

## Year 12 Half Term 3 Curriculum

Subject	Half Term 3 – Topic/Summary of Powerful Knowledge
English	<p><u>Tragedy in Analysis:</u></p> <ul style="list-style-type: none"> <li>• Develop understanding of how to respond to critical perspectives – including the development of a three-point plan, linking your thesis statement to topic sentences.</li> <li>• Develop ability to structure a cohesive argument - including nominalisation to shape academic voice, using discourse markers to shape the direction of an essay, using counter argument effectively, integrating critical and contextual material.</li> <li>• Recall on how to embed quotations, academic vernacular and subject specific vocabulary.</li> <li>• Begin to understand the different ways to read literature and how to analyse a text using the following lenses: Marxist, feminist, post-colonial.</li> </ul> <p><i>Set texts:</i>  <i>Othello (Shakespeare)</i>  <i>Tess of the D'Urbervilles (Hardy)</i>  <i>Death of a Salesman (Miller)</i></p>
Maths	<p><u>Circles</u></p> <ul style="list-style-type: none"> <li>• Equation of a circle</li> <li>• Intersections of lines + circles</li> <li>• Chords, tangents and perpendicular bisectors.</li> <li>• Circumscribing Triangles</li> </ul> <p><u>Trigonometric Ratios</u></p> <ul style="list-style-type: none"> <li>• Sine/Cosine Rule</li> <li>• Areas of Triangles</li> <li>• Graphs of Sine/Cosine/Tangent</li> </ul> <p><u>Trigonometric Identities and equations</u></p> <ul style="list-style-type: none"> <li>• Know exact trig values for 30°, 45°, 60° and understand unit circle.</li> <li>• Use identities <math>\frac{\sin x}{\cos x} \equiv \tan x</math> and <math>\sin^2 x + \cos^2 x \equiv 1</math></li> <li>• Solve equations of the form <math>\sin(n\theta) = k</math> and <math>\sin(\theta \pm \alpha) = k</math></li> <li>• Solve equations which are quadratic in sin/cos/tan.</li> </ul> <p><u>Probability</u></p> <ul style="list-style-type: none"> <li>• Basic Probability</li> <li>• Venn Diagrams</li> <li>• Mutually Exclusive/Independent Events</li> <li>• Tree Diagrams</li> </ul> <p><u>Statistical Distributions</u></p> <ul style="list-style-type: none"> <li>• General Probability Distributions</li> <li>• Binomial Distribution</li> <li>• Cumulative Binomial Probabilities</li> </ul>
Science	<p>Biology  <u>Surface area to volume ratio</u></p>

The relationship between the size of an organism or structure and its surface area to volume ratio.

Changes to body shape and the development of systems in larger organisms as adaptations that facilitate exchange as this ratio reduces.

#### Gas exchange

Adaptations of gas exchange surfaces, shown by gas exchange:

- across the body surface of a single-celled organism
- in the tracheal system of an insect (tracheae, tracheoles and spiracles)
- across the gills of fish (gill lamellae and filaments including the counter-current principle)
- by the leaves of dicotyledonous plants (mesophyll and stomata).

Structural and functional compromises between the opposing needs for efficient gas exchange and the limitation of water loss shown by terrestrial insects and xerophytic plants.

The gross structure of the human gas exchange system limited to the alveoli, bronchioles, bronchi, trachea and lungs.

The essential features of the alveolar epithelium as a surface over which gas exchange takes place.

Ventilation and the exchange of gases in the lungs. The mechanism of breathing to include the role of the diaphragm and the antagonistic interaction between the external and internal intercostal muscles in bringing about pressure changes in the thoracic cavity.

#### Digestion

During digestion, large biological molecules are hydrolysed to smaller molecules that can be absorbed across cell membranes.

Digestion in mammals of:

- carbohydrates by amylases and membrane-bound disaccharidases
- lipids by lipase, including the action of bile salts
- proteins by endopeptidases, exopeptidases and membrane-bound dipeptidases.

