



KS3 Curriculum Summary

The information below gives an overview of the topics that your child will be studying in science during years 7, 8 and 9. It also outlines how you can support your child to enrich and extend their learning outside of school.

At Eastbrook School we follow the Exploring Science scheme of work for year 7,8 and 9, as well as incorporating cross curricular links for year 7 using the International Primary Curriculum (IPC) to support the transition into KS3. It is clearly divided into biology, chemistry and physics topics with a balanced curricular ethos. We believe in developing our students' knowledge and understanding of scientific theory. The KS3 science curriculum has an integrated working scientifically component and a clear focus on literacy, numeracy and communication that seeks to develop students' aspiration, motivation and confidence in articulating their scientific ideas and skills.

Year 7		
Autumn term	Spring term	Summer term
Topics	Topics	Topics
Out of Africa (IPC) How life began 7A-Cells, Tissue and systems. 7C – Muscles and bones 7B - Reproduction 7D – Ecosystem	Water for Everyone (IPC) 7G- Particle Model 8F-Atoms, Elements & Molecules 7E-Mixture and separation including the water cycle and water borne disease. Chemical World 7F – Acid and Alkali	Full Power (IPC) 7J – Electricity 7I –Energy 7L Energy transfer Forces around you 7K – Forces Revision End of year exam

Maths skills: plotting graph, bar chart, line graph, scatter graph standard form, ratios, percentages, fractions, calculating area, estimating size, mean, mathematical symbols, changing the subject of an equation, using units, converting between units, graph calculations, graph plotting, line of best fit, graph analysis, area and volume

NB: questions on maths skills for all the topics are part of the curriculum for year 7. Time is allocated for the skills questions and two skills questions per unit to be done in the lesson and teachers to assess and close the gap where needed.

Working scientifically: applications of science, explaining procedure, communication, analysing, asking scientific questions, making prediction, planning an investigation, obtaining, presenting and interpreting data, errors and uncertainties, ways to make notes, facts and opinion.

Assessment for learning: Formative assessment -focuses on classwork, homework and assignments. End of topic test is undertaken after each topic completion.

NB: Students are given the opportunity to improve their skills by attempting extended questions after each topic.

Useful websites

www.bbc.com/bitesize
www.samlearning.com/
<https://www.youtube.com/>

Other ways to support learning

The teaching rota has only two topics for the summer term. This gives teachers enough time to set revision and support students to close the gap in their knowledge so that they are ready for the end of the year exam.
 Revision book: students to use the revision book which is sold at a subsidised price from the department.

Educational visits: Science Museum, Natural History Museum, Kew Gardens, The Chase, Greenwich Maritime Museum	
Topic	Outline
7A-Cells, Tissue and systems.	The fundamental units of living organisms are cells, which may be part of highly adapted structures including tissues, organs and organ systems, enabling life processes to be performed more effectively.
7B - Reproduction	This topic explores the growing up process in animals and human beings. What happens during puberty and adolescence as well as gestation period in different mammals? Internal and external fertilisation is also taught.
7C- Muscles and bones	7C builds up on the teachings of 7A. It goes further to teach the organs, organ system and fitness. Breathing, circulatory, skeletal and muscles system are taught in more depth leading to the effect of drugs on the body.
7D – Ecosystem	7D looks at variation within and between species. It also builds on adaptation of plants and animals in different climate. Ecosystem and human impact on ecosystem is introduced
7E-Mixture and separation	Students develop and build on their KS2 material unit knowledge. Solution, solvent, solute, mixtures and separation techniques are the main concepts and key words applied to explore and apply. Pupils have the opportunity to experiment with the different separation methods.
7F- Acid and Alkali	7F provides more opportunities for pupils to experiment with acid, alkali and indicators. Students study the pH scale, neutralisation and their applications.
7G – Particle Model	This is an introduction to matter as solid, liquid and gases. This topic also includes the scientific investigation skills – aim, hypothesis, prediction, method, observation, conclusion and evaluation.
7H+ 8F-Atoms, Elements & Molecules (introduction to periodic table)	7H goes further on the particle model and explains the differences between atoms, molecules, elements and compounds. a simple model of the atom consisting of the nucleus and electrons 8H develops the further the concept of atoms with chemical and physical changes. It explores the modern Periodic Table, showing elements arranged in order of atomic number Students study the position of elements in the Periodic Table in relation to their atomic structure
7I - Energy	7I recalls our body need for energy and teaches why different people need different amount of food. They also investigate the different amount of energy in food. How energy is stored and transferred is linked to the law of conservation of energy. It also includes the different types of energy resources.
7J – Electricity	7J builds on the energy topic to explore how current and potential difference is measured in electrical circuits. To aid the understanding of current flow the concept of models are useful here. Electrical safety is another aspect that is incorporated in this topic.
7K - Forces	This is an introduction to different forces and how to measure forces. Investigation of elastic properties and stretching includes Hooke's Law and the links to the science of bungee jumping. Unbalanced and balanced forces concepts are applied to different scenarios.
7L/8K – Energy Transfer	This topic is taught just after topic 7I. it builds on the concept of energy and It explores the different ways energy is transferred. Convection, conduction and radiation are explained using daily life examples.

