Edexcel International GCSE Biology 4BI1 Learning Plan

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| **Unit: 5. Variation and Selection** | | **Chapter: 16. Chromosomes, Genes and DNA** | | **Hours: 5** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| **Section 3: Reproduction and inheritance**  **b)** Inheritance | **3.14** understand that the genome is the entire DNA of an organism and that a gene is a section of a molecule of DNA that codes for a specific protein  **3.15** understand that the nucleus of a cell contains chromosomes on which genes are located  **3.16B describe a DNA molecule as two strands coiled to form a double helix, the strands being linked by a series of paired bases: adenine (A) with thymine (T), and cytosine (C) with guanine (G).**  **3.18B describe the stages of protein synthesis including transcription and translation, including the role of mRNA, ribosomes, tRNA, codons and anticodons**  **3.19** understand how genes exist in alternative forms called alleles which give rise to differences in inherited characteristics  **3.32** know that in human cells the diploid number of chromosomes is 46 and the haploid number is 23.  **3.34** understand that mutation is a rare, random change in genetic material that can be inherited  **3.35B understand how a change in DNA can affect the phenotype by altering the**  **sequence of amino acids in a protein**  **3.36B understand how most genetic mutations have no effect on the phenotype, some have a small effect and rarely do they have a significant effect**  **3.37B understand that the incidence of mutations can be increased by exposure to ionising radiation (for example, gamma rays, x-rays and ultraviolet rays) and some chemical mutagens (for example, chemicals in tobacco).** | Video: Biology Section 3 – Lesson 3 Genetics and Inheritance (part 1) – beginning to 08:20. Biology Section 3 – Lesson 4 – Genetics and Inheritance (part 2) – 12.05 to end.  Powerpoint: Biology Section 3 Lesson 3 – slides 1 to 35. Biology Section 3 Lesson 4 – slides 51 to end.  Textbook pages:  228 – The Structure of DNA  229 – The Genetic Code  230 – The stages of protein synthesis  234 – The structure of chromosomes | Page 238 – 239 Qs 1 to 8  Textbook Answers (PDF)  Chapter 16 - exam question - pdf  Chapter 16 - exam question mark scheme – pdf  Chapter 16 - Talking paper video | |

Videos – [www.igcsesciencecourses.com](http://www.igcsesciencecourses.com)

Textbook Ref: Edexcel International GCSE (9-1) Biology Student Book - Pearson (Bradfield and Potter)