>P7 Magnetism 6.7 Magnetism and electromagnetism</p> <p>6.7.1 Permanent and induced magnetism</p> <ul style="list-style-type: none"> • 6.7.1.1 Magnetic fields and field lines • 6.7.1.2 Magnetic materials and poles <p>6.7.2 The motor effect</p> <ul style="list-style-type: none"> • 6.7.2.1 Magnetic force on a current-carrying wire • 6.7.2.2 Electric motors and applications <p>6.7.3 Electromagnetic induction</p> <ul style="list-style-type: none"> • 6.7.3.1 Induced potential and current <p>6.7.3.2 Transformers and power transmission</p> <p>C7 Organic 5.7 Organic chemistry</p> <p>5.7.1 Carbon compounds as fuels and feedstock</p> <ul style="list-style-type: none"> • 5.7.1.1 Crude oil and hydrocarbons • 5.7.1.2 Fractional distillation • 5.7.1.3 Properties of hydrocarbons • 5.7.1.4 Cracking and alkenes <p>5.7.2 Reactions of alkenes and alcohols</p> <ul style="list-style-type: none"> • 5.7.2.1 Addition reactions
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	<ul style="list-style-type: none"> • 4.1.1.2 Limiting factors • 4.1.1.3 Required practical: Photosynthesis <p>4.2 Respiration</p> <ul style="list-style-type: none"> • 4.2.1.1 Aerobic respiration • 4.2.1.2 Anaerobic respiration • 4.2.1.3 Metabolism 	<ul style="list-style-type: none"> • 5.7.2.2 Alcohols and carboxylic acids • 5.7.2.3 Esters <p>5.7.3 Polymers</p> <ul style="list-style-type: none"> • 5.7.3.1 Addition and condensation polymerisation • 5.7.3.2 Natural and synthetic polymers <p>C8 Analysis</p> <p>5.8 Chemical analysis</p> <p>5.8.1 Pure substances and formulations</p> <ul style="list-style-type: none"> • 5.8.1.1 Pure vs mixtures • 5.8.1.2 Formulations and uses <p>5.8.2 Chromatography</p> <ul style="list-style-type: none"> • 5.8.2.1 Required practical: Chromatography <p>5.8.3 Identification of gases</p> <ul style="list-style-type: none"> • 5.8.3.1 Tests for common gases
<p>Half term 4</p>	<p>P4 Atomic Structure</p> <p>4.1 Atoms and isotopes</p> <ul style="list-style-type: none"> • 6.4.1.1 Structure of the atom • 6.4.1.2 Atomic number and mass number • 6.4.1.3 Isotopes 	<p>C9 Earth's Atmosphere</p> <p>5.9 Chemistry of the atmosphere</p> <p>5.9.1 The Earth's early atmosphere</p> <ul style="list-style-type: none"> • 5.9.1.1 Evolution of the atmosphere <p>5.9.2 Greenhouse gases</p> <ul style="list-style-type: none"> • 5.9.2.1 Greenhouse effect

6.4.2 The development of the model of the atom

- 6.4.2.1 Historical models (Dalton, Thomson, Rutherford, Bohr)
- 6.4.2.2 Evidence for the nuclear model

6.4.3 Radioactive decay

- 6.4.3.1 Types of radiation (alpha, beta, gamma)
- 6.4.3.2 Properties and uses of radiation
- 6.4.3.3 Half-life and radioactive decay
- 6.4.3.4 Required practical: Radiation and half-life

6.4.4 Hazards and uses of radioactive emissions

- 6.4.4.1 Dangers of ionising radiation
- 6.4.4.2 Medical and industrial uses

6.4.5 Nuclear fission and fusion

6.4.5.1 Nuclear fission process

C5 Energy Changes

5.5 Energy changes

5.5.1 Exothermic and endothermic reactions

- 5.5.1.1 Definitions and examples
- 5.5.1.2 Required practical: Temperature changes

