

## Year 12 Half Term 5 Curriculum

Subject	Half Term 5 – Topic/Summary of Powerful Knowledge
English Literature	<p><u>Crime Fiction in Analysis:</u></p> <ul style="list-style-type: none"> <li>• Deepening understanding of pre and post-war Britain including contextual understanding of WW2</li> <li>• Understanding through exploration of literary concepts including postmodernism and unreliable narrative</li> <li>• Recall and deepening of knowledge of Victorian Era (class system, workhouses and Poor Law, child labour, voyeurism, science, supernatural, religion, poverty)</li> <li>• Deepening of understanding of Crime fiction genre: Victorian, Golden-Age, Hard Boiled Detective and Modern</li> <li>• The aftermath of WW1</li> <li>• The Roaring 20s and Prohibition</li> <li>• The Great Depression</li> <li>• Post-Depression</li> <li>• Understanding of the tropes of Crime Fiction including:</li> <li>• Traditional plot, archetypal character and themes, authorial methods, structure and genre through close textual analysis</li> <li>• Begin to understand the different ways to read literature and how to analyse a text using the following lenses: Marxist and narrative.</li> </ul> <p><i>Set texts:</i>  <i>Atonement</i> (McEwan)            Crime Poetry (Crabbe, Browning, Wilde)  <i>Oliver Twist</i> (Dickens)</p>
Maths	<p><u>Vectors</u></p> <ul style="list-style-type: none"> <li>• Add/scale factors and show vectors are parallel.</li> <li>• Calculate magnitude and direction of a vector.</li> <li>• Understand and use position vectors.</li> <li>• Solve both geometric problems.</li> <li>• Understand speed vs velocity</li> </ul> <p><u>Forces and Motion</u></p> <ul style="list-style-type: none"> <li>• Forces as vectors</li> <li>• Forces and acceleration</li> <li>• Motion in 2 dimensions</li> <li>• Connected Particles</li> <li>• Pulleys</li> </ul> <p><u>Variable acceleration</u></p> <ul style="list-style-type: none"> <li>• Functions of time</li> <li>• Using differentiation</li> <li>• Maxima and minima problems</li> <li>• Using integration</li> <li>• Constant acceleration formulae</li> </ul>
Science	<p>Biology  <u>DNA and chromosomes</u></p>

In prokaryotic cells, DNA molecules are short, circular and not associated with proteins.

In the nucleus of eukaryotic cells, DNA molecules are very long, linear and associated with proteins, called histones. Together a DNA molecule and its associated proteins form a chromosome.

The mitochondria and chloroplasts of eukaryotic cells also contain DNA which, like the DNA of prokaryotes, is short, circular and not associated with protein.

A gene is a base sequence of DNA that codes for:

- the amino acid sequence of a polypeptide
- a functional RNA (including ribosomal RNA and tRNAs).
- A gene occupies a fixed position, called a locus, on a particular DNA molecule.
- A sequence of three DNA bases, called a triplet, codes for a specific amino acid. The genetic code is universal, non-overlapping and degenerate.
- In eukaryotes, much of the nuclear DNA does not code for polypeptides. There are, for example, non-coding multiple repeats of base sequences between genes. Even within a gene only some sequences, called exons, code for amino acid sequences. Within the gene, these exons are separated by one or more non-coding sequences, called introns.
- The concept of the genome as the complete set of genes in a cell and of the proteome as the full range of proteins that a cell is able to produce.
- The structure of molecules of messenger RNA (mRNA) and of transfer RNA (tRNA).
- Transcription as the production of mRNA from DNA. The role of RNA polymerase in joining mRNA nucleotides.
- In prokaryotes, transcription results directly in the production of mRNA from DNA.
- In eukaryotes, transcription results in the production of pre-mRNA; this is then spliced to form mRNA.
- Translation as the production of polypeptides from the sequence of codons carried by mRNA. The roles of ribosomes, tRNA and ATP.

#### Protein Synthesis

The concept of the genome as the complete set of genes in a cell and of the proteome as the full range of proteins that a cell is able to produce.

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Translation as the production of polypeptides from the sequence of codons carried by mRNA. The roles of ribosomes, tRNA and ATP.

#### Genetic diversity can arise as a result of mutation or during meiosis

Gene mutations involve a change in the base sequence of chromosomes. They can arise spontaneously during DNA replication and include base deletion and base substitution. Due to the degenerate nature of the genetic code, not all base substitutions cause a change in the sequence of encoded amino acids. Mutagenic agents can increase the rate of gene mutation.