The different topics in science are taught in sequences and threads. Topics such as 'cells, particles and energy' introduce the basics of the main threads in science for other topics to build on. This allows the main ideas to be revisited due to the sequencing of the units taught and this makes learning more effective.

Year 8		
Autumn term	Spring term	Summer term
Topics	Topics	Topics
8F- Periodic Table 8G- Metals and uses 8A- Food and Nutrition 8B- Plant reproduction	7L- Sound 8J- Light 8C- Breathing and respiration 8D- Unicellular Organisms	8E – Combustion 8I- Fluids Periodic Table and equations Revision End of year exam
<p>Maths skills: calculating density, calculating volume of regular and irregular objects, mean, efficiency, working out the cost of energy, knowledge of variables, using units, converting between units, graph calculations, graph plotting, line of best fit, graph analysis,</p> <p>NB: Questions on maths skills for all sciences are part of the curriculum for year 8. Time is allocated to complete the task and two skills questions per unit to be done in the lesson and teachers to assess and close the gap.</p> <p>Working scientifically: applications of science, methods, models, communication, asking scientific questions, hypothesis, planning an investigation, obtaining, presenting and interpreting data, errors and uncertainties.</p> <p>Assessment for learning: Formative assessment -focuses on classwork, homework and assignments. End of topic test is undertaken after each topic completion.</p> <p>NB: Students are given the opportunity to improve their skills by attempting extended questions after each topic.</p>		
Useful websites		
www.bbc.com/bitesize/ www.samlearning.com www.youtube.com/		
Other ways to support learning		
<p><u>The teaching rota has only two topics for the summer term. This gives teachers enough time to set revision and support students to close the gap in the knowledge so that they are ready for the end of the year exam.</u></p> <p>Revision book: students to use the revision book which is sold at a subsidised price from the department.</p> <p>Educational visits: Science Museum, Natural History Museum, Kew Gardens, The Chase, Greenwich Maritime Museum</p>		

Topic	Outline
8A- Food and nutrition	8A introduces food test, uses of nutrients and balanced diet. It also provides opportunities for pupils to use analytical skills to interpret information of food labels. Digestion and absorption of food is also taught.
8B- Plants and their reproduction	The importance of classification, biodiversity and sampling techniques is taught in this topic. An introduction to sexual and asexual reproduction in plants links very well with life cycle of plants.

8C-Breathing and respiration	This topic explores human breathing system and gaseous exchange. Students are introduced to aerobic and anaerobic respiration.
8D- Unicellular Organisms	Bacteria, fungus and viruses – how these microorganisms are harmful and beneficial to humans. The unicellular organism – protist is also introduced in this topic.
8E-Combustion	8E looks at exothermic reactions and the burning of hydrocarbons. Oxidation/combustion of metals and non-metals is also introduced. The link between increase in carbon dioxide and global warming is analysed.
8F- The periodic Table	Atomic model is taught linked with the periodic table. The physical and chemical properties of elements in groups is explained. There is more emphasis on the reaction trend of group 1.
8G-Metals and their uses	This topic explores the properties, uses and reactions of metals. There are several opportunities for pupils to learn by conducting practical experiments. The concepts of reactivity series and displacement reactions are introduced.
8I-Fluids	This topic explores and applies the particle models further. Pressure in fluids and the effects is introduced. Floating, sinking and drag effect is included in this topic.
8J-Light	Pupils explore the properties of light through practical activities. Main concepts explored are reflection and refraction. Dispersion and colours is well demonstrated using a prism.
7L-sound	Sound energy topic focuses on animal sound, making and detecting sound. Pupils learn how we hear sound. There is also the comparison of transverse and longitudinal waves.
8k- Energy transfer	8K looks at how we have gathered evidence about the solar system. The concepts of seasons, gravity in space and galaxies beyond the solar system is also taught.