5.5.2 Reaction profiles

- 5.5.2.1 Energy level diagrams

5.5.3 Bond energy calculations

- 5.5.3.1 Calculating energy changes

- 5.9.2.2 Human impact and climate change

5.9.3 Atmospheric pollutants

- 5.9.3.1 Sources and effects of pollutants

C10 Using Resources

5.10 Using resources

5.10.1 Using the Earth's resources and sustainable development

- 5.10.1.1 Finite and renewable resources
- 5.10.1.2 Sustainable development

5.10.2 Potable water

- 5.10.2.1 Water treatment
- 5.10.2.2 Required practical: Water purification

5.10.3 Life cycle assessment and recycling

- 5.10.3.1 Environmental impact of products

5.10.4 Using materials

- 5.10.4.1 Corrosion and prevention
- 5.10.4.2 Alloys, ceramics, polymers and composites

5.10.5 The Haber process and NPK fertilisers

- 5.10.5.1 Ammonia production
- 5.10.5.2 Fertiliser formulations

P8 (Triple Physics only) Space

	<p>5.5.4 Cells and batteries</p> <ul style="list-style-type: none"> 5.5.4.1 Chemical cells and fuel cells <p>5.5.5 Hydrogen fuel cells</p> <ul style="list-style-type: none"> 5.5.5.1 Advantages and disadvantages 	<p>6.8 Space physics</p> <p>6.8.1 The solar system</p> <ul style="list-style-type: none"> 6.8.1.1 Planets, moons and artificial satellites 6.8.1.2 Orbits and gravitational fields <p>6.8.2 Life cycle of a star</p> <ul style="list-style-type: none"> 6.8.2.1 Stellar evolution (nebula to black hole) 6.8.2.2 Nuclear fusion in stars <p>6.8.3 The expanding universe</p> <ul style="list-style-type: none"> 6.8.3.1 Red-shift and evidence for expansion 6.8.3.2 The Big Bang theory
<p>Half term 5</p>	<p>B5 Homeostasis</p> <p>Homeostasis</p> <ul style="list-style-type: none"> 5.1.1.1 Control systems 5.1.1.2 Negative feedback <p>5.2 The human nervous system</p> <ul style="list-style-type: none"> 5.2.1.1 Structure of the nervous system 5.2.1.2 Reflex arc 5.2.1.3 Required practical: Reaction time <p>5.3 Hormonal coordination</p> <ul style="list-style-type: none"> 5.3.1.1 Endocrine system 5.3.1.2 Blood glucose control 5.3.1.3 Diabetes <p>5.4 Reproduction</p> <ul style="list-style-type: none"> 5.4.1.1 Sexual and asexual reproduction 5.4.1.2 Meiosis 5.4.1.3 DNA and genome <p>5.5 Hormones in human reproduction</p>	<p>GCSE Revision and preparation</p>

- 5.5.1.1 Menstrual cycle
- 5.5.1.2 Fertility treatments

P5 Forces

6.5 Forces

6.5.1 Forces and their interactions

- 6.5.1.1 Contact and non-contact forces
- 6.5.1.2 Vector and scalar quantities
- 6.5.1.3 Resultant forces

6.5.2 Work done and energy transfer

- 6.5.2.1 Calculating work done
- 6.5.2.2 Power and energy transfer

6.5.3 Forces and elasticity

- 6.5.3.1 Hooke's law and elastic potential energy
- 6.5.3.2 Required practical: Force and extension

6.5.4 Moments, levers and gears

- 6.5.4.1 Turning effects and moment calculations
- 6.5.4.2 Levers and gears in systems

6.5.5 Pressure and pressure differences in fluids

- 6.5.5.1 Pressure in liquids and gases
- 6.5.5.2 Atmospheric pressure

6.5.6 Forces and motion

- 6.5.6.1 Distance, displacement, speed and velocity

- 6.5.6.2 Acceleration and motion graphs
- 6.5.6.3 Newton's laws of motion
- 6.5.6.4 Required practical: Acceleration

6.5.7 Momentum

- 6.5.7.1 Conservation of momentum
- 6.5.7.2 Collisions and safety applications
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B7 Ecology

7.1 Adaptations, interdependence and competition

- 7.1.1.1 Structural, behavioural, functional adaptations
- 7.1.1.2 Competition in animals and plants

7.2 Organisation of an ecosystem

- 7.2.1.1 Food chains and trophic levels
- 7.2.1.2 Pyramids of biomass
- 7.2.1.3 Required practical: Field investigations

7.3 Biodiversity and the effect of human interaction

- 7.3.1.1 Biodiversity importance
- 7.3.1.2 Pollution
- 7.3.1.3 Land use
- 7.3.1.4 Global warming
- 7.3.1.5 Conservation strategies

