Edexcel International GCSE Biology 4BI1 Learning Plan

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| **Unit: 6. Microorganisms and Genetic Modification** | | **Chapter: 22. Genetic Modification** | | **Hours: 4** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| **Section 5: Use of biological resources**  **c)** Genetic modification (genetic engineering) | **5.12** understand how restriction enzymes are used to cut DNA at specific sites and ligase enzymes are used to join pieces of DNA together  **5.13** understand how plasmids and viruses can act as vectors, which take up pieces of DNA, and then insert this recombinant DNA into other cells  **5.14** understand how large amounts of human insulin can be manufactured from genetically modified bacteria that are grown in a fermenter  **5.15** understand how genetically modified plants can be used to improve food production  **5.16** understand that the term transgenic means the transfer of  genetic material from one species to a different species.  **5.20B understand how cloned transgenic animals can be used to produce human Proteins.** | Video: Biology Section 5 – Lesson 2 – Selective Breeding and Genetic Engineering – 07:07 to end.  Powerpoint: Biology Section 5 Lesson 2 – Slides 18 to end.  Textbook pages:  289 – Recombinant DNA  293 – Producing genetically modified plants  296 – Producing genetically modified animals | Page 299 – 300 Qs. 1 to 8  Unit Questions. Pages 301 – 302. Qs. 1 to 5  Textbook Answers (PDF)  Chapter 22 - exam question - pdf  Chapter 22 - exam question mark scheme – pdf  Chapter 22 - 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)