The different topics in science are taught in sequences and threads. Topics taught in year 7 are the basics that the year 8 topics can add to. This allows the main ideas to be revisited due to the sequencing of the units taught and this makes learning more effective. Periodic table topic is taught before 'metals and their uses'. The pupils learn about the elements and the physical and chemical trends before they learn about the reactions of the metals.

Year 9 –building for transition

Autumn term	Spring term	Summer term
Topics	Topics	Topics
<p><u>Physics I – Space 8L/9Ka (part)</u> <u>Maths Skills</u> <u>Working Scientifically</u></p> <p>Evidence of solar system Seasons Magnetic Earth Gravity in space Beyond the solar system Big Bang theory</p> <p><u>Physics II – 9I linked with 9L (forces) and P2 gateway</u> Motion (distance, time, speed, acceleration, velocity, kinetic energy, vectors and scalars) Newton’s laws (forces and interactions, free body diagrams, momentum, work and power) Stretching springs and other materials Gravitational field and potential energy Turning forces Simple machines Hydraulics Physics Investigation- Density</p> <p><u>Chemistry I – 9G linked with C1/C2 Gateway</u></p> <p>The particle model The model of the atom Atomic structure Periodic table trends and patterns. Elements, compounds and mixture Atoms, Electronic Structure Ionic, Metallic and Covalent bonding.</p>	<p><u>Biology I</u> <u>Genetics 9A linked with B1</u> <u>Working Scientifically</u></p> <p>Variation –genetic/environmental Cells and microscopy DNA –structure and function Adaptation and survival Endangered and extinction Natural Selection Darwin’s theory of evolution</p> <p>Biology investigation-Osmosis</p> <p><u>Physics III</u> <u>9J linked with P3 Gateway</u> Static electricity Simple circuits Electric current –series/parallel Resistance in a wire/calculations Electromagnets and Electric motors Electrical power calculation Electric fields</p>	<p><u>Biology II</u> <u>Plant growth 9B linked with B1 and B5</u> <u>Maths Skills</u> <u>Working Scientifically</u> <u>Revision</u> <u>End or year exam</u></p> <p>Photosynthesis Respiration Plant adaptation Transpiration Plant products Food test Growing crops Farming problems</p> <p>Chemistry investigation – Rate of reaction (Syringe or disappearing X method)</p> <p><u>Chemistry II</u> <u>9F,9H, 9G linked to C2, C3 & C5.</u> Physical and chemical changes Separation techniques Reactivity of metals Exothermic and Endothermic Law of conservation of mass Displacement reaction Metal extraction Thermal decomposition Neutralisation reaction Acid and alkali Rate of reaction Chemical equations</p>
<p><i>Maths skills:</i> standard form, ratios, percentages, fractions, estimating, significant figures, frequency tables and charts, mean, order of magnitude, mathematical symbols, changing the subject of an equation, SI units, using units, converting between units, graph calculations, graph plotting, line of best fit, graph analysis, area and volume NB: maths skills for all sciences are addressed and revisited throughout KS4 studies frequently and time is allocated to assess and close the gap at the end of each term.</p> <p><i>Working scientifically:</i> applications of science, methods, models, communication, asking scientific questions, hypothesis, planning an investigation, obtaining, presenting and interpreting data, errors and uncertainties. NB: these skills are addressed throughout all KS4 studies, although time for assessment is allocated at the end of each term.</p>		
<p>Useful websites</p>		

<https://www.kerboodle.com/app>
<https://www.bbc.com/bitesize/examspecs/z92x7hv>
<https://www.bbc.com/bitesize/subjects/zrkw2hv>
<https://www.samlearning.com/>
<https://www.gcsepod.com/>
<https://www.youtube.com/> (free science lessons)
<https://ocr.org.uk/qualifications/past-papers/>

Other ways to support learning

Educational visits: Science Museum, Natural History Museum, Greenwich Observatory, Kew Gardens, Epping Forest, Imperial College, King's College, The Chase, Greenwich Maritime Museum. Access on line websites.

