Edexcel International GCSE Biology 4BI1 Learning Plan

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| **Unit:1. Organisms & Life Processes** | | **Chapter: 1 Life Processes** | | **Hours: 8** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| **Section 1: The nature and variety of living organisms**  **a)** Characteristics of living organisms  **Section 2: Structures and functions in living organisms**  **a)** Levels of organisation  b) Cell structure  **Section 2: Structures and functions in living organisms**  **c)** Biological molecules  **Section 2: Structures and functions in living organisms**  d) Movement of substances into and out of cells  **Section 2: Structures and functions in living organisms**  **f)** Respiration | **1.1** understand that living organisms share the following characteristics:   * they require nutrition * they respire * they excrete their waste * they respond to their surroundings * they move * they control their internal conditions * they reproduce   they grow and develop  **2.1** describe the levels of organisation in organisms: organelles, cells, tissues, organs and systems  **2.2** describe cell structures, including the nucleus, cytoplasm, cell membrane, cell wall,  mitochondria, chloroplasts, ribosomes and vacuole  **2.3** describe the functions of the nucleus, cytoplasm, cell membrane, cell wall, mitochondria, chloroplasts, ribosomes and vacuole  **2.4** know the similarities and differences in the structure of plant and animal cells.  **2.5B explain the importance of cell differentiation in the development of specialised cells**  **2.6B understand the advantages and disadvantages of using stem cells in Medicine.**  **2.10** understand the role of enzymes as biological catalysts in metabolic reactions  **2.11** understand how the functioning of enzymes can be affected by changes in temperature, including changes to the shape of the active site  **2.12** practical: investigate how enzyme activity can be affected by changes in temperature  **2.13** understand how enzyme function can be affected by changes in pH altering the active  site  **2.14B practical: investigate how enzyme activity can be affected by changes in pH.**  **2.15** understand the processes of diffusion, osmosis and active transport by which substances move into and out of cells.  **2.16** understand how factors affect the rate of movement of substances into and out of cells, including the effects of surface area to volume ratio, distance, temperature and concentration gradient  **2.17** practical: investigate diffusion and using living and non-living systems.  **2.34** understand how the process of respiration produces ATP in living organisms  **2.35** know that ATP provides energy for cells  **2.36** describe the differences between aerobic and anaerobic respiration.  **2.37** know the word equation and the balanced chemical symbol equation for aerobic respiration in living organisms  **2.39** practical: investigate the evolution of carbon dioxide and heat from respiring seeds or other suitable living organisms. | Video: Section 1 Lesson 1: Characteristics of Living Organisms.  Video: Section 2 Lesson 1: Levels of Organisation, the Cell and Particle Movement.  Powerpoint: Section 1 Lesson 1: Characteristics of Living Organisms.  Powerpoint: Section 2 Lesson 1: Levels of Organisation, the Cell and Particle Movement  Textbook pages:  3 – Life processes  4 – Cell structure  6 – Enzymes; controlling reactions in the cell  12 – How the cell gets its energy  16 – Movement of materials in and out of cells  ***18 – Cell division and differentiation***  19 – Cells, tissues and organs  ***21 – Stem cells*** | Page 23-24 Qs 1 to 10  Textbook Answers (PDF)  Chapter 1 - exam question - pdf  Chapter 1 - exam question mark scheme – pdf  Chapter 1 - 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)