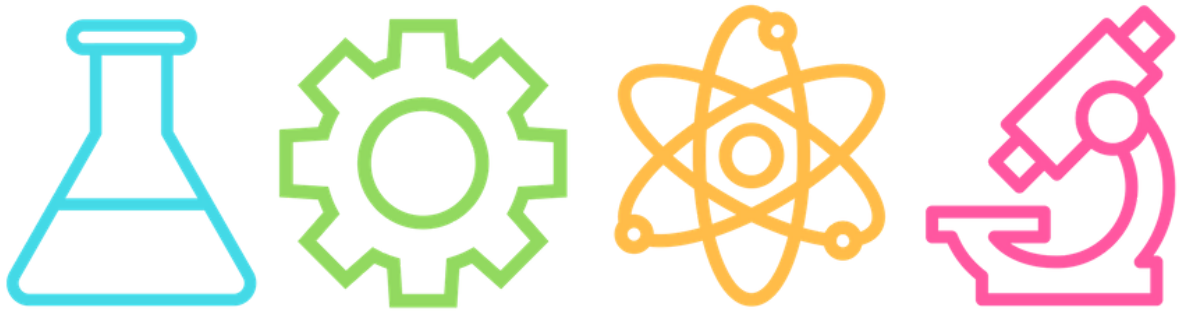


GCSE Combined Science Handbook



About Combined Science at Chelsea Academy

The majority of students at Chelsea Academy Study Combined Science GCSE. This is a double award qualification – upon completion of the course students will be awarded two GCSEs of the same grade e.g. 9-9. The course covers biology, chemistry and physics using a narrative-based approach. Ideas are introduced within relevant and interesting settings which help learners to anchor their conceptual knowledge of the range of scientific topics required at GCSE level. Practical skills are embedded within the specification. Students carry out practical work in preparation for written examinations that specifically test these skills. Combined Science was developed in conjunction with the University of York

Students will cover the course in years 9, 10 and 11 during six lessons of Science each week. This consists of two lessons of Biology, two lessons of Chemistry and two lessons of Physics with each subject being taught by a subject specialist.

Progress tests and mock exams

All Combined Science students will sit half termly progress tests in years 9, 10 and 11. In December and March of year 11 students will sit mock exams to prepare them for their final GCSE exams.

Independent Learning

Students will be set one hour of independent learning by each of their science teachers. This may consist of questions to consolidate what had been learnt in lessons, research using the internet, SAM learning tasks, past paper exam questions or completion of an independent learning booklet.

Revision resources and support materials

It is suggested that all students purchase a Combined Science revision guide published by CGP. These can be purchased using Parent Pay for £5.50 and then collected from a science teacher.

The Kerboodle website (www.kerboodle.com) is produced by Oxford University Press and allows students to access a digital copy of the course textbook. Students' can obtain the username, password and institution code from their Science teachers.

The course specification

(<http://www.ocr.org.uk/qualifications/gcse-twenty-first-century-science-suite-combined-science-b-j260-from-2016/>) is published by OCR. This contains detailed information about what the students are required to learn in each chapter.

SAM learning (<https://www.samlearning.com/>) has a large number of activities linked to the Combined Science GCSE specification. A student can obtain their username and password from their learning coach.

Course Contact

If you have any further questions about the course please contact Dr Greene at david.greene@chelsea-academy.org

How Combined Science is Assessed

All exams will be sat at the end of Year 11.

Content Overview	Assessment Overview	
<p>Content is split into twenty teaching chapters:</p> <ul style="list-style-type: none">• Chapter B1: You and your Genes• Chapter B2: Keeping healthy• Chapter B3: Living together – food and ecosystems• Chapter B4: Using food and controlling growth• Chapter B5: The human body – staying alive• Chapter B6: Life on Earth – past, present and future• Chapter C1: Air and water• Chapter C2: Chemical patterns• Chapter C3: Chemicals of the natural environment• Chapter C4: Material choices• Chapter C5: Chemical analysis• Chapter C6: Making useful chemicals• Chapter P1: Radiation and waves• Chapter P2: Sustainable energy• Chapter P3: Electric circuits• Chapter P4: Explaining motion• Chapter P5: Radioactive materials• Chapter P6: Matter – models and explanations• Chapter BCP7: Ideas about Science• Chapter BCP8: Practical Skills <p>Paper 5 assesses content B1 – B6 and BCP7 and 8 Paper 6 assesses content C1 – C6 and BCP7 and 8 Paper 7 assesses content P1 – P6 and BCP7 and 8 Paper 8 assesses all content</p>	<p>Biology J260/05 95 marks 1 hour 45 minutes Written paper</p>	<p>26.4% of total GCSE</p>
	<p>Chemistry J260/06 95 marks 1 hour 45 minutes Written paper</p>	<p>26.4% of total GCSE</p>
	<p>Physics J260/07 95 marks 1 hour 45 minutes Written paper</p>	<p>26.4% of total GCSE</p>
	<p>Combined Science J260/08 75 marks 1 hour 45 minutes Written paper</p>	<p>20.8% of total GCSE</p>

Course Content

A summary of the content is as follows. More in depth information is in the course specification.

