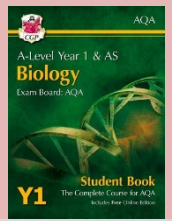
The English Martyrs Catholic School and Sixth Form College

Biology Year 12 - A	Module 1	Module 2	Module 3
Topic Theme and Intent	Students explore the key **biological molecules** from which all **life** forms contain – providing indirect **evidence** for **evolution** and common ancestors. They look at how these biological molecules facilitate multiple **functions** in organisms.	Students continue looking at other key **biological molecules** found in all life forms – **genetic material** and **water**. Students then progress to look at how cells and organisms **exchange substances** with their **environments**	Students focus on how **resources** are moved around **multicellular organisms** like plants and animals by **mass transport**, in comparison to **unicellular organisms** who rely on **diffusion**.
Knowledge	• Key biological molecules – sugars, lipids, proteins. • Testing for Key biological molecules. • Enzymes. • Enzyme controlled reactions.	• Other key biological molecules – DNA, RNA, ATP, water, inorganic ions. • DNA replication. • Size and surface area. • Gas exchange and lung disease. • Producing biological drawings.	• Digestion. • Haemoglobin, the heart, and the circulatory system. • Cardiovascular disease • Plant transport – Xylem • Plant transport - Phloem
Skills	Investigate the effects of variables on enzyme controlled reactions.	Discover how to produce biological drawings according to convention.	Dissect a heart and measure the thicknesses of major blood vessels.
Literacy Links	**Reading –** Students will read about key biological molecules common amongst organisms. **Writing –** Students start to communicate scientific ideas and concepts through writing. **Oracy –** Students start to use scientific vocabulary in discussion and question and answering.	**Reading –** Students will read about gas exchange in organisms. **Writing** - Students practise communicating scientific ideas and concepts through writing. **Oracy –** Students practise the use scientific vocabulary in discussion and question and answering.	**Reading –** Students will read about digestion and circulation. **Writing** - Students will communicate scientific ideas and concepts through writing. **Oracy –** Students use scientific vocabulary in discussion and question and answering.
Essential Vocabulary	Monomers, Polymers, Monosaccharides, Dissaccharrides, Hydrolysis, Condensation, Enzymes.	Deoxyribonucleic acid, Ribonucleic acid, Adenosine Triphosphate, Semi-conservative replication.	Endopeptidases, Exopeptidases, Haemoglobin, Dissociation, Myocardial Infarction, Atheroma, Thrombosis.

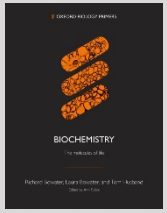
Disciplinary Reading

CGP Books – A level Biology, & Oxford Revise A level Biology.

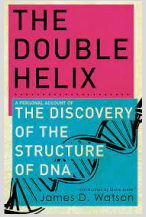


Reading for Pleasure

R. Bowater *et al.* – Biochemistry: The molecules of life.



TJ. Watson – The Double Helix



M. Smith and D. Morton – The Digestive System