



Mastery:

Y12 Biology Curriculum Sequence

Intent: To encourage students to question and develop themselves beyond simply being able to answer exam questions in the subject. The Biology course uses the principles in science to build student's wider subject knowledge and understanding thereby helping them create the appropriate links across the discipline to better articulate their understanding

Term 1 3.1 Biological molecules 3.2 Cells 3.3 Organisms exchange substances with their environment – Gas exchange	Term 2 3.2 – Cells- Immunity 3.3 Organisms exchange substances with their environment – Digestion 3.3.4 Mass transport 3.4 Genetic information, variation and relationships between organisms	Term 3 3.4.5 Species and taxonomy 3.4.6 Biodiversity within a community 3.4.7 Investigating diversity 3.6.4 Homeostasis is the maintenance of a stable internal environment (A-level only)
<p>Why start here? The biological molecules and cells topics are fundamental topics in Biology, students need to have a good understanding of both of these topics to access many of the topics later on in the specification. A good example is DNA structure as a biological molecule will allow students to access, Protein synthesis. They build upon cells and organization topics from GCSE.</p>	<p>Why move onto these units? Immunity is part of the cells unit and follows neatly from simple cells and cell division looking specifically at specialised immune cells and their functions. Organisms exchange substance with the environment links cells and biological molecules explaining how molecules from the wider environment are collected and released to form the organisms and the molecules within its cells.</p>	<p>Why move onto these units? Species taxonomy and biodiversity leads on from genetics and variation, encouraging students to explain how genetics are carried through between generations. Investigations require students to work on the practical elements of investigating biodiversity. Homeostasis is a difficult topic which leads on from Biological molecules, completing at the end of year 12 allows some recap in year 13 to reinforce the knowledge</p>
<p>Spec links: 3.1 Biological molecules 3.2 Cells 3.3 Organisms exchange substances with their environment 3.3.1 Surface area to volume ratio 3.3.2 Gas exchange</p>	<p>Spec links: 3.2.4 Cell recognition and the immune system 3.3.3 Digestion and absorption 3.3.4 Mass transport 3.4.1-4 genetic variation and relationships (DNA, variation Meiosis, diversity and adaptation)</p>	<p>Spec links: 3.4.5 Species and taxonomy 3.4.6 Biodiversity within a community 3.4.7 Investigating diversity 3.6.4 Homeostasis is the maintenance of a stable internal environment (A-level only)</p>
<p>Teaching these topics here supports: Cells 3.3 Organisms exchange substances with their environment 3.4 Genetic information, variation and relationships between organisms 3.7 Genetics, populations, evolution and ecosystems (A level only) 3.8 The control of gene expression (A level only) Biological mol's 3.4 Genetic information, variation and relationships between organisms 3.5 Energy transfers in and between organisms (A level only) 3.7 Genetics, populations, evolution and ecosystems (A level only) 3.8 The control of gene expression (A level only)</p>	<p>Teaching these topics here supports: Immunity 3.4 Genetic information, variation and relationships between organisms 3.7 Genetics, populations, evolution and ecosystems (A level only) 3.8 The control of gene expression (A level only) Organisms exchange substances with their environment 3.4 Genetic information, variation and relationships between organisms 3.5 Energy transfers in and between organisms (A level only) Genetics and variation supports 3.7 Genetics, populations, evolution and ecosystems (A level only) 3.8 The control of gene expression (A level only)</p>	<p>Teaching these topics here supports: 3.4 Genetic information, variation and relationships between organisms leads to: 3.7 Genetics, populations, evolution and ecosystems (A-level only) 3.8 The control of gene expression (A-level only) 3.6.4 Homeostasis leads to: 3.6.1 Stimuli, both internal and external, are detected and lead to a response (A-level only)</p>
<p>These topics feed from: Cells feed from GCSE cell biology Biological molecules feeds from GCSE cell biology and Organisation</p>	<p>These topics feed from: Immunity feeds from 3.1 Biological molecules 3.2 Cells Digestions feeds from 3.1 Biological molecules 3.2 Cells</p>	<p>These topics feed from: 3.4 Genetic information, variation and relationships between organisms feeds from: 3.1 Biological molecules Homeostasis feeds from: 3.1 Biological molecules 3.3 Organisms exchange substances with their environment</p>