Mechanisms for the absorption of the products of digestion by cells lining the ileum of mammals, to include:

- co-transport mechanisms for the absorption of amino acids and of monosaccharides
- the role of micelles in the absorption of lipids.

#### Transport across cell membranes

- The basic structure of all cell membranes, including cell-surface membranes and the membranes around the cell organelles of eukaryotes, is the same.
- The arrangement and any movement of phospholipids, proteins, glycoproteins and glycolipids in the fluid-mosaic model of membrane structure. Cholesterol may also be present in cell membranes where it restricts the movement of other molecules making up the membrane.
- Movement across membranes occurs by:
  - simple diffusion (involving limitations imposed by the nature of the phospholipid bilayer)
  - facilitated diffusion (involving the roles of carrier proteins and channel proteins)

	<ul style="list-style-type: none"> <li>• osmosis (explained in terms of water potential)</li> <li>• active transport (involving the role of carrier proteins and the importance of the hydrolysis of ATP)</li> <li>• co-transport (illustrated by the absorption of sodium ions and glucose by cells lining the mammalian ileum).</li> <li>• Cells may be adapted for rapid transport across their internal or external membranes by an increase in surface area of, or by an increase in the number of protein channels and carrier molecules in, their membranes.</li> <li>• <b>Required practical 3:</b> Production of a dilution series of a solute to produce a calibration curve with which to identify the water potential of plant tissue.</li> <li>• <b>Required practical 4:</b> Investigation into the effect of a named variable on the permeability of cell-surface membranes.</li> </ul> <p>Physics</p> <p>Materials</p> <ul style="list-style-type: none"> <li>• Bulk properties of solids</li> <li>• The Young modulus</li> </ul> <p>Progressive and stationary waves</p> <ul style="list-style-type: none"> <li>• Progressive waves</li> <li>• Longitudinal and transverse waves</li> <li>• Principle of superposition of waves and formation of stationary waves</li> </ul>
History	<p><u>The Vietnam War,</u></p> <ul style="list-style-type: none"> <li>• growing involvement,</li> <li>• presidential blame,</li> <li>• events of the war / guerrilla warfare,</li> <li>• US military tactics</li> </ul>
Geography	<p>Population and the environment:</p> <ul style="list-style-type: none"> <li>• How does climate influence food production</li> <li>• What is food security</li> <li>• Strategies used to ensure food security</li> </ul>
Art	<p><u>A-Level - Personal Investigation.</u></p> <ul style="list-style-type: none"> <li>• Mixed Media and Printmaking workshops. Review and refine ideas.</li> <li>• Continuation of collation of primary and secondary source material.</li> <li>• Continue research of new and current artists. Written notes and critical analysis.</li> </ul> <p><u>BTEC - Unit 1- Visual Recording and Communication – External Unit</u></p> <ul style="list-style-type: none"> <li>• Artist research, brainstorm task, drawing and experimentation work.</li> <li>• Mock written exam/assessment.</li> </ul>
Photography	<p><u>Photojournalism Project</u></p> <p>This project goes through the assessment objectives with a focus on photojournalism.</p>
Business	<p><u>Unit 1: Exploring Enterprise</u></p> <p>Students will examine the effects of the internal and external environment on a large business and how the business has, and will, respond to changes.</p>