<p>Half term 6</p>	<p>P7 Magnetism</p> <p>6.7 Magnetism and electromagnetism</p> <p>6.7.1 Permanent and induced magnetism</p> <ul style="list-style-type: none"> • 6.7.1.1 Magnetic fields and field lines • 6.7.1.2 Magnetic materials and poles <p>6.7.2 The motor effect</p> <ul style="list-style-type: none"> • 6.7.2.1 Magnetic force on a current-carrying wire • 6.7.2.2 Electric motors and applications <p>6.7.3 Electromagnetic induction</p> <ul style="list-style-type: none"> • 6.7.3.1 Induced potential and current <p>6.7.3.2 Transformers and power transmission</p> <p>C9 Earth's Atmosphere</p> <p>5.9 Chemistry of the atmosphere</p> <p>5.9.1 The Earth's early atmosphere</p> <ul style="list-style-type: none"> • 5.9.1.1 Evolution of the atmosphere <p>5.9.2 Greenhouse gases</p> <ul style="list-style-type: none"> • 5.9.2.1 Greenhouse effect • 5.9.2.2 Human impact and climate change <p>5.9.3 Atmospheric pollutants</p> <ul style="list-style-type: none"> • 5.9.3.1 Sources and effects of pollutants 	

C10 Using Resources

5.10 Using resources

5.10.1 Using the Earth's resources and sustainable development

- 5.10.1.1 Finite and renewable resources
- 5.10.1.2 Sustainable development

5.10.2 Potable water

- 5.10.2.1 Water treatment
- 5.10.2.2 Required practical: Water purification

5.10.3 Life cycle assessment and recycling

- 5.10.3.1 Environmental impact of products

5.10.4 Using materials

- 5.10.4.1 Corrosion and prevention
- 5.10.4.2 Alloys, ceramics, polymers and composites

5.10.5 The Haber process and NPK fertilisers

- 5.10.5.1 Ammonia production
- 5.10.5.2 Fertiliser formulations

Curriculum Overview

Biology

KS5

	Year 12	Year 13
Half term 1	The aim of term one is to review knowledge and skills from GCSE and establish the foundation units for the course. Establishing practical skills through the required practical's is another key focus of the foundation term.	Term 4 reviews the more difficult concept topic area of respiration and photosynthesis, whilst building the content and skills required for A level standard application. The synoptic essay becomes a regular focus building up to closed book timed practices.
Half term 2	<p>Unit 1 Biological Molecules <u>Biological Molecules</u></p> <ul style="list-style-type: none"> • Introduction to biological molecules • Carbohydrates and monosaccharides • Carbohydrates – disaccharides and polysaccharides • Starch, glycogen and cellulose • Lipids • Proteins • Enzyme action • Factors affecting enzyme action • Enzyme inhibition <p><u>Nucleic acids</u></p> <ul style="list-style-type: none"> • Structure of RNA and DNA • DNA Replication • Energy and ATP • Water and its Functions <p>Unit 2 Cells <u>Cell structure</u></p> <ul style="list-style-type: none"> • Methods of studying cells • The electron microscope • Microscopic measurements and calculations • Eukaryotic cell structure • Cell specialism and organisation • Prokaryotic cells and viruses • Mitosis 	<p>Unit 5 Energy transfer in and between organisms review <u>Photosynthesis</u></p> <ul style="list-style-type: none"> • Overview of photosynthesis • The light-dependant reaction • The light independent reaction <p><u>Respiration</u></p> <ul style="list-style-type: none"> • Glycolysis • Link reaction and Krebs cycle • Oxidative phosphorylation • Anaerobic respiration <p>Unit 5 Energy transfer in and between organisms <u>Energy and ecosystems</u></p> <ul style="list-style-type: none"> • Food chains and energy transfer • Energy transfer and productivity • Nutrient cycles • Use of natural and artificial fertilisers • Environmental issues concerning use of nitrogen-containing fertilisers <p>Unit 6 Organisms respond to changes in their environment <u>Response to stimuli</u></p> <ul style="list-style-type: none"> • Survival and response