Topic	Outline
Biology I 9A-Genetics and evolution linked with B1 & B5	This topic looks at inherited and environmental variation. Genes, DNA and chromosomes are introduced. The concept of variation, adaptation, selection and evolution is included. Link with B1 topic – same ideas- cells, microscopy skills, enzymes...
Biology II 9B – Plant Growth linked with B1 & B2	Topic 9B explores photosynthesis and plant adaptations. 9B builds on 8B - classification, biodiversity, germination and growth in plants. B1 and B2 extends on respiration and photosynthesis.
Chemistry I	9H and 9G – links to the atomic models and atomic structure. The recall of periodic table and trends in reactivity has been added on. Atomic structure leading to ions and bonding makes a good link with KS4 chemistry.
Chemistry II	9F, 9H, & 9G links well with C2, C3, and C5 Physical and chemical changes is revisited with the skills for separation techniques. Reactivity series of metals is linked to the extraction methods. The different types of chemical reactions and the chemical equations is included.
Physics I – Earth and Space	Earth and space is about gathering evidence of space, seasons, Magnetic Earth, Gravity in space, Beyond the Solar System and Big Bang theory.
Physics II 9I-Force and motion	This topic builds on forces topic and explores its effects in detail including graphs and calculations. Energy stores, transfers and simple machines are also studied. It links with P2 GCSE topic –ideal to prepare for KS4.
Physics III 9J- Force field and electromagnets	Static electricity, magnetic field and electric field are explored. Uses of electromagnets and how to make electromagnets are studied using practical methods. Calculations using voltage, current and resistance is also included. This topic also links with P3 – Electricity at KS4.

Year 10 – Triple Science

Autumn term	Spring term	Summer term
Topics	Topics	Topics
<p><u>BIOLOGY (B4, B5, B6) + PAG</u> <u>Maths Skills</u> <u>Working Scientifically</u></p> <p>Ecosystems: abiotic and biotic factors, competition, interdependence, pyramids of biomass, efficiency The carbon cycle The nitrogen cycle The water cycle</p> <p>Inheritance: variation, sexual and asexual reproduction Meiosis Genetics: alleles, dominant and recessive, mutations, history of genetics Evolution and natural selection Sampling techniques Biodiversity: loss, increasing, maintaining and monitoring</p> <p>Feeding the human race: food security, selective breeding, genetic engineering Health: communicable diseases, human infections Plant diseases and defences Blood and body defences Monoclonal antibodies Vaccinations Aseptic technique New medicines Non- communicable diseases</p>	<p><u>PHYSICS (P1, P2, P3, P4) +PAG</u> <u>Maths Skills</u> <u>Working Scientifically</u></p> <p>The model of the atom Density Specific heat capacity Specific latent heat Pressure: gas pressure and temperature, pressure and volume, atmospheric pressure, liquid and pressure</p> <p>Motion (distance, time, speed, acceleration, velocity, kinetic energy, vectors and scalars) Newton’s laws (forces and interactions, free body diagrams, momentum, work and power) Stretching springs and other materials Gravitational field and potential energy Turning forces Simple machines Hydraulics</p> <p>Magnetism Uses of magnets: motors, generators, transformers, microphones and loudspeakers</p> <p>Waves Electromagnetic spectrum Light: colour, lenses Radioactivity: isotopes, alpha, beta, gamma radiation, nuclear equation, half- life, fission, fusion</p>	<p><u>CHEMISTRY (C4, C5) + PAG</u> <u>Maths Skills</u> <u>Working Scientifically</u></p> <p>Predicting chemical reactions: the alkali metals, the halogens, the noble gases, reactivity of elements Detecting gases, cations and anions Monitoring chemical reactions: theoretical yield, percentage yield, titration and titration calculations, gas calculations Controlling reactions Equilibria</p> <p><u>Working Scientifically</u> <u>Revision</u> <u>End of year exam</u></p> <p style="text-align: center;"><u>CHEMISTRY (C6)</u></p> <p>Fertilisers (Haber process, Contact process) Making ethanol Extracting metals Alloys Corrosion Different materials Organic chemistry Atmosphere (forming, pollution, climate change) Water for drinking</p>

Maths skills: standard form, ratios, percentages, fractions, estimating, significant figures, frequency tables and charts, mean, order of magnitude, mathematical symbols, changing the subject of an equation, SI units, using units, converting between units, graph calculations, graph plotting, line of best fit, graph analysis, area and volume
 NB: maths skills for all sciences are addressed and revisited throughout KS4 studies frequently and time is allocated to assess and close the gap at the end of each term.

Working scientifically: applications of science, methods, models, communication, asking scientific questions, hypothesis, planning an investigation, obtaining, presenting and interpreting data, errors and uncertainties.
 NB: these skills are addressed throughout all KS4 studies, although time for assessment is allocated at the end of each term.

