



BRENTWOOD COUNTY HIGH SIXTH FORM

CURRICULUM OVERVIEW

BIOLOGY A-LEVEL



Osborne

Co-operative Academy Trust

Year 12

- Assessment Lessons are **Red**
- Reflection Lessons are **Purple**

Autumn 1 Term 1a	Autumn 2 Term 1b	Spring 1 Term 2a	Spring 2 Term 2b	Summer 1 Term 3a	Summer 2 Term 3b
<p><u>Teacher 1 – Biological molecules section 1</u></p> <ol style="list-style-type: none"> Intro Disaccharides & polysaccharides Practical: glucose dilution Lipids/lipids practical Proteins/proteins practical Enzymes action & factors Enzymes cont'd Compulsory practical 1 (factors affecting enzymes) Practical 1 cont'd Structure of RNA & DNA Access Exam Feedback DNA replication Energy and ATP Water properties <p><u>Teacher 2 – Cells section 2</u></p> <ol style="list-style-type: none"> Studying cells The electron microscope Practical: cell size Eukaryotic structure L4 cont'd 	<p><u>Teacher 1 – organisms exchange substances with their environment</u></p> <ol style="list-style-type: none"> Exchange between organisms & their environment Gas exchange in 1 celled organisms Gas exchange in fish Gas exchange in the leaf Practical: ligustrum Structure of human gas exchange The mechanism of breathing Exchange of gases in lungs Enzymes and digestion Enzyme practical Absorption Haemoglobin & oxygen transport Haemoglobin cont'd Circulatory system of a mammal Compulsory practical 5: heart dissection Cardiac cycle <p><u>Teacher 2 – Cells section 2 cont'd</u></p>	<ol style="list-style-type: none"> Blood vessels Water transport: xylem The use of a potometer Transport in the phloem Evidence for theories of translocation <p><u>Populations in ecosystems Section 7</u></p> <ol style="list-style-type: none"> Revision Exam week Feedback Populations in ecosystems Variation in population size Population size cont'd <p><u>Teacher 2 – Genetic information, variation & relationships</u></p> <ol style="list-style-type: none"> Genes & triplet code DNA chromosomes Structure of RNA Transcription and splicing Translation Gene & chromosome mutation Exam week Feedback Meiosis & variation Genetic diversity 	<p><u>Teacher 1: Populations in ecosystems cont'd</u></p> <ol style="list-style-type: none"> Competition Predator prey relationships Investigating populations Compulsory practical 12: distribution Succession Conservation of habitats Homework corrections Revision End of Unit Assessment Feedback <p><u>Teacher 2 – Genetic information, variation cont'd</u></p> <ol style="list-style-type: none"> Types of selection Biodiversity, courtship & classification Biodiversity cont'd Index of diversity Species diversity & human activities Investigating diversity Quantitative investigations of variation 	<p>Term 3a will focus on any remaining required practical experiments, revision for whole school exam week and top up lessons. Teachers will use the QLA from previous exam weeks and end of unit assessment to form structured revision sessions to close the gaps within student knowledge.</p>	<ol style="list-style-type: none"> Whole school exam week 4 Week 5 north wales trip

<p>Prokaryotic cells & viruses</p> <p>4. Mitosis Mitosis cont'd</p> <p>5. Access Exam</p> <p>6. Feedback</p> <p>7. Compulsory practical 2: root squash Structure of the cell surface membrane</p>	<p>1. Diffusion Compulsory practical 4: effect of temperature on beetroot cell</p> <p>2. Osmosis compulsory practical</p> <p>3. Active transport practical Co-transport and absorption</p> <p>4. Defence mechanisms T lymphocytes</p> <p>5. B lymphocytes Antibodies</p> <p>6. Vaccinations HIV Compulsory practical 6: aseptic techniques</p>		<p>Compulsory practical 12: investigating distribution</p> <p>5. End of Unit Assessment</p> <p>6. Feedback</p>		
---	--	--	--	--	--