	<p>Mutations in the number of chromosomes can arise spontaneously by chromosome non-disjunction during meiosis.</p> <p>Meiosis produces daughter cells that are genetically different from each other.</p> <p>The process of meiosis only in sufficient detail to show how:</p> <ul style="list-style-type: none"> <li>• two nuclear divisions result usually in the formation of four haploid daughter cells from a single diploid parent cell</li> <li>• genetically different daughter cells result from the independent segregation of homologous chromosomes</li> <li>• crossing over between homologous chromosomes results in further genetic variation among daughter cells.</li> </ul> <p><u>Genetic diversity and adaptation</u></p> <p>Genetic diversity as the number of different alleles of genes in a population.</p> <p>Genetic diversity is a factor enabling natural selection to occur.</p> <p>The principles of natural selection in the evolution of populations.</p> <ul style="list-style-type: none"> <li>• Random mutation can result in new alleles of a gene.</li> <li>• Many mutations are harmful but, in certain environments, the new allele of a gene might benefit its possessor, leading to increased reproductive success.</li> <li>• The advantageous allele is inherited by members of the next generation.</li> <li>• As a result, over many generations, the new allele increases in frequency in the population.</li> </ul> <p>Directional selection, exemplified by antibiotic resistance in bacteria, and stabilising selection, exemplified by human birth weights.</p> <p>Natural selection results in species that are better adapted to their environment.</p> <p>These adaptations may be anatomical, physiological or behavioural.</p> <p><u>Cell recognition &amp; the immune system</u></p> <p>Structure of the human immunodeficiency virus (HIV) and its replication in helper T cells.</p> <p>How HIV causes the symptoms of AIDS. Why antibiotics are ineffective against viruses.</p> <p>The use of monoclonal antibodies in:</p> <ul style="list-style-type: none"> <li>• targeting medication to specific cell types by attaching a therapeutic drug to an antibody</li> <li>• medical diagnosis.</li> </ul> <p>Details of the commercial or scientific production of monoclonal antibodies are <b>not</b> required.</p> <p>Ethical issues associated with the use of vaccines and monoclonal antibodies.</p> <p>The use of antibodies in the ELISA test.</p> <p>Physics</p> <p>Periodic motion</p> <ul style="list-style-type: none"> <li>• Circular motion</li> <li>• Simple harmonic motion</li> <li>• Simple harmonic systems</li> <li>• Forced vibrations and resonance</li> </ul>
History	<p>Cambodia and the Cold War –</p> <ul style="list-style-type: none"> <li>• rise of Sihanouk,</li> <li>• rise of Lon Nol,</li> </ul>

	<ul style="list-style-type: none"> <li>• the rise of the Khmer Rouge,</li> <li>• why did Pol Pot come to power?</li> </ul>
Geography	Fieldwork planning and preparation for NEA
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>• Sit external written exam and presentation of practical artwork onto sheets.</li> </ul>
Business	<p>Unit 1: Exploring Enterprise</p> <ul style="list-style-type: none"> <li>• Investigate the role and contribution of innovation and enterprise to business success.</li> <li>• Benefits and risks associated with innovation and enterprise</li> </ul>
Computing	<p>Online systems – students will be able to independently describe, with supporting evidence and examples:</p> <ul style="list-style-type: none"> <li>• The features, characteristics and implications of using antivirus software to protect data</li> <li>• The process and implications of using passwords for protecting data and systems</li> <li>• The features, characteristics and implications of using firewalls to protect data</li> <li>• the implications for organisations of using and accessing online communities:</li> <li>• Employee and customer experience – ease of use, performance, availability, accessibility</li> </ul>
Film Studies	<p><u>British Film since 1995</u></p> <ul style="list-style-type: none"> <li>• Narrative theory – Linear vs. Non-linear, Todorov’s equilibrium theory</li> <li>• Ideology – Identity, Nationalism and Extremism</li> <li>• Social Context – 1980s Thatcher’s Britain and 1990s ‘Cool Britannia’</li> </ul> <p><i>Set texts:</i>  <i>This is England (Meadows, 2006)</i>  <i>Trainspotting (Boyle, 1996)</i></p>
Games Design	<p>Students will analyse and interpret information related to purpose, technical and logistical requirements of the brief and evaluate solutions for implementation with appropriate justification</p> <ul style="list-style-type: none"> <li>• Students will develop skills in the environmental sector. They will understand how to be able to reduce environmental impact when producing a product.</li> <li>• Skills in regulatory bodies, codes and working practices, classifications and ratings.</li> </ul>