	<ul style="list-style-type: none"> • The cell cycle <p><u>Transport across membranes</u></p> <ul style="list-style-type: none"> • Structure of the cell surface membrane • Diffusion • Osmosis • Active transport • Co-transport and absorption of glucose in the ileum <p><u>Cell recognition and response</u></p> <ul style="list-style-type: none"> • Defence mechanisms • Phagocytosis • T-Lymphocytes and cell mediated immunity • B-Lymphocytes and humoral immunity • Antibodies • Vaccination <ul style="list-style-type: none"> • Human Immunodeficiency virus (HIV) 	<ul style="list-style-type: none"> • Plant growth factors • A reflex arc • Receptors • Control of heart rate <p><u>Nervous coordination and muscles</u></p> <ul style="list-style-type: none"> • Neurones and the nervous system • The nerve impulse • Passage of an action potential • Speed of the nerve impulse • Structure and function of synapses • Transmission across a synapse • Structure of skeletal muscle • Contraction of skeletal muscle <p><u>Homeostasis</u></p> <ul style="list-style-type: none"> • Principles of homeostasis • Feedback mechanisms • Hormones and the regulation of blood glucose concentration • Diabetes and its control • Control of blood water potential – structure of the nephron • Role of the nephron in osmoregulation <ul style="list-style-type: none"> • The role of hormones in osmoregulation
<p>Half term 3</p>	<p>Term 2 builds on the knowledge and understanding to further apply theory to content.</p>	<p>Term 5 begins with the mock examination period to check for students A level standard ability. Completion of the course and preparation for the final examinations are the primary focus at this point in the course.</p>
<p>Half term 4</p>	<p>Unit 3 Organisms exchange substances with their environment</p> <p><u>Exchange</u></p> <ul style="list-style-type: none"> • Exchange between organisms and their environment • Gas exchange in single-celled organisms and insects • Gas exchange in fish • Gas exchange in the leaf of a plant • Limiting water loss • Structure of the human gas exchange system • The mechanism of breathing 	<p>PPE revision</p> <p>Review / recap / recover</p> <p>Focus on application and challenge questions</p> <p>Mock Examination</p> <p>A level paper 1 & 2 (unit 5/6 only) plus essay</p> <p>Unit 7 Genetics, populations, evolution and ecosystems</p>

- Exchange of gases in the lungs
- Enzymes and digestion
- Absorption of the products of digestion
- Mass transport
- Haemoglobin
- Transport of oxygen by haemoglobin
- Circulatory system of a mammal
- The structure of the heart
- The cardiac cycle
- Blood vessels and their functions
- Transport of water in the xylem
- Transport of organic molecules in the phloem
 - Investigating transport in plants

- Inherited change
- Studying inheritance
- Monohybrid inheritance
- Probability and genetic crosses
- Dihybrid Inheritance
- Codominance and multiple alleles
- Sex-Linkage
- Autosomal Linkage
- Epistasis
- The chi-squared test
- Populations and evolution
- Population genetics
- Variation in phenotype
- Natural selection
- Effects of different forms of selection on evolution
- Isolation and speciation
- Populations in ecosystems
- Variation in population size
- Competition
- Predation
- Investigating populations
- Succession
- Conservation of habitats
- Unit 8 The control of gene expression**
- Gene expression
- Gene mutations
- Stem cells and totipotency
- Regulation of transcription and translation
- Epigenetic control of gene expression
- Gene expression and cancer
- Genome projects
- Recombinant DNA Technology

		<ul style="list-style-type: none"> • Producing DNA fragments • In Vivo gene cloning – the use of vectors • In vitro gene cloning – the polymerisation chain reaction • Locating genes, genetic
<p>Half term 5</p>	<p>Term 3 focuses on completion of the AS content whilst consolidating the skills and application required to demonstrate AS level ability in mock examinations. Post mock the more difficult topic of respiration and photosynthesis is studied to allow opportunity to review throughout the remainder of the course. Preparation for the synoptic essay is introduced in term 3 on an AS topic only level.</p> <p>Unit 4 Genetic Information, variation and relationships between organisms</p> <p><u>DNA, Genes and protein synthesis</u></p>	<p>Review / Recap / Recover</p> <ul style="list-style-type: none"> • Focus on Application / Challenge • Focus on Compulsory practical skills • Focus on Math skills <p>External examinations</p> <p>Paper 1, 2 & 3</p> <p>CPAC</p>
<p>Half term 6</p>	<ul style="list-style-type: none"> • Genes and the triplet code • DNA and chromosomes • The structure of ribonucleic acid • Protein synthesis – transcription and splicing • Protein synthesis – translation <p><u>Genetic diversity</u></p> <ul style="list-style-type: none"> • Mutations, meiosis and genetic variation • Genetic diversity and adaptation • Types of selection <p><u>Biodiversity</u></p> <ul style="list-style-type: none"> • Species and taxonomy • Diversity within a community • Species diversity and human activity • Investigating diversity <p>Statistical Tests</p> <ul style="list-style-type: none"> • Chi – Square • Spearman’s Rank • T-Test 	

