

Year 11: Biology Separate Science

Curriculum Intent: Year 11 Separate Biology looks to build on the foundation established in the Combined Science course. The more complex topics covered include protein synthesis, the eye, brain and kidney, pyramids of biomass and biomass transfer through the ecosystems, the history of genetics, the theory of evolution, plant defences and monoclonal antibodies. The knowledge gained provides students with a deeper insight into the subject, allowing them to tackle more complex problems and questions which link different areas. It also builds a solid knowledge base for progression to A level chemistry. Practical skills include the testing of biological molecules, qualitative investigation of osmosis and investigating the effect of fitness of the heart rate.



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Key ideas and sequence of learning	Module B6 – Global Challenges • Body and body defences • Monoclonal Antibodies • New Medicines • Plant diseases and defences • Non-Communicable diseases • Modern advances in medicine	Revision and consolidation Students sit their EoY exams. Students will review their PPE exam papers.	• Revision and consolidation	Revision and consolidation Students begin their GCSE exams	Students finish their GCSE exams
Key Questions	1. How do humans defend themselves against disease? 2. How do plants defend themselves against communicable diseases? 3. How are plant diseases detected in the field? 4. What are monoclonal antibodies? 5. How are monoclonal antibodies produced? 6. How are monoclonal antibodies used? 7. How does lifestyle contribute to non-communicable diseases?		Students will review their PPE exam papers in detail to identify strengths and weaknesses Students will then prepare for their GCSE exams in lessons with their teacher. They will also have lectures for each module.	Students will prepare for their GCSE exams in lessons with their teacher.	
Vocabulary	• Physical defences • Chemical defences • Cuticle • Cell Wall • Insecticides				

	• Antibacterial • Antifungal • Cyanide • Cutinases • Pyrethrins • Diagnosis • DNA analysis • Antigens • Monoclonal antibodies • Genetically modified • Hybridomas • Myelomas • Lymphocytes • Immune response • Antibodies • Pregnancy test • Antivirals • Antibiotics • Zone of inhibition • Aseptic technique • Sterile • Autoclave				
Practical Skills	• Aseptic technique				