

Science

The Year 10 Science Team

Dr K Nicholson (Subject Lead KS4)

Triple Biology	Triple Chemistry	Triple Physics	Trilogy Science
10Bi1 – Mrs C Burley	10N1 – Mr D Orwin	10N1 – Mr J Carter	10NSA – Mrs C Young, Mr M Mustafa, Mrs K Pumfrey
10Bi2 – Mr M Shah	10N2 – Dr K Nicholson	10N2 – Mr A Ihsan	10NSB – Mr A Ihsan, Miss L Wilson
10Bi3 – Mr M Shah	10S1 – Mr M Mustafa	10S1 – Mr J Carter	10NSC – Mr G Burley (Deputy Head of Year7), Mrs C Burley
10Bi4 – Mr S Sharifi	10S2 – Mrs K Pumfrey	10S2 – Dr S Jhumka	10NSD – Mr M Mustafa, Mr M Shah
			10NSE – Mis A Dickinson, Mr K Granaghan
			10SSA – Miss A Dickinson, Mrs E Grimwood, Miss R Cobb
			10SSB – Mr D Orwin, Mr S Shah
			10SSC – Mr A Cysell, Miss L Wilson
			10SSD – Mrs K Taylor, Mr S Sharifi
			10SSE – Mr K Granaghan, Dr K Nicholson

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AQA Combined Science (Trilogy)

There are six papers: two biology, two chemistry and two physics. Each of the papers will assess knowledge and understanding from distinct topic areas.

Biology Paper 1

Topics assessed: Biology topics 1–4: Cell Biology; Organisation; Infection and response; and Bioenergetics.

Written exam: 1 hour 15 minutes, Foundation and Higher Tier, 70 marks, 16.7% of GCSE

Question types: Multiple choice, structured, closed short answer, and open response.

Biology Paper 2

Topics assessed: Biology topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.

Written exam: 1 hour 15 minutes, Foundation and Higher Tier, 70 marks, 16.7% of GCSE

Question types: Multiple choice, structured, closed short answer, and open response.

Chemistry Paper 1

Topics assessed: Chemistry topics 8–12: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; and Energy changes.

Written exam: 1 hour 15 minutes, Foundation and Higher Tier, 70 marks, 16.7% of GCSE

Question types: Multiple choice, structured, closed short answer, and open response.

Chemistry Paper 2

Topics assessed: Chemistry topics 13–17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere; and Using resources.

Written exam: 1 hour 15 minutes, Foundation and Higher Tier, 70 marks, 16.7% of GCSE

Question types: Multiple choice, structured, closed short answer, and open response.

Physics Paper 1

Topic's assessed: Physics topics 18–21: Energy; Electricity; Particle model of matter; and Atomic structure.

Written exam: 1 hour 15 minutes, Foundation and Higher Tier, 70 marks, 16.7% of GCSE

Question types: Multiple choice, structured, closed short answer, and open response.

Physics Paper 2

Topics assessed: Physics topics 22–24: Forces; Waves; and Magnetism and electromagnetism

Written exam: 1 hour 15 minutes, Foundation and Higher Tier, 70 marks, 16.7% of GCSE

Question types: Multiple choice, structured, closed short answer, and open response.

AQA Separate Science (Triple)

There are six papers: two biology, two chemistry and two physics. Each of the papers will assess knowledge and understanding from distinct topic areas.

Biology Paper 1

Topics assessed: Topics 1–4: Cell biology; Organisation; Infection and response; and Bioenergetics.

Written exam: 1 hour 45 minutes, Foundation and Higher Tier, 100 marks, 50% of GCSE

Question types: Multiple choice, structured, closed short answer and open response.

Biology Paper 2

Topics assessed: Topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.

Written exam: 1 hour 45 minutes, Foundation and Higher Tier, 100 marks, 50% of GCSE

Question types: Multiple choice, structured, closed short answer and open response.

Chemistry Paper 1

Topics assessed: Topics 1–5: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry, Chemical changes; and Energy changes.

Written exam: 1 hour 45 minutes, Foundation and Higher Tier, 100 marks, 50% of GCSE

Question types: Multiple choice, structured, closed short answer and open response.

Chemistry Paper 2

Topics assessed: Topics 6–10: The rate and extent of chemical change; Organic chemistry; Chemical analysis, Chemistry of the atmosphere; and Using resources.

Written exam: 1 hour 45 minutes, Foundation and Higher Tier, 100 marks, 50% of GCSE

Question types: Multiple choice, structured, closed short answer and open response.

Physics Paper 1

Topics assessed: Topics 1–4: Energy; Electricity; Particle model of matter; and Atomic structure.

Written exam: 1 hour 45 minutes, Foundation and Higher Tier, 100 marks, 50% of GCSE

Question types: Multiple choice, structured, closed short answer and open response.