PPE revision

Review / recap / recover – Focus on application and challenge questions

Mock Examination – AS paper 1 & 2

Unit 5 Energy transfer in and between organisms

Photosynthesis

- Overview of photosynthesis
- The light-dependant reaction
- The light independent reaction

Respiration

Glycolysis

- Link reaction and Krebs cycle
- Oxidative phosphorylation
- Anaerobic respiration

Curriculum Overview

Chemistry

KS5

	Year 12	Year 13
Half term 1	<p>Year 12 begins with a review of what is studied at GCSE, where knowledge of atomic structure is developed to include electron orbitals which leads into more detailed understanding of bonding between atoms. Further understanding of the properties of elements in the periodic table is gained here, where familiarity of the concepts approached already exists, this aids the transition from GCSE to A-Level. This is also true for the early units of organic chemistry where alkanes and fractional distillation are also studied in GCSE, though the focus shifts to the chemistry of cracking and the impact of this on the environment. Later units in this term look at the reactivity and properties of different types of molecules and students begin to predict products of reactions between given molecules.</p> <p>Units covered</p> <ul style="list-style-type: none"> • 3.1.1 Atomic structure • 3.1.3 Bonding • 3.1.2 Amount of substance • 3.2.1 Periodicity • 3.2.2 Group 2 • 3.2.3 Group 7 • 3.3.1 Introduction to organic chemistry • 3.3.2 Alkanes 	<p>Prior learning of equilibria and acids and bases are applied and developed here, alongside further development and application of mathematical skills. The concepts of isomerism are applied to more complex examples and biological topics are introduced as optical isomerism is key to some metabolic reactions.</p> <p>Units covered</p> <ul style="list-style-type: none"> • 3.1.10 Equilibrium constant for homogeneous systems • 3.1.12 Acids and bases • 3.2.4 Properties of period 3 • 3.3.7 Optical isomers • 3.3.8 Aldehydes and ketones <ul style="list-style-type: none"> • 3.3.9 Carboxylic acids and their derivatives
Half term 2		

	<ul style="list-style-type: none"> 3.3.3 Halogenoalkanes 3.3.4 Alkenes 	
Half term 3	<p>Understanding of energy changes in reactions also build upon what has been studied in GCSE however the reaction routes are studied here adding to the mathematical challenge at this level, students develop their understanding of reaction mechanisms and apply their understanding to the benefits and effects of catalysts in certain processes. Understanding of chemical equilibria is relevant to industrial processes and ensure the students consider reaction conditions and yield. Practical skills are developed throughout the course and are used to enhance the learning of key concepts, particularly organic analysis where students are able to use chemical techniques to identify functional groups in molecules.</p>	<p>Units covered</p> <ul style="list-style-type: none"> 3.1.9 Rate equation 3.1.11 Electrode potentials and electrochemical cells 3.2.5 Transition metals 3.3.10 Aromatic chemistry 3.3.11 Amines 3.3.13 Amino acids proteins and DNA 3.3.14 Organic synthesis
Half term 4	<p>Units covered</p> <ul style="list-style-type: none"> 3.1.4 Energetics 3.1.5 Kinetics 3.1.6 Chemical equilibria 3.1.7 Redox 3.3.5 Alcohols 3.3.6 Organic analysis 	
Half term 5	<p>Students begin to use prior assessments and feedback to inform their revision in preparation for their mock examinations. These mocks are set in the same format as the A-level examinations to support their resilience under exam conditions. Once complete and reviewed with</p>	<p>Upon completion of the A-level content, students will use their mock papers, notes, revision guides, QLA's and marked activities to revise key concepts, phrases and knowledge and try to apply it to different situations. Students will be given practice exam questions and regular tests that will enable them to see what topics they should focus their revision on. This is in preparation for their final examinations.</p>

Half term 6

students, they spend some time ensuring mastery of target areas. Once complete, A-level teaching begins.