Chapter B1: You and your genes	Chapter B2: Keeping healthy	Chapter B3: Living together – food and ecosystems
<p>B1.1 What is the genome and what does it do?</p> <p>B1.2 How is genetic information inherited?</p> <p>B1.3 How can and should gene technology be used?</p>	<p>B2.1 What are the causes of disease?</p> <p>B2.2 How do organisms protect themselves against pathogens?</p> <p>B2.3 How can we prevent the spread of infection?</p> <p>B2.4 How can lifestyle, genes and the environment affect my health?</p> <p>B2.5 How can we treat disease?</p>	<p>B3.1 What happens during photosynthesis?</p> <p>B3.2 How do producers get the substances they need?</p> <p>B3.3 How are organisms in an ecosystem interdependent?</p> <p>B3.4 How are populations affected by conditions in an ecosystem?</p>
Chapter B4: Using food and controlling growth	Chapter B5: The human body – staying alive	Chapter B6: Life on Earth – past, present and future
<p>B4.1 What happens during cellular respiration?</p> <p>B4.2 How do we know about mitochondria and other cell structures?</p> <p>B4.3 How do organisms grow and develop?</p> <p>B4.4 Should we use stem cells to treat damage and disease?</p>	<p>B5.1 How do substances get into, out of and around our bodies?</p> <p>B5.2 How does the nervous system help us respond to changes?</p> <p>B5.3 How do hormones control responses in the human body?</p> <p>B5.4 Why do we need to maintain a constant internal environment?</p> <p>B5.5 What role do hormones play in human reproduction?</p> <p>B5.6 What can happen when organs and control systems stop working?</p>	<p>B6.1 How was the theory of evolution developed?</p> <p>B6.2 How does our understanding of biology help us classify the diversity of organisms on Earth?</p> <p>B6.3 How is biodiversity threatened and how can we protect it?</p>
Chapter BCP7: Ideas about Science		
<p>IaS1 What needs to be considered when investigating a phenomenon scientifically?</p> <p>IaS2 What conclusions can we make from data?</p> <p>IaS3 How are scientific explanations developed?</p> <p>IaS4 How do science and technology impact society?</p>		
Chapter BCP8: Practical Skills		

Teaching Timelines

The Combined Science course consists of twenty teaching chapters: Chapters B1 – B6 in Biology; chapters C1 - C6 in Chemistry and chapters P1 – P6 in Physics with each chapter taking approximately a term to cover. There is also chapter BCP7 (Ideas in Science) and chapter BCP8 (Practical skills). The timeline below shows how students will cover the Biology, Chemistry and Physics specific content. Chapter BCP7 and BCP8 will be integrated into Biology, Chemistry and Physics lessons. There is more information about these chapter below.

Year 9: Chapters 1 – 3 in Biology, Chemistry and Physics

	Modules taught:		
	Biology	Chemistry	Physics
Half term 1	B1: You and your genes	C1: Air and water	P1: Radiation and waves
Half term 2	B1: You and your genes	C1: Air and water	P1: Radiation and waves
Half term 3	B2: Keeping Healthy	C2: Chemical patterns	P2: Sustainable energy
Half term 4	B2: Keeping Healthy	C2: Chemical patterns	P2: Sustainable energy
Half term 5	B3: Living together – food and ecosystems	C3: Chemicals of the natural environment	P3: Electric circuits
Half term 6	B3: Living together – food and ecosystems	C3: Chemicals of the natural environment	P3: Electric circuits

Year 10: Chapters 4 – 6 in Biology, Chemistry and Physics

	Modules taught:		
	Biology	Chemistry	Physics
Half term 1	B4: Using food and controlling growth	C4: Material choices	P4: Explaining motion
Half term 2	B4: Using food and controlling growth	C4: Material choices	P4: Explaining motion
Half term 3	B5: The human body – stating alive	C5: Chemical analysis	P5: Radioactive materials
Half term 4	B5: The human body – stating alive	C5: Chemical analysis	P5: Radioactive materials
Half term 5	B6: Life on Earth – past, present and future	C6: Making useful chemicals	P6: Matter – models and explanations
Half term 6	B6: Life on Earth – past, present and future	C6: Making useful chemicals	P6: Matter – models and explanations

Year 11 (Revision of previous chapters including practical skills and how science works chapters)

	Modules taught:		
	Biology	Chemistry	Physics
Half term 1	B1: You and your genes/ B2: Keeping healthy	C1: Air and water/ C2: Chemical patterns	P1: Radiation and waves/ P2: Sustainable energy
Half term 2	B2: Keeping healthy/ B3: Living together – food and ecosystems	C2: Chemical patterns/ C3: Chemicals of the natural environment	P2: Sustainable energy/ P3: Electric circuits
Half term 3	B3: Living together – food and ecosystems/ B4: Using food and controlling growth	C3: Chemicals of the natural environment/ C4: Material choices	P3: Electric circuits/ P4: Explaining motion
Half term 4	B4: Using food and controlling growth/ B5: The human body – stating alive	C4: Material choices/ C5: Chemical analysis	P4: Explaining motion/ P5: Radioactive materials
Half term 5	B6: Life on Earth – past, present and future	C6: Making useful chemicals	P6: Matter – models and explanations