	<p><u>Unit 3 Personal &amp; Business Finance</u> Break-even and cash flow forecasts:</p> <ul style="list-style-type: none"> <li>• Prepare, complete, analyse, revise and evaluate cash flow and cash flow forecasts</li> <li>• Explore the use of cash flow forecasts for planning, monitoring, control, target setting.</li> <li>• Explore the benefits and limitations of cash flow forecasts</li> <li>• Calculation of break-even using formula and completion of break-even chart</li> <li>• Identification of area of profit, area of loss, identify and calculate margin of safety</li> <li>• Explore the use of break-even for planning, monitoring, control, target setting</li> <li>• Prepare, complete, analyse, revise and evaluate break-even</li> </ul>
Computing	<p>Web development – students will demonstrate knowledge of website development by creating an interactive website that includes:</p> <ul style="list-style-type: none"> <li>• Embedded multimedia/digital asset content, e.g., digital animation, digital graphics, digital audio, digital video.</li> <li>• Keep a detailed record of testing that has occurred and be able to explain how erroneous tests were fixed.</li> <li>• Demonstrate an understanding of netiquette and professional values by emailing or contacting the client to receive feedback on the designs, this can also be done via peer review (end user testing).</li> <li>• Demonstrate understanding of project management keeping ongoing plans up to date and show evidence of how they have kept the client up to date via email or recording the minutes of any face to face meetings.</li> </ul>
Film Studies	<p><u>Hollywood 1930 – 1990</u></p> <ul style="list-style-type: none"> <li>• Introduction to Auteur theory</li> <li>• Hitchcock as an Auteur vs. Classical Hollywood institutional style</li> <li>• Ridley Scott as an ‘aesthetic auteur,’ anti-minimalism and New Hollywood</li> <li>• Gender theory - Laura Mulvey / the male gaze</li> </ul> <p><i>Set texts:</i> <i>Vertigo (Hitchcock, 1958)</i> <i>Blade Runner (Scott, 1982)</i></p>
Games Design	<p><u>Students will produce a pre-production portfolio for a creative media production.</u></p> <p>They will be able to review pre-production of a digital media product</p> <p>Using the internet to develop skills in legal documentation</p> <ul style="list-style-type: none"> <li>• Using Microsoft Word to develop contracts for employees, Insurance documents, copyright letters, equipment checklists, Library footage and floor plans</li> <li>• Using Microsoft Excel to develop a Spreadsheet for employee wages, employee details, Cast lists with details of casts.</li> <li>• Imaging software to create visualisation diagrams and recce’s</li> </ul>