Units covered
3.1.8 Thermodynamics

Curriculum Overview

Physics

KS5

	Year 12	Year 13
Half term 1	<p>In this term the aim is to build on concepts learned at GCSE whilst developing their ability to solve problems. We are trying to get them to ‘think like a physicist when approaching questions’ as well as challenging their mathematical ability in different contexts.</p> <p>There is an emphasis on students being independent learners and taking responsibility for their own work and organisation through their classwork and homework.</p> <p>3.4.1 Force, energy, momentum</p>	<p>Students should now have a grasp of the recurring themes that run through physics, in practical work the emphasis on straight line graphs to show relationships and in calculations the need to identify what they are being told and what they need to find, including intermediary steps.</p> <p>Thermal physics builds on GCSE Physics but adds complications such as the vessel being heated as well. Gas Laws uses the knowledge from GCSE but emphasises calculations and looks at the behaviour of particles.</p> <p>3.6.1 SHM 3.6.2 Thermal physics</p>
Half term 2	<p>During the course of this term students meet complicated calculations that bring together concepts already learned in the first term and new ideas taught now eg applying resolution of vectors to momentum calculations. Practicals are used to emphasise a scientific way of working and to look at recurring themes such as the use of straight-line graphs to find unknowns. Students are introduced to more sophisticated ways of analysing data such as absolute and % uncertainty through class and required practical’s. The first 2 terms are used to lay the foundation for future A level studies.</p> <p>3.4.1 Force, energy, momentum 3.4.2 Materials</p>	<p>General concepts of fields is taught to begin with. Comparisons are made between gravitational and electric fields. Gravitational fields build on previous knowledge from Y12 and also on the concept of field lines gained from GCSE magnetic fields and electric fields. Emphasis is placed on the similarities of these fields that can be drawn upon with all fields. Circular motion is used and revisited when looking at the motion of satellites for example.</p> <p>Work on capacitors requires revision of current electricity. The exponential decay and growth of capacitors is taught with an eye on radioactive decay that will follow later.</p> <p>3.7.1 Fields 3.7.2 Gravitational fields 3.7.3 Electric fields 3.7.4 Capacitance</p>

<p>Half term 3</p>	<p>The electricity unit builds on GCSE knowledge but takes that further through more complicated circuits and problems. The light unit is not so heavily mathematical as previous units but builds their special awareness and their application of knowledge to understand problems and seek solutions.</p> <p>3.5.1 Current electricity 3.3.2 Refraction, diffraction and interference</p>	<p>Vector fields uses the knowledge from Y12 term 1 and with magnetic fields the work on circular motion is revisited again and contextualised.</p> <p>3.7.5 Magnetic fields</p>
<p>Half term 4</p>	<p>The particles unit relies heavily on content so the emphasis in this unit is on the learning of facts and recall of these in order to answer questions. This unit does not appeal quite so well to the traditional physics way of thinking so a different skill set has to be developed with emphasis on note taking and learning.</p> <p>3.3.2 Refraction, diffraction and interference 3.2.1 Particles</p>	<p>Again this topic builds on the work of GCSE and also on the work done on capacitors.</p> <p>3.8.1 Radioactivity</p>
<p>Half term 5</p>	<p>3.2.2 Electromagnetic radiation and quantum As well as the last topic of the AS course there is time taken to revisit previous work and revise for the end of year exams. Much of the work learned at Y12 will be needed at A-level when solving problems and understanding concepts eg vector fields in magnetism.</p>	<p>Rotational dynamics is build on the previous work on equations of motion, torque, work done and circular motion, new concepts are introduced such as moment of inertia. This acts as a good revision of Y12 and Y13 work.</p> <p>Thermodynamics and heat engines enables the students to revise thermal physics previously learned and develop a knowledge of engine cycles.</p> <p>3.11.1 Rotational Dynamics 3.11.2 Thermodynamics and engines</p>

Half term 6	<p>Circular motion and simple harmonic motion are the only topics where there is little or no prior learning to draw upon. These have to be introduced slowly and developed.</p> <p>3.6.1 Periodic Motion</p>	

