<table>
<tr><td colspan="2">Subject: KS5 Year 12 Biology</td><td>Year Group: 12</td></tr>
<tr><td>Term 1 Key Focus/Topic(s)
Components of living systems
Microscopy and calibration
Eukaryotic cells (plant and animals)
Prokaryotic cells
Biological elements and water
Exchange and transport
Exchange surfaces – gas exchange
Ventilation and gas exchange in mammals and other organisms.
Transport systems in animals
Blood, tissue fluid and lymph
Transport of oxygen and carbon dioxide
The heart and Blood vessels</td><td>Term 2 Key Focus/Topic(s)
Biomolecules
Biological elements and water
Carbohydrates, lipids and proteins
Nucleic acids, DNA replication, protein synthesis and ATP
Transport in plants
Transport in dicotyledonous plants
Water transport in plants
Transpiration
Translocation
Plant adaptations</td><td>Term 3 Key Focus/Topic(s)
Enzymes
Enzyme action
Factors affecting enzyme activity
Enzyme inhibitors
Cofactors, coenzymes and prosthetic groups
Classification and evolution
Classification and the five kingdoms
Phylogeny
Evolution
Variation
Adaptation and changing populations</td></tr>
<tr><td>Term 1 Assessment Opportunities:
End of unit tests
Homework
PAGs – Microscopy, Heart dissection, blood microscopy.</td><td>Term 2 Assessment Opportunities:
End of unit tests
Homework.
PAGs – Quantitative testing of protein, finding the water potential of red onion tissue, using a potometer to investigate transpiration.</td><td>Term 3 Assessment Opportunities:
End of unit tests
Homework.
PAGs – Effect of on enzyme activity.</td></tr>
<tr><td>Term 4 Key Focus/Topic(s)
Plasma membranes
Structure and function of membranes
Factors effecting membrane structure
Diffusion
Osmosis
Active transport
Biodiversity
Biodiversity</td><td>Term 5 Key Focus/Topic(s)
Cell division
Cell cycle
Mitosis
Meiosis
Cellular specialisation
Stem cells
Communicable disease
Animal and plant pathogens and disease</td><td>Term 6 Key Focus/Topic(s)
Revision
Comprehensive review of modules 1-4</td></tr>
</table>

Long term overview for Year 12 Biology

● Sampling ● Calculation of biodiversity ● Factors effecting biodiversity ● Reasons and methods for maintaining biodiversity	● Transmission of disease ● Plant defences ● Animal immunity ● Treatment and prevention of disease	
Term 4 Assessment Opportunities: ● End of unit tests. ● Homework. ● PAGS – Distribution of species in a habitat, effect of temperature on membrane permeability, finidng water potential of pant tissue	Term 5 Assessment Opportunities: ● End of unit tests. ● Homework. ● PAGS – Observing mitosis	Term 6 Assessment Opportunities: ● Mock examinations

Rationale:
In Year 12 the foundations of Biology are covered along with an overview of basic systems biology for example how gases and other essential molecules are exchanged and transported in both plants and animals. These foundations and system overviews pave the way for a more in-depth and cross topic approach that is used in Year 13.

A big feature of the A level Biology scheme of work is to develop the students critical thinking and analytical skills. Students are expected to develop higher level thinking skills, participate actively in lessons, demonstrating a greater level of knowledge and to make connections across topics. The lessons are sequenced and designed to do this. Students are also set reading work and are assessed on their quality of understanding in end of unit assessments. Students are asked to read some of the lesson's content before the lesson, thereby allowing for a deeper understanding to be developed through discussion with peers and problem-solving activities. Reading outside of lessons also promotes independence and allows students to consolidate lesson content better. Examination practice and retrieval practice is also a key feature in A level Biology.

Evaluation:
- Assessment opportunities will involve teacher, self and peer assessment. The assessment is focused around work produced in theoretical and practical sessions where the students are required to demonstrate their practical and analytical skills as well as their scientific knowledge of the theory covered.
- Early intervention is a key feature of the A level assessment so that gaps in attainment can be determined promptly and barriers in the students learning addressed. Lesson observations, work scrutiny and particularly student discussions and self-assessment are key aspects in ensuring that students can close gaps and make good progress. It also results in greater student retention from Year 12 to Year 13.
- In lessons students should be able to apply advanced knowledge to novel situations and make connections between topics.
- Homework is set that tests the students' knowledge and ability to apply their knowledge to a wide range of biological phenomena.
- Students should demonstrate an understanding of how theory is used to explain scientific concepts with clarity and detail.

Long term overview for Year 12 Biology

- Lesson observations, work scrutiny, teacher and self-assessment play a key role in student outcomes.