	<p>Other:</p> <ul style="list-style-type: none"> <li>• Develop knowledge in Health and Safety skills.</li> <li>• Legal requirements including moral and ethical issues.</li> </ul>	
Health	<p>Extended Certificate (Single HSC)  <u>Human lifespan development – Unit 1</u></p> <ul style="list-style-type: none"> <li>• Nature v Nurture</li> <li>• Biological factors</li> <li>• Environmental factors</li> <li>• Stress Diathesis Model</li> <li>• Social factors</li> <li>• Economic factors</li> </ul> <p><u>Meeting individual needs – Unit 5</u></p> <ul style="list-style-type: none"> <li>• Ethical issues</li> <li>• Ethical theories</li> </ul>	<p>Diploma (Double HSC)  <u>Human lifespan development – Unit 1</u></p> <ul style="list-style-type: none"> <li>• Nature v Nurture</li> <li>• Biological factors</li> <li>• Environmental factors</li> <li>• Stress Diathesis Model</li> <li>• Social factors</li> <li>• Economic factors</li> </ul> <p><u>Meeting individual needs – Unit 5</u></p> <ul style="list-style-type: none"> <li>• Ethical issues</li> <li>• Ethical theories</li> </ul> <p><u>Principles of safe practice – Unit 7</u></p> <ul style="list-style-type: none"> <li>• Duty of care and legal obligation</li> </ul> <p><u>Physiological disorders – Unit 14</u></p> <ul style="list-style-type: none"> <li>• Investigative and diagnostic procedures for diabetes and Alzheimer’s</li> </ul>
Music	<p><u>Unit 3: Ensemble Music Performance-Set Brief Examination</u>  Assessment Objective 1</p> <ul style="list-style-type: none"> <li>• Explore ensemble skills and techniques involved in working as part of a musical ensemble.</li> <li>• Personal ensemble management skills</li> <li>• Attendance and punctuality.</li> <li>• Personal organisation of instruments, equipment and music.</li> <li>• Awareness of health and safety issues.</li> <li>• Personal practice between rehearsals.</li> <li>• Encouragement and positive feedback.</li> <li>• Rehearsal etiquette.</li> <li>• Accuracy of rhythm and pitch in the performance</li> <li>• Adjusting to other members of the ensemble.</li> <li>• Following direction.</li> <li>• Balancing and being aware of your own part in the ensemble.</li> <li>• Teamwork and collaboration</li> <li>• Giving and taking instruction and direction.</li> <li>• Trust and co-operation.</li> <li>• Contributing ideas and problem solving.</li> <li>• Receptiveness and responsiveness to the ideas of others.</li> </ul> <p><u>Assessment Objective 2</u></p> <ul style="list-style-type: none"> <li>• Choosing pieces with awareness of instrumental resources, relative skill levels, sourcing and writing parts, listening, transcribing, transposing, trying out parts and arrangements/styles and agreeing on structure and version.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Agreeing on a practice regime with awareness of personal practice needs and ensemble practice needs.</li> <li>• Selection and use of performance skills – when to solo and when not to.</li> <li>• Analysing progress, identifying problems and solutions to inform progression.</li> <li>• Sharing performance work with peers and responding to feedback.</li> <li>• Memorising, learning and perfecting material.</li> </ul>
PE	<p><u>Exam Unit</u></p> <p><u>Unit 1 – Body systems and the effects of physical activity</u></p> <ul style="list-style-type: none"> <li>• LO4 : Understand the respiratory system in relation to exercise and physical activity</li> </ul> <p><u>Coursework Unit</u></p> <p><u>Unit 2 – Sports coaching and activity leadership</u></p> <ul style="list-style-type: none"> <li>• LO4: Be able to plan sports and activity sessions</li> <li>• LO5: Be able to prepare sports and activity environment</li> </ul>
RE/PSHE	<p><u>Post-18 Options:</u></p> <ul style="list-style-type: none"> <li>• The importance of the 6<sup>th</sup> Form for future applications.</li> <li>• What is university?</li> <li>• Courses available at university.</li> <li>• How to complete a competitive application.</li> </ul>
Psychology	<p><u>Unit 1 external exam – 11<sup>th</sup> January 2023</u></p> <p><u>Unit 2 - LA. A - coursework element</u></p> <ul style="list-style-type: none"> <li>• Principles of research – scientific processes, purpose of research and organisations involved in research</li> <li>• Types of research process – lab and field experiments, natural and quasi-experiments, primary and secondary research</li> <li>• Hypotheses, variables, reliability, validity and sampling techniques</li> </ul>
Criminology	<p><u>Unit 2 – exam unit</u></p> <ul style="list-style-type: none"> <li>• Criminal behaviour</li> <li>• Deviance</li> <li>• Social construction – how laws change in cultures and over time</li> <li>• Biological theories – genetic and physiological</li> </ul>
Sociology	<p><u>Education</u></p> <ul style="list-style-type: none"> <li>• Differential educational achievement of social groups by ethnicity and gender including external factors including material deprivation, cultural deprivation and cultural capital and internal factors including relationships and processes within schools including teacher/pupil relationships, pupil identities and subcultures, the hidden curriculum, and the organisation of teaching and learning.</li> <li>• The significance of educational policies, including policies of selection, marketisation and privatisation, and policies to achieve greater equality of opportunity or outcome, for an understanding of the structure, role, impact and experience of and access to education; the impact of globalisation on educational policy.</li> </ul>

	<p><u>Families and Households</u></p> <ul style="list-style-type: none"><li>• Changing patterns of marriage, cohabitation, separation, divorce, childbearing and the life course, including the sociology of personal life, and the diversity of contemporary family and household structures</li><li>• Gender roles, domestic labour and power relationships within the family in contemporary society</li><li>• The nature of childhood, and changes in the status of children in the family and society</li><li>• Demographic trends in the United Kingdom since 1900: birth rates, death rates, family size, life expectancy, ageing population, and migration and globalisation.</li></ul>
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