Curriculum Overview

Psychology

KS5

	Year 12	Year 13
Half term 1	<p>4.2.3 Research methods Students should demonstrate knowledge and understanding of the following research methods, scientific processes and techniques of data handling and analysis, be familiar with their use and be aware of their strengths and limitations.</p> <ul style="list-style-type: none"> • Experimental method. Types of experiment, laboratory and field experiments; natural and quasi-experiments. • Observational techniques. Types of observation: naturalistic and controlled observation; covert and overt observation; participant and non-participant observation. • Self-report techniques. Questionnaires; interviews, structured and unstructured. • Correlations. Analysis of the relationship between co-variables. The difference between correlations and experiments. • Content analysis. • Case studies 	<p>4.2.2 Biopsychology</p> <ul style="list-style-type: none"> • The divisions of the nervous system: central and peripheral (somatic and autonomic). • The structure and function of sensory, relay and motor neurons. The process of synaptic transmission, including reference to neurotransmitters, excitation and inhibition. • The function of the endocrine system: glands and hormones. • The fight or flight response including the role of adrenaline. • Localisation of function in the brain and hemispheric lateralisation: motor, somatosensory, visual, auditory and language centres; Broca’s and Wernicke’s areas, split brain research. <p>Plasticity and functional recovery of the brain after trauma.</p> <ul style="list-style-type: none"> • Ways of studying the brain: scanning techniques, including functional magnetic resonance imaging (fMRI); electroencephalogram (EEGs) and event-related potentials (ERPs); postmortem examinations. • Biological rhythms: circadian, infradian and ultradian and the difference between these rhythms. The effect of endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle
Half term 2	<p>4.1.1 Social influence</p> <ul style="list-style-type: none"> • Types of conformity: internalisation, identification and compliance. Explanations for conformity: informational social influence and normative social influence, and variables affecting conformity including group size, unanimity and task difficulty as investigated by Asch. 	<p>4.3.1 Issues and debates in Psychology</p> <ul style="list-style-type: none"> • Gender and culture in Psychology – universality and bias. Gender bias including androcentrism and alpha and beta bias; cultural bias, including ethnocentrism and cultural relativism. • Free will and determinism: hard determinism and soft determinism; biological, environmental

	<ul style="list-style-type: none"> • Conformity to social roles as investigated by Zimbardo. • Explanations for obedience: agentic state and legitimacy of authority, and situational variables affecting obedience including proximity and location, as investigated by Milgram, and uniform. Dispositional explanation for obedience: the Authoritarian Personality. • Explanations of resistance to social influence, including social support and locus of control. • Minority influence including reference to consistency, commitment and flexibility. <ul style="list-style-type: none"> • The role of social influence processes in social change. 	<p>and psychic determinism. The scientific emphasis on causal explanations.</p> <ul style="list-style-type: none"> • The nature-nurture debate: the relative importance of heredity and environment in determining behaviour; the interactionist approach. • Holism and reductionism: levels of explanation in Psychology. Biological reductionism and environmental (stimulus-response) reductionism. • Idiographic and nomothetic approaches to psychological investigation. <ul style="list-style-type: none"> • Ethical implications of research studies and theory, including reference to social sensitivity.
<p>Half term 3</p>	<p>4.1.2 Memory</p> <ul style="list-style-type: none"> • The multi-store model of memory: sensory register, short-term memory and long-term memory. Features of each store: coding, capacity and duration. • Types of long-term memory: episodic, semantic, procedural. • The working memory model: central executive, phonological loop, visuo-spatial sketchpad and episodic buffer. Features of the model: coding and capacity. • Explanations for forgetting: proactive and retroactive interference and retrieval failure due to absence of cues. • Factors affecting the accuracy of eyewitness testimony: misleading information, including leading questions and post-event discussion; anxiety. • Improving the accuracy of eyewitness testimony, including the use of the cognitive interview. 	<p>.3.2 Relationships</p> <ul style="list-style-type: none"> • The evolutionary explanations for partner preferences, including the relationship between sexual selection and human reproductive behaviour. • Factors affecting attraction in romantic relationships: self-disclosure; physical attractiveness, including the matching hypothesis; filter theory, including social demography, similarity in attitudes and complementarity. • Theories of romantic relationships: social exchange theory, equity theory and Rusbult's investment model of commitment, satisfaction, comparison with alternatives and investment. Duck's phase model of relationship breakdown: intra-psychic, dyadic, social and grave dressing phases. • Virtual relationships in social media: self-disclosure in virtual relationships; effects of absence of gating on the nature of virtual relationships. • Parasocial relationships: levels of parasocial relationships, the absorption addiction model