Physics Paper 2

Topics assessed: Topics 5–8: Forces; Waves; Magnetism and electromagnetism; and Space physics.

Written exam: 1 hour 45 minutes, Foundation and Higher Tier, 100 marks, 50% of GCSE

Question types: Multiple choice, structured, closed short answer and open response.

Coverage in Year 10 – Trilogy Science

Students will learn the content through a combination of hands-on practical experiments, demonstrations, paired and class discussions, and practice applying theory through exam style questions to develop strong exam technique. All lessons start with interleaving starters. Interleaving starters improve recall of previously studied topics.

Term 1: Biology lessons will cover B2: Organisation, interleaving starters will cover B1: Cell biology. Chemistry lessons will cover C2: Bonding, structure, and the properties of matter, interleaving starters will cover C1: Atomic structure and the periodic table. Physics lessons (Higher tier only) will cover P2: Electricity, interleaving starters will cover P1: Energy.

Term 2: Foundation tier Biology lessons will move on to B3: infection and response, interleaving starters will cover C1: Atomic structure and the periodic table. Chemistry lessons (Higher tier only) will cover C4: chemical changes, interleaving starters will cover C2: Bonding, structure, and the properties of matter. Higher tier Physics lessons will complete the P2 Electricity topic before moving on to learn about P3: Particle model of matter, interleaving starters will cover maths skills and P2: Electricity. Foundation tier Physics lessons will cover P3: Particle model of matter and P4: Atomic structure, interleaving starters will cover P1: Energy and C2: Bonding, structure, and the properties of matter.

Term 3: Biology lessons (Higher tier only) will cover B3: Infection and response, interleaving starters will cover B2: Organisation. Foundation tier Chemistry lessons will cover C4: chemical changes, interleaving starters will cover B3: infection and response, and P4: Atomic structure. Higher tier Chemistry lessons will complete the C4 topic and then cover C5: Energy changes, interleaving starters will review C1: Atomic structure and the periodic table and C4. Foundation tier Physics lessons will cover P2: Electricity, interleaving starters will cover P3: Particle model of matter. Higher tier Physics lessons will finish P3: Particle model of matter before moving onto P4: Atomic structure, interleaving starters will revisit P2: Electricity.

Term 4: Biology lessons, both higher and foundation tiers, will move onto start B4: Bioenergetics, interleaving topics for foundation tier is B2: Organisation, whereas for higher tier it will be a mix of B2 and B3: Infection and response. In Chemistry lessons, both higher and foundation tiers, will review and finish C3: Quantitative chemistry and learn about C5: Energy changes. Interleaving starters for foundation tier will be P4: Atomic structure, higher tier will review C4: Chemical changes, and quantitative chemistry content covered in year 9. Physics lessons (higher tier only) will complete P4: Atomic structure, with interleaving starters focusing on P3: Particle model of matter.

At the end of this term students will begin focused revision in all three sciences in preparation for their Year 10 mock assessments.

Term 5: All three sciences will continue with focused revision lessons to effectively prepare students for their Year 10 mock assessments at the end of April / beginning of May.

Following the mock assessments, foundation tier Physics lessons will cover part 2 of the P4: Electricity topic. Higher tier Physics lessons will move on to P5: Forces. Both higher and foundation tiers will continued to learn about B4: Bioenergetics in Biology lessons.

In Term 5, content covered in interleaving starters will be in response to weaker topics identified in the Year 10 mock assessments.

Term 6: Higher tier Biology lessons will complete the B4: Bioenergetics. Additional Biology content will be taught in place of a Chemistry topic and allow higher tier students to learn about B7: Ecology. Foundation tier will also learn about B7: Ecology in their Biology lessons. All Physics lessons will cover the second section of P5: forces. All interleaving starters will continue to cover weaker Paper 1 topics from Biology, Chemistry and Physics to ensure students have a thorough understanding of these by the end of year 10.

Coverage in Year 10 – Triple Science

Students will learn the content through a combination of hands-on practical experiments, demonstrations, paired and class discussions, and practice applying theory through exam style questions to develop strong exam technique. All lessons start with interleaving starters. Interleaving starters improve recall of previously studied topics. Triple science students cover more content than Trilogy Science students, this additional content is equivalent to the third GCSE.

Term 1: Biology lessons will cover B2: Organisation, interleaving starters will cover B1: Cell biology. Chemistry lessons will cover C2: Bonding, structure, and the properties of matter, interleaving starters will cover C1: Atomic structure and the periodic table. Physics lessons will cover P2: Electricity, interleaving starters will cover P1: Energy.