Useful websites

<https://www.kerboodle.com/app>

<https://www.bbc.com/bitesize/examspecs/z92x7hv>

<https://www.bbc.com/bitesize/subjects/zrkw2hv>

<https://www.samlearning.com/>

<https://www.gcsepod.com/>

<https://www.youtube.com/> (free science lessons)

<https://ocr.org.uk/qualifications/past-papers/>

Other ways to support learning

Revision sessions, breakfast club, half- term sessions –please enquire and attend.

Ask extra past paper questions and notes from teachers.

Buy your revision cards, revision guides and workbooks from parent pay. These resources are very helpful for independent learning together with the on-line text books (www.kerboodle.com)

Can subscribe to: www.savemyexam.com, to access past paper questions and answers for all GCSE subjects.

Year 11 – Triple Science

Autumn term	Spring term	Summer term
Topics	Topics	Topics
<p>Physics (P5-P8) + PAG</p> <p>Wave Behaviour – Transverse and longitudinal waves Wave Calculations The electromagnetic spectrum Uses of electromagnetic spectrum waves Dangers of ionising radiation Refraction Reflection, Dispersion Waves interaction Concave and convex lenses</p> <p>Radioactive emissions Alpha, Beta and Gamma Uses and the hazards Half-life calculations Work done Power and efficiency</p> <p>Physics on the move Powering Earth Beyond Earth December MOCK EXAMS</p>	<p style="text-align: center;"><u>Biology (B4, B5, B6) + PAG</u></p> <p>Ecosystems: abiotic and biotic factors, competition, interdependence, pyramids of biomass, efficiency The carbon cycle The nitrogen cycle The water cycle Inheritance: variation, sexual and asexual reproduction Meiosis Genetics: alleles, dominant and recessive, mutations, history of genetics Evolution and natural selection Sampling techniques Biodiversity: loss, increasing, maintaining and monitoring Feeding the human race: food security, selective breeding, genetic engineering Health: communicable diseases, human infections Plant diseases and defences Blood and body defences Monoclonal antibodies Vaccinations Aseptic technique New medicines Non- communicable diseases</p>	<p style="text-align: center;"><u>EXAM REVISION AND EXAMS</u></p> <p>Selected Skills Revision Data Analysis Questions Extended questions PAG Questions Calculations Knowledge based Questions</p>

Maths skills: standard form, ratios, percentages, fractions, estimating, significant figures, frequency tables and charts, mean, order of magnitude, mathematical symbols, changing the subject of an equation, SI units, using units, converting between units, graph calculations, graph plotting, line of best fit, graph analysis, area and volume
NB: maths skills for all sciences are addressed and revisited throughout KS4 studies frequently and time is allocated to assess and close the gap at the end of each term.

Working scientifically: applications of science, methods, models, communication, asking scientific questions, hypothesis, planning an investigation, obtaining, presenting and interpreting data, errors and uncertainties.
NB: these skills are addressed throughout all KS4 studies, although time for assessment is allocated at the end of each term.

Useful websites

<https://www.kerboodle.com/app>
<https://www.bbc.com/bitesize/examspecs/z92x7hv>
<https://www.bbc.com/bitesize/subjects/zrkw2hv>
<https://www.samlearning.com/>
<https://www.gcsepod.com/>
<https://www.youtube.com/> (free science lessons)
<https://ocr.org.uk/qualifications/past-papers/>

Other ways to support learning

As previous.
Revision sessions, breakfast club, half- term sessions.
Buy your revision cards, revision guides and workbooks from parent pay. These resources are very helpful for independent learning together with the on-line text books (www.kerboodle.com)
Can subscribe to :www.savemyexam.com, to access past paper questions and answers for all GCSE subjects.

KS4 Curriculum Summary – Combined Science

GCSE Combined Science course provides a range of Biology, Chemistry and Physics topics that builds on the KS3 science curriculum. We follow the OCR Gateway science programme of study and students undertake higher or foundation papers.