		and the attachment theory explanation
Half term 4	<p>4.1.3 Attachment</p> <ul style="list-style-type: none"> • Caregiver-infant interactions in humans: reciprocity and interactional synchrony. Stages of attachment identified by Schaffer. Multiple attachments and the role of the father. • Animal studies of attachment: Lorenz and Harlow. • Explanations of attachment: learning theory and Bowlby's monotropic theory. The concepts of a critical period and an internal working model. • Ainsworth's 'Strange Situation'. Types of attachment: secure, insecure-avoidant and insecure-resistant. Cultural variations in attachment, including van Ijzendoorn. • Bowlby's theory of maternal deprivation. Romanian orphan studies: effects of institutionalisation. • The influence of early attachment on childhood and adult relationships, including the role of an internal working model. 	<p>4.3.5 Schizophrenia</p> <ul style="list-style-type: none"> • 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 antipsychotics. • Cognitive behaviour therapy and family therapy as used in the treatment of schizophrenia. <p>Token economies as used in the management of schizophrenia.</p> <ul style="list-style-type: none"> • The importance of an interactionist approach in explaining and treating schizophrenia; the diathesis-stress model.
Half term 5	<p>4.1.4 Psychopathology</p> <ul style="list-style-type: none"> • Definitions of abnormality, including deviation from social norms, failure to function adequately, statistical infrequency and deviation from ideal mental health. • The behavioural, emotional and cognitive characteristics of phobias, depression and obsessive-compulsive disorder (OCD). 	<p>4.3.9 Forensic Psychology</p> <ul style="list-style-type: none"> • Offender profiling: the top-down approach, including organised and disorganised types of offender; the bottom-up approach, including investigative Psychology; geographical profiling. • Biological explanations of offending behaviour: an historical approach (atavistic form); genetics and neural explanations.

	<ul style="list-style-type: none"> • The behavioural approach to explaining and treating phobias: the two-process model, including classical and operant conditioning; systematic desensitisation, including relaxation and use of hierarchy; flooding. • The cognitive approach to explaining and treating depression: Beck’s negative triad and Ellis’s ABC model; cognitive behaviour therapy (CBT), including challenging irrational thoughts. • The biological approach to explaining and treating OCD: genetic and neural explanations; drug therapy 	<ul style="list-style-type: none"> • Psychological explanations of offending behaviour: Eysenck’s theory of the criminal personality; cognitive explanations; level of moral reasoning and cognitive distortions, including hostile attribution bias and minimalisation; differential association theory; psychodynamic explanations. • Dealing with offending behaviour: the aims of custodial sentencing and the psychological effects of custodial sentencing. Recidivism. Behaviour modification in custody. Anger management and restorative justice programmes.
<p>Half term 6</p>	<p>4.2.1 Approaches in Psychology Origins of Psychology: Wundt, introspection and the emergence of Psychology as a science. The basic assumptions of the following approaches:</p> <ul style="list-style-type: none"> • Learning approaches: i) the behaviourist approach, including classical conditioning and Pavlov’s research, operant conditioning, types of reinforcement and Skinner’s research; ii) social learning theory including imitation, identification, modelling, vicarious reinforcement, the role of mediational processes and Bandura’s research. • The cognitive approach: the study of internal mental processes, the role of schema, the use of theoretical and computer models to explain and make inferences about mental processes. The emergence of cognitive neuroscience. • The biological approach: the influence of genes, biological structures and neurochemistry on behaviour. Genotype and phenotype, genetic basis of behaviour, evolution and behaviour. 	

- **The psychodynamic approach: the role of the unconscious, the structure of personality, that is Id, Ego and Superego, defence mechanisms including repression, denial and displacement, psychosexual stages.**
- **Humanistic Psychology: free will, self-actualisation and Maslow's hierarchy of needs, focus on the self, congruence, the role of conditions of worth. The influence on counselling Psychology.**
- **Comparison of approaches.**