Health	<p>Extended Certificate (Single HSC)  <u>Human lifespan development – Unit 1</u></p> <ul style="list-style-type: none"> <li>Bespoke revision and exam practice</li> </ul> <p><u>Meeting individual needs – Unit 5</u></p> <ul style="list-style-type: none"> <li>Challenges (Nusrat)</li> <li>Overcoming challenges (Nusrat)</li> </ul>	<p>Diploma (Double HSC)  <u>Human lifespan development – Unit 1</u></p> <ul style="list-style-type: none"> <li>Bespoke revision and exam practice</li> </ul> <p><u>Meeting individual needs – Unit 5</u></p> <ul style="list-style-type: none"> <li>Challenges (Nusrat)</li> <li>Overcoming challenges (Nusrat)</li> </ul> <p><u>Work experience – Unit 6</u></p> <ul style="list-style-type: none"> <li>Skills and attributes</li> <li>Clarifying expectations</li> </ul> <p><u>Physiological disorders – Unit 14</u></p> <ul style="list-style-type: none"> <li>Treatment, care and support for Alzheimer’s disease</li> </ul>
Music	<p><u>Unit 1: Practical Music Theory and Harmony-Assignment 2</u>  <u>Learning Aim B</u></p> <ul style="list-style-type: none"> <li>Constructing scales-major scale, harmonic, melodic and natural minor scales, major and minor pentatonic, blues scale, whole-tone scale and modes.</li> <li>Melodic construction and development-conjunct, disjunct, diatonic, chromatic, arpeggios, sequences, imitation, inversion, anticipation, melodic augmentation and diminution and call and response.</li> <li>Rhythmic devices-dotted notes, syncopation, augmentation and diminution, triplets, duplets, quintuplets, sextuplets, riff/ostinato and accents.</li> <li>Application of melodic compositional skills-writing melody for specific instruments and lyrics, developing phrases and motifs, using counterpoint/counter melody, harmonising melodies for ensembles such as string quartet, brass section, backing vocals.</li> </ul>	
PE	<p><u>Exam Unit</u>  <u>Unit 1 – Body systems and the effects of physical activity</u></p> <ul style="list-style-type: none"> <li>Revision – LO1, LO2, LO3, LO4, LO5 in preparation for Exam</li> </ul> <p><u>Coursework Unit</u>  <u>Unit 2 – Sports coaching and activity leadership</u></p> <ul style="list-style-type: none"> <li>LO7: Be able to review sports and activity sessions</li> </ul>	
RE/PSHE	<p><u>Rights and Responsibilities:</u></p> <ul style="list-style-type: none"> <li>Young adults in the modern world.</li> <li>Alcohol and responsible drinking</li> <li>Acting responsibly during social events.</li> <li>Age restrictions</li> <li>The law and committing criminal offences.</li> </ul>	
Photography	<p><u>Personal Project</u>  This part of the course the students select a topic for their personal project and produce a body of work that explores their chosen topic.</p>	
Psychology	<p><u>Unit 2 – LA.C</u></p> <ul style="list-style-type: none"> <li>Carry out a pilot study to export current issues in Psychology</li> </ul>	

	<ul style="list-style-type: none"> <li>• Data collection</li> <li>• Data analysis</li> <li>• Presenting findings to an audience</li> </ul> <p>Opportunity to resit Unit 1 external exam is required.</p>
Criminology	<p><u>Unit 2 – exam unit</u></p> <ul style="list-style-type: none"> <li>• Criminological theories in informing policy development – formal and informal</li> <li>• Social changes affecting policy development – social values, public perception of crime and structure of society</li> <li>• Campaigns affecting policy making – newspaper, individual and pressure group</li> <li>• Revision for exam</li> </ul>
Sociology	<p><u>Research Methods cont.</u></p> <ul style="list-style-type: none"> <li>• Quantitative and qualitative methods of research; research design</li> <li>• Sources of data, including questionnaires, interviews, participant and non-participant observation, experiments, documents and official statistics</li> <li>• The distinction between primary and secondary data, and between quantitative and qualitative data</li> <li>• The relationship between positivism, interpretivism and sociological methods; the nature of ‘social facts’</li> <li>• The theoretical, practical and ethical considerations influencing choice of topic, choice of method(s) and the conduct of research.</li> </ul> <p><u>Methods in Context</u></p> <ul style="list-style-type: none"> <li>• Application of sociological research methods to issues in education.</li> </ul>