Year 11		
Autumn term	Spring term	Summer term
Topics	Topics	Topics
B4- Community level systems B5-Genes, inheritance and selection B6- Global challenges <u>Revision and exam practice</u> B1, B2, B3 + PAG (Practical Activity Group) B4, B5, B6 + PAG Dec Mock Exam	<u>P4 – Explaining motion</u> <u>P5 – Energy</u> <u>P6 – Global Challenges</u> <u>Revision and exam practice</u> P4,P5 and P6 + PAG C4, C5 and C6 + PAG Easter Mock Exam (Biology, Physics and Chemistry)	<u>Revision and exam practice</u> Continued revision during exam time Planned revision prior to morning or afternoon exams.
<p>Maths skills: : Decimal form, multiplication in standard form, ratios, percentages, fractions, significant figures, bar chart, histograms, sampling, probability, mean, median, mode, mathematical symbols, changing the subject of an equation, using units, converting between units, graph calculations, graph plotting, line of best fit, graph analysis, area and volume.</p> <p>Working scientifically (PAG): applications of science, evaluating science applications, making decisions about applications of science, developing scientific methods and theories, scientific models, scientific questions, hypothesis, choosing variables to investigate, planning an investigation, obtaining precise data, repeatable and reproducible data, designing a results table, identifying outliers, drawing graphs, interpreting graphs, drawing conclusions, evaluating investigation, random errors, systematic errors, uncertainty.</p>		
Useful websites		
www.bbc.com/bitesize www.samlearning.com/ https://www.gcsepod.com/ https://www.kerboodle.com/ https://ocr.org.uk/qualifications/past-papers		
Other ways to support learning		
Revision book: students to use the revision book which is sold at a subsidised price from the department (CGP and Collins revision guides). Recommended textbooks – OCR Gateway GCSE Chemistry by Nigel Saunders; OCR Gateway GCSE Biology by Jo Locke; OCR Gateway GCSE Physics by Helen Reynolds. Trip to Chase Nature Reserve for Ecological studies. Russel group University visits for lectures and activities. Greenwich Observatory and science museums. Breakfast clubs; after school revision and targeted half term sessions.		



Eastbrook School

KS5 Curriculum Summary – Chemistry

Year 12		
Autumn term	Spring term	Summer term
Topics	Topics	Topics
<p>Topic 1 – Atomic structure and the periodic table Topic 2 – Bonding and structure Topic 3 – Redox I Topic 4 - Inorganic chemistry and the periodic table Topic 5 – Inorganic equations and amounts of substance</p> <p>Assessment at the end of each topic. Mock Exam at the end of Term.</p>	<p>Topic 6.1- introduction to organic chemistry Topic 6.2 - Hydrocarbon: alkanes and alkenes Topic 6.3 - Halogenoalkanes and alcohols Topic 7 – Modern Analytical Techniques I Topic 8 – Energetics I</p> <p>Assessment at the end of each topic.</p>	<p>Topic 8 – Energetics I Topic 9 – Kinetics I Topic 10 – Equilibrium I Topic 11 – Equilibrium II Topic 13.1 Lattice Energy</p> <p>Assessment at the end of each topic. End of Year exam</p>
<p>Maths skills: A minimum of 20% of the marks across all three papers is awarded for mathematics at level 2 and above. Maths operations; positive and negative numbers; Standard forms; Handling data; Ratios; Maths equations and expressions; Chemical equations; calculations using gas volumes; Calculations using solutions; percentage yields and atom economy; Graphs – experimental data; Maxwell-Boltzmann distribution and reaction profiles; Mass and infrared spectra; Geometry.</p> <p>Working scientifically: Science Practical Endorsement – The practical skills is assessed by teachers throughout the course with using the core practical and other topic related practical activities. This does not count towards the A level grade but result (pass or fail) will be reported on A level certificate.</p>		
Useful websites		
<p>www.bbc.com/bitesize https://www.kerboodle.com/ https://ocr.org.uk/qualifications/past-papers https://qualifications.pearson.com/en/support/support-topics/exams/past-papers.html https://www.chemguide.co.uk http://www.rsc.org/</p>		
Other ways to support learning		
<p>Independent Learning – preparation and past paper practice Master lectures at IOE Text Book – Edexcel A level Chemistry 1&2 -Hodder Education; Edexcel AS/A level Chemistry 1&2 -Pearsons; George Facer Edexcel A level Chemistry. CGP Edexcel Revision guide. <u>A level Exam Paper</u> <u>Paper 1 – Topic 1-5; 8 and 10-15 Paper 2 – Topic 2-3; 5-7; 9 & 16-19 Paper 3 – Topic 1-19 (General and Practical principles in Chemistry)</u></p>		

Year 13

Autumn term	Spring term	Summer term
Topics	Topics	Topics
Topic 12 – Acid -base equilibria Topic 13.2 – Entropy Topic 14 - Redox II Topic 15 – Transition metals Topic 16 – Kinetics II Topic 17.1 – Chirality Topic 17.2 – Carbonyl compounds December Mock Exam	Topic 16 – Kinetics II Topic 17.3 – Carboxylic Acids and their derivatives Topic 18 – Arenes, Amines and Organic synthesis. Topic 19 – Modern analytical techniques March Mock Exam <u>Revision and exam practice</u> <u>Topic 1-10 for paper 1/2</u>	<u>Revision and exam practice</u> Topic 11-19 for paper 1-3 Core practical exam preparation.

