

Science Department KS4

Vision & Intent

The Science Department, in line with Eastlea Community School's core values, is committed to ensuring that all our students make greater than expected progress across all Key Stages in the subject of Science. Our Science curriculum has been designed to be rigorous, fun as well as challenging with the aim of developing students who are skilled critical thinkers, problem solvers, innovators and team players, as these are sought after desirable and transferable skills which would empower our students to excel beyond Eastlea.

Teaching and Learning at Key Stage 4:

The curriculum we offer at key stage 4 (year 10-11) is broad and balanced and provides a useful platform to enable our students to progress to further academic studies at A level or to follow a vocational, work-related pathway.

The journey towards becoming a successful life-long learner starts at an earlier age, but key stage 4 is extremely pivotal in determining the options/pathways available to students later in life. Many of the highly competitive universities and employers look at achievement at GCSE in determining which applicants to admit to their courses or work place. Most of our students do very well at A Levels and proceed further to the best Universities (Russel group and Oxbridge) to study Science.

Combined science students follow the AQA Combined Science: Trilogy GCSE (9 - 1). Details of this specification can be found at:

<http://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464>

Separate science students follow GCSE AQA Biology, Chemistry and Physics. Details of these specifications can be found at:

<http://www.aqa.org.uk/subjects/science/gcse/biology-8461>

<http://www.aqa.org.uk/subjects/science/gcse/chemistry-8462>

<http://www.aqa.org.uk/subjects/science/gcse/physics-8463>

Resources:

- CGP New grade (9-1) GCSE Science:
- AQA Revision Guide
- Kerboodle AQA GCSE (9-1) Science: Biology, Chemistry and Physics
- The Origin of Species by Charles Darwin
- YouTube: https://www.youtube.com/channel/UCqbOeHaAUXw9II7sBVG3_bw/playlistsort=dd&view=50&shelf_id=16
- www.bbc.co.uk/bitesize/gcse/science
- <https://www.newscientist.com/>
- <https://www.mygcse.com>
- <https://www.seneca.com>
- https://www.youtube.com/channel/UCqbOeHaAUXw9II7sBVG3_bw

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic/Focus	AQA Separate Sciences & Trilogy C4 Chemical Calculations C5 Chemical Changes, P4 Electric Circuits P5 Electricity in the home	AQA Separate Sciences & Trilogy B5 Communicable Diseases B6 Preventing and treating disease B7 Non-Communicable Diseases	AQA Separate Sciences & Trilogy C6 Electrolysis C7 Energy Changes P6 Molecules and matter	AQA Separate Sciences & Trilogy P7 Radioactivity B8 Photosynthesis B9 Respiration	AQA Separate Sciences & Trilogy C8 Rates and Equilibrium C9 Crude Oil and Fuels P9 Motion	AQA Separate Sciences & Trilogy P10 Forces and Motion B10 The human Nervous System B11 Hormonal Coordination
Resources	AQA Trilogy Science textbooks, Achieve in Science PPTs, additional PPTs, worksheets, practical equipment, modelling, practical demonstrations					
Assessment	End of topic tests, Exam question practise, Extended writing End of Autumn 1 Assessment (October 2021) End of Autumn 2 Assessment (December 2021) End of Spring 1 Assessment (February 2022) End of Spring 2 Assessment (March 2022) End of Summer 1 Assessment (May 2022)					

	End of Summer 2 Assessment (June 2022)
Extended Learning Opportunities	After school clubs, STEM Trips, STEM careers
Working Scientifically	<p>At GCSE level we have included all the parts of what good science is; which include investigations, observations, experimentation and/or testing out ideas and thinking about them.</p> <p>All these will involve talking about reading and writing about science plus the actual doing, as well as representing Science in its many forms both mathematically and visually through models.</p> <p>Students will be encouraged to develop their knowledge and understanding in science through opportunities for working scientifically. Working scientifically is the sum of all the activities that scientists do.</p> <p>At GCSE working scientifically is woven into our medium term plans and schemes of work to support students to be engaged and enthused. Resources and activities will be provided to support Scientific thinking through the use of Scientific vocabulary in explanations, applications and evaluations.</p>

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic/Focus P10 Forces and Motion <i>C11 Polymers</i> C12 Chemical Analysis B11 Hormonal Coordination <i>B12 Homeostasis in action</i>	AQA Separate Sciences & Trilogy <i>P11 Force & Pressure</i> P12 Wave Properties C13 The Earth's atmosphere C14 The Earth's resources	AQA Separate Sciences & Trilogy B13 Reproduction B14 Variation and Evolution, B15 Genetics and Evolution P13 Electromagnetic Waves, <i>P14 Light</i> P15 Electromagnetism	AQA Separate Sciences & Trilogy B16 Adaptation, Interdependence and Competition B18 Biodiversity and Ecosystems B17 Organising and Ecosystem	AQA Separate Sciences & Trilogy Revision Revision Revision	AQA Separate Sciences & Trilogy Revision Revision Revision	
Resources	AQA Physics Textbook, AchieveInScience portal, AQA Kerboodle online portal, BBC Bitesize Revision Guide					

	<p>mygcsescience.co.uk, free science video, Doodlelearn.co.uk, Senaca.co.uk</p>
<p>Assessment</p>	<p>End of Topic Test, Online Quizzes, Exam question practice, Extended writing</p> <p>End of Autumn 1 Assessment (October 2021)</p> <p>End of Autumn 2 Assessment (December 2021)</p> <p>End of Spring 1 Assessment (February 2022)</p> <p>End of Spring 2 Assessment (March 2022)</p> <p>End of Summer 1 Assessment (May 2022)</p> <p>End of Summer 2 Assessment (June 2022)</p>
<p>Extended Learning Opportunities</p>	<p>STEM Trips, Project based learning, Debates, Workshops</p>
<p>Working Scientifically</p>	<p>At GCSE level we have included all the parts of what good science is; which include investigations, observations, experimentation and/or testing out ideas and thinking about them.</p> <p>All these will involve talking about reading and writing about science plus the actual doing, as well as representing Science in its many forms both mathematically and visually through models.</p>

Students will be encouraged to develop their knowledge and understanding in science through opportunities for working scientifically. Working scientifically is the sum of all the activities that scientists do.

At GCSE working scientifically is woven into our medium term plans and schemes of work to support students to be engaged and enthused. Resources and activities will be provided to support Scientific thinking through the use of Scientific vocabulary in explanations, applications and evaluations.