

## Curriculum Mapping

A Level Biology – KS5 Y12

Students follow AQA A - Level Biology (7402)

<https://filestore.aqa.org.uk/resources/biology/specifications/AQA-7401-7402-SP-2015.PDF>

HT1	<p><b><u>Section 1 Biological Molecules</u></b></p> <p><i>Biological molecules</i></p> <ul style="list-style-type: none"><li>• Introduction to biological molecules</li><li>• Carbohydrates and monosaccharides</li><li>• Carbohydrates – disaccharides and polysaccharides</li><li>• Starch, glycogen and cellulose</li><li>• Lipids</li><li>• Proteins</li><li>• Enzyme action</li><li>• Factors affecting enzyme action</li><li>• Enzyme inhibition</li></ul> <p><i>Nucleic Acids</i></p> <ul style="list-style-type: none"><li>• Structure of RNA and DNA</li><li>• DNA Replication</li><li>• Energy and ATP</li><li>• Water and its Functions</li></ul>
HT2	<p><b><u>Section 2 Cells</u></b></p> <p><i>Cell structure</i></p> <ul style="list-style-type: none"><li>• Methods of studying cells</li><li>• The electron microscope</li><li>• Microscopic measurements and calculations</li><li>• Eukaryotic cell structure</li><li>• Cell specialism and organisation</li><li>• Prokaryotic cells and viruses</li><li>• Mitosis</li><li>• The cell cycle</li></ul> <p><i>Transport across membranes</i></p> <ul style="list-style-type: none"><li>• Structure of the cell surface membrane</li><li>• Diffusion</li><li>• Osmosis</li><li>• Active transport</li><li>• Co-transport and absorption of glucose in the ileum</li></ul> <p><i>Cell recognition and response</i></p> <ul style="list-style-type: none"><li>• Defence mechanisms</li><li>• Phagocytosis</li><li>• T-Lymphocytes and cell mediated immunity</li><li>• B-Lymphocytes and humoral immunity</li><li>• Antibodies</li><li>• Vaccination</li><li>• Human Immunodeficiency virus (HIV)</li></ul>
HT3	<p><b><u>Section 3 Organisms exchange substances with their environment</u></b></p> <p><i>Exchange</i></p> <ul style="list-style-type: none"><li>• Exchange between organisms and their environment</li></ul>

	<ul style="list-style-type: none"> <li>• Gas exchange in single-celled organisms and insects</li> <li>• Gas exchange in fish</li> <li>• Gas exchange in the leaf of a plant</li> <li>• Limiting water loss</li> <li>• Structure of the human gas exchange system</li> <li>• The mechanism of breathing</li> <li>• Exchange of gases in the lungs</li> <li>• Enzymes and digestion</li> <li>• Absorption of the products of digestion</li> </ul> <p><i>Mass transport</i></p> <ul style="list-style-type: none"> <li>• Haemoglobin</li> <li>• Transport of oxygen by haemoglobin</li> <li>• Circulatory system of a mammal</li> <li>• The structure of the heart</li> <li>• The cardiac cycle</li> <li>• Blood vessels and their functions</li> <li>• Transport of water in the xylem</li> <li>• Transport of organic molecules in the phloem</li> <li>• Investigating transport in plants</li> </ul>
HT4	<p><b><u>Section 4 Genetic Information, variation and relationships between organisms</u></b></p> <p><i>DNA, Genes and protein synthesis</i></p> <ul style="list-style-type: none"> <li>• Genes and the triplet code</li> <li>• DNA and chromosomes</li> <li>• The structure of ribonucleic acid</li> <li>• Protein synthesis – transcription and splicing</li> <li>• Protein synthesis – translation</li> </ul> <p><i>Genetic diversity</i></p> <ul style="list-style-type: none"> <li>• Mutations</li> <li>• Meiosis and genetic variation</li> <li>• Genetic diversity and adaptation</li> <li>• Types of selection</li> </ul>
HT5	<p><b><u>Section 4 Genetic Information, variation and relationships between organisms continued ....</u></b></p> <p><i>Biodiversity</i></p> <ul style="list-style-type: none"> <li>• Species and taxonomy</li> <li>• Diversity within a community</li> <li>• Species diversity and human activity</li> <li>• Investigating diversity</li> </ul> <p>PPE revision Review / recap / recover – Focus on application and challenge questions</p>
HT6	<p>Primary Project</p> <p>Statistical Tests</p> <ul style="list-style-type: none"> <li>• Chi – Square</li> <li>• Spearman’s Rank</li> <li>• T-Test</li> </ul> <p><b><u>Section 5 Energy in and between organisms</u></b></p> <p><i>Energy and ecosystems</i></p> <ul style="list-style-type: none"> <li>• Food chains and energy transfer</li> </ul>

- Energy transfer and productivity
- Nutrient cycles
- Use of natural and artificial fertilisers
- Environmental issues concerning use of nitrogen-containing fertilisers

### **Section 7 Genetics, populations, evolution and ecosystems**

#### *Populations in ecosystems*

- Populations in ecosystems
- Variation in population size
- Competition
- Predation
- Investigating populations
- Succession
- Conservation of habitats