Maths skills: A minimum of 20% of the marks across all three papers is awarded for mathematics at level 2 and above. Maths operations; positive and negative numbers; Standard forms; Handling data; Ratios; Maths equations and expressions; Chemical equations; calculations using gas volumes; Calculations using solutions; percentage yields and atom economy; Graphs – experimental data; Maxwell-Boltzmann distribution and reaction profiles; Mass and infrared spectra; Geometry.

Working scientifically: Science Practical Endorsement – The practical skills is assessed by teachers throughout the course with using the core practical and other topic related practical activities. This does not count towards the A level grade but result (pass or fail) will be reported on A level certificate.

Useful websites

www.bbc.com/bitesize
<https://www.kerboodle.com/>
<https://ocr.org.uk/qualifications/past-papers>
<https://qualifications.pearson.com/en/support/support-topics/exams/past-papers.html>
<https://www.chemguide.co.uk>
<http://www.rsc.org/>

Other ways to support learning

Independent Learning – preparation and past paper practice
 Master lectures at IOE
 Text Book – Edexcel A level Chemistry 1&2 -Hodder Education; Edexcel AS/A level Chemistry 1&2 -Pearsons;
 George Facer Edexcel A level Chemistry.
 CGP Edexcel Revision guide.
 A level Exam Paper
 Paper 1 – Topic 1-5; 8 and 10-15 Paper 2 – Topic 2-3; 5-7; 9 & 16-19 Paper 3 – Topic 1-19 (General and Practical principles in Chemistry)



Eastbrook School

KS5 Curriculum Summary – Biology

Topics Yr 12	Topics Year 13	PAG Topics
<p>Module 1 -Development of practical skills in biology</p> <p>Module 2 -Foundations in biology</p> <p>Module 3 -Exchange and transport</p> <p>Module 4 -Biodiversity, evolution and disease</p> <p>Assessment at the end of each topic. Mock Exam at the end of Term.</p>	<p>Module 5 -Communication, homeostasis and energy</p> <p>Module 6 -Genetics and ecosystems</p> <p>Assessment at the end of each topic. Mock Exam at the end of Term.</p>	<ol style="list-style-type: none"> 1. Microscopy Preparing Cells & Calibrating an Eyepiece Graticule 2. Dissection Heart Dissection 3. Sampling Techniques Calculating Species Diversity 4. Enzyme Controlled Reactions 5. Effect of Substrate Concentration on Rate of Enzyme-Controlled Reaction 6. Colorimeter or Potometer 7. The Effect of Temperature on Membrane Permeability 8. Chromatography or Electrophoresis 9. Identifying Amino Acids using Paper Chromatography 10. Microbial Technique the Effect of Antibiotics on Bacterial Growth 11. Transport In & Out of Cells 12. Effect of Solute Concentration on Osmosis in Potato Cells 13. Qualitative Testing Determining Glucose Concentration 14. Investigating using a Data Logger or Computer Modelling 15. Investigating DNA Structure using RasMol 16. Research into the Measurement of Plant or Animal Responses 17. Investigation into the Effect of Exercise on Pulse Rate

Maths skills: A minimum of 20% of the marks across all three papers is awarded for mathematics at level 2 and above. Maths operations; positive and negative numbers; Standard forms; Handling data; Ratios; Maths equations and expressions; Chemical equations; calculations using gas volumes; Calculations using solutions; percentage yields and atom economy; Graphs – experimental data; Maxwell-Boltzmann distribution and reaction profiles; Mass and infrared spectra; Geometry.

Working scientifically: Science Practical Endorsement – The practical skills is assessed by teachers throughout the course with using the core practical and other topic related practical activities. This does not count towards the A level grade but result (pass or fail) will be reported on A level certificate.