Year 13

- Assessment Lessons are **Red**
- Reflection Lessons are **Purple**

Autumn 1 Term 1a	Autumn 2 Term 1b	Spring 1 Term 2a	Spring 2 Term 2b	Summer 1 Term 3a	Summer 2 Term 3b
<p><u>Energy Transfers in and between organisms</u></p> <ol style="list-style-type: none"> 1. Structure of leaf, light dependent reactions, compulsory practical 7 – chromatography 2. Light independent reaction, compulsory practical 8 - ammonium hydroxide, unit test 3. Feedback, Respiration, Krebs's cycle, oxidative phosphorylation, Compulsory practical 9 – Respiration in yeast 4. Anaerobic respiration, test on respiration, feedback lesson 5. Food chains, energy transfers, Nutrient cycles, fertilisers <p><u>Organisms respond to changes in their environments section 6</u></p> <ol style="list-style-type: none"> 6. Unit test, Feedback, Survival and response, plant growth and factors, 7. Compulsory practical 10 – choice chambers (2 lessons), reflex arc, Receptors 	<p><u>Organisms respond to changes in their environments section 6</u> <u>cont'd</u></p> <ol style="list-style-type: none"> 1. Control of heart rate, nerve impulse, synapses 2. Exam Week 3. Exam week 4. Feedback 5. Skeletal muscle, homeostasis, blood glucose and diabetes 6. Blood water, compulsory practical 5 – dissection of kidney, nephron, ADH 	<p><u>Genetics, Populations, Evolution & Ecosystems</u></p> <ol style="list-style-type: none"> 1. Inheritance, mono/dihybrid crosses, codominance. 2. Sex-linkage, epistasis, chi-squared test 3. Hardy Weinberg equation, Variation, natural selection, selection. 4. Exam week 5. Exam week 6. Feedback 	<p><u>Genetics, Populations, Evolution & Ecosystems</u> <u>cont'd</u></p> <ol style="list-style-type: none"> 1. Isolation, in class test, feedback, populations review <p><u>The Control of gene expression.</u></p> <ol style="list-style-type: none"> 2. Gene mutations, stem cells, transcription and translation 3. Gene expression, cancer, genome projects, producing DNA, in vivo cloning. 4. In vitro cloning, gene screening, genetic fingerprinting, test on section 8. 5. Feedback, compulsory practical questions, paper 1 revision 6. Paper 2 revision 	<p><u>Revision</u></p> <ol style="list-style-type: none"> 1. Revision – paper 3 2. Revision – paper 1 3. Revision – paper 2 4. Revision – paper 3 5. Revision – paper 1 	<ol style="list-style-type: none"> 1. QLA driven revision

Intent, Implementation and Impact KS5

<u>INTENT</u>	<u>IMPLEMENTATION</u>	<u>IMPACT</u>
<ul style="list-style-type: none">• Promote independence of learning into students so that they are equip to deal with Independent Learning Sessions and wider reading and work outside of the classroom• Understand specific and complex chemical terminology in relation to the context of the topic• Develop practical skills to aid understanding of the chemistry specification• Develop key mathematical skills such as plotting and interpreting suitable graphs from experimental results to help analyse data• Develop an interest and enthusiasm for chemistry.• Constantly revisit topics through starters and ILS lessons to help retention.• Prepare students for A Level exam.• Continue the regime of constant testing and reflection	<ul style="list-style-type: none">• Assessment embedded in lesson through interleaved practice of topics in low stakes testing, through exam questions which are self, peer to teacher assessed as well as end of unit assessments• Reflective learning at the heart of assessment, with all assessments being reflected on with purple progress sheets to help students close the gap at each assessment point and progress during the course• Promotion of ILS with structured work to encourage independent learning and to revise past content.• Regular practical work throughout Year 12 and 13 to incorporate all skills required for the practical component.• Where possible a separate Organic and Inorganic teachers with Foundations in Chemistry and Practical Skills covered by both teachers.	<ul style="list-style-type: none">• Interleaved practice of knowledge helps boost retention of information over the linear course• Improved A Level results s• Improved exam skills through assessment and reflective learning• Understanding of Chemistry in the wider world and its uses for career and life in general• Ability to boost popularity of Chemistry as an option for University courses• Constant revisiting of content to improve with retention.