Useful websites

www.bbc.com/bitesize
<https://www.kerboodle.com/>
<https://ocr.org.uk/qualifications/past-papers>
<https://www.chemguide.co.uk>
www.Scool.co.uk
www.Physicsandmathstutor.co.uk
www.Dynamiclearning.co.uk

Other ways to support learning

Independent Learning – preparation and past paper practice

Text Book – OCR As/A level Biology,1 &2 Sue Hocking

OCR A Level Biology Ann Fullick

OCR A Level Biology Book 1& 2 Richard Fosberry

CGP OCR Revision guide.

A Level Biology for you. Gareth Williams

The OCR syllabus can be downloaded from: ☞ Year 12 ☞ <https://gryphonscience.com/a-level-biology-year-1/> ☞ Year 13 ☞ <https://gryphonscience.com/a-level-biology-year-2/>

A level Exam Papers

Paper1- Biological processes

1hr 15 mins (37%)

Paper 2- Biological Diversity

2hrs 15 mins (37%)

Paper3- Unified biology

1 hr 30mins (36%)

Practical endorsement in biology

(non-exam assessed)- reported separately

KS5 Curriculum Summary – Physics

A level Physics AQA -7407&7408

Topics Yr 12	Topics Year 13	Core Practical
<ol style="list-style-type: none"> 1. Measurements and their errors 2. Particles and radiation 3. Waves 4. Mechanics and materials 5. Electricity 6. Further mechanics and thermal physics <p>Assessment at the end of each topic. Mock Exam at the end of Term.</p>	<ol style="list-style-type: none"> 7. Fields and their consequences 8. Nuclear physics <p>Options</p> <ol style="list-style-type: none"> 9. Astrophysics 10. Medical physics 11. Engineering physics 12. Turning points in physics 13. Electronics <p>Assessment at the end of each topic. Mock Exam at the end of Term.</p>	<ol style="list-style-type: none"> 1. Acceleration 2. Electrical resistivity 3. EMF and internal resistance 4. Viscosity 5. Young Modulus 6. Speed of sound 7. Standing Waves 8. Wavelength of light 9. Momentum 10. Collisions 11. Capacitor Discharge 12. Thermistor 13. Specific latent heat 14. Pressure and Volume 15. Gamma Radiation 16. Oscillations

Maths skills: There is a high level requirement of Maths skills. Maths operations; positive and negative numbers; Standard forms; Handling data; Ratios; Maths equations and expressions; Chemical equations; calculations using gas volumes; Graphs – experimental data; Every topic has its own equations and some topics are purely Maths topics.

Working scientifically: Science Practical Endorsement – The practical skills is assessed by teachers throughout the course with using the core practical and other topic related practical activities. This does not count towards the A level grade but result (pass or fail) will be reported on A level certificate.

Useful websites

www.bbc.com/bitesize

AQA Physics A Level Year 1 Student Book by Jim Breithaupt Paperback

[AQA Physics A Level Year 2 Student Book](#) by Jim Breithaupt Paperback

<https://www.kerboodle.com/>

<https://www.aqa.org.uk/science/as-and-a-level/physics-7407-7408>

<https://ocr.org.uk/qualifications/past-papers>

www.Scool.co.uk

www.Physicsandmathstutor.co.uk

www.Dynamiclearning.co.uk

Other ways to support learning

Independent Learning – preparation and past paper practice

Text Book – AQA Physics A Level Year 1 Student Book by Jim Breithaupt Paperback

[AQA Physics A Level Year 2 Student Book](#) by Jim Breithaupt Paperback

<https://www.kerboodle.com/>

<https://www.aqa.org.uk/science/as-and-a-level/physics-7407-7408>

A level Exam Papers

A level Assessment Paper 1

What's assessed

Sections 1 to 5 and 6.1 (Periodic motion)

Assessed

- written exam: 2 hours
- 85 marks
- 34% of A-level

Questions

60 marks of short and long answer questions and 25 multiple choice questions on content.

A level Assessment Paper 2

What's assessed

Sections 6.2 (Thermal Physics), 7 and 8

Assumed knowledge from sections 1 to 6.1

Assessed

- written exam: 2 hours
- 85 marks
- 34% of A-level

Questions

60 marks of short and long answer questions and 25 multiple choice questions on content.

A level Assessment Paper 3

What's assessed

Section A Compulsory section: Practical skills and data analysis

Section B: Students enter for **one** of sections 9, 10, 11, 12 or 13

Assessed

- written exam: 2 hours
- 80 marks
- 32% of A-level

Questions

45 marks of short and long answer questions on practical experiments and data analysis.

35 marks of short and long answer questions on optional topic.