Term 2: Biology lessons will complete the B2: Organisation topic, interleaving starters will cover B1: Cell biology. Students will then begin B3: Infection and response, interleaving starters will review B2 content. Chemistry lessons will cover C3: Quantitative chemistry, interleaving starters will cover C2: Bonding, structure, and the properties of matter. Physics lessons will complete P2: Electricity and then cover P3: Particle model of matter, interleaving starters will cover P2: Electricity.

Term 3: Biology lessons will complete the B3: Infection and response topic, interleaving starters will focus on B2: Organisation. Students will then start B4: Bioenergetics. Chemistry lessons will cover C4: Chemical changes, interleaving starters will cover C3: Quantitative chemistry. Physics lessons will cover P4: Atomic structure, interleaving starters will cover P3: Particle model of matter.

Term 4: Biology lessons will cover the remainder of B4: Bioenergetics, interleaving starters will cover B3: Infection and response. Chemistry lessons will complete C4: Chemical changes, interleaving starters will cover C3: Quantitative chemistry. Students will move onto C5: Energy changes. Physics lessons will cover P5: Forces, interleaving starters will review P4: Atomic structure.

At the end of this term students will begin focused revision in all three sciences in preparation for their Year 10 mock assessments.

Term 5: All three sciences will continue with focused revision lessons to effectively prepare students for their Year 10 mock assessments at the end of April / beginning of May.

Biology lessons will then begin Paper 2 content, the first topic covered will be B7: Ecology. Chemistry lessons will complete the C5: Energy changes topic, before moving onto the first Paper 2 topic C6: Rates of reaction. Physics lessons will continue with the P5: Forces topic.

In Term 5, content covered in interleaving starters will be in response to weaker topics identified in the Year 10 mock assessments.

Term 6: Biology lessons will complete the B7: Ecology topic, interleaving starters will continue to cover weaker Paper 1 topics B1-B4. Chemistry lessons will complete the C6: Rates of reaction topic, interleaving starters will continue to cover weaker Paper 1 topics C1-C5. Physics lessons will complete the remainder of P5: Forces, interleaving starters will continue to cover weaker Paper 1 topics P1-P4.

Key dates for Year 10 Trilogy Foundation (internal assessments)

Assessment Teacher 1	Wk 7 – 16 th Oct C2 and C1 interleaving	Wk 11 – 20 th Nov P3 and C2 interleaving	Wk 19 – 22 rd Jan P4, C4 part and B3 interleaving	Wk 26 – 18 th Mar C4 electrolysis, C5 and B3 interleaving	Wk 29-30 - 22 th April – 3 rd May Biology Paper 1, Chemistry Paper 1, Physics Paper 1	Wk 38 – 1 st July P5 part 1 and P2 part 2
Assessment teacher 2	Wk 6 - 9 th Oct Timed exam question Enzymes RP Wk 8 – 1 st Nov B2 and B1 interleaving	Wk 15 – 18 th Dec B3 and C1 interleaving	Wk 23 – 26 th Feb P2 part 1 and P3 interleaving			Wk 39 – 8 th July B7 and B4 interleaving

Key dates for Year 10 Trilogy Higher (internal assessments)

Assessment Biology	Wk 6 – 9 th Oct Timed exam question Enzymes RP	Wk 13 – 4 th Dec B2 and B1 interleaving	Wk 20 – 29 th Jan B3 part and B1 interleaving (osmosis)	Wk 24 – 4 th March B3 all and B2 interleaving	Wk 29-30 - 22 nd April – 3 rd May Biology Paper 1, Chemistry Paper 1, Physics Paper 1	Wk 37 – 24 th Jun B4 and B3 interleaving
Assessment Chemistry	Wk 6 – 9 th Oct Timed exam question – comparing and explaining properties of ionic and simple covalent structures	Wk 9 – 6 th Nov C2 and C1 interleaving	Wk 18 – 15 th Jan C4 and C2 interleaving	Wk 26 – 18 th March C5, C3, and C4 interleaving		Wk 33 – 18 th May P2 and C4 interleaving/weak topics from mocks
Assessment Physics	Wk 6 – 9 th Oct Timed exam question – Resistance of wire RP	Wk 11 – 20 th Nov P2 part 1 and P1 interleaving	Wk 19 – 22 nd Jan P3 and P2 part 1 interleaving	Wk 25 – 11 th March P4 and P3 interleaving		Wk 39 – 8 th Jul P5 and P2 interleaving

Key dates for Year 10 Triple (internal assessments)

Term	1	2	3	4	5	6
Assessment Chemistry	Wk 7 – 6 th Oct C2 and C1 interleaving	Wk 14 – 11 th Dec C3 and C2 interleaving	Wk 20 – 29 th Jan - C4 not including electrolysis and C3 interleaving	Wk 24 – 4 th Mar Timed questions on Electrolysis only	Wk 29-30 - 22 nd April – 3 rd May Paper 1: Chemistry: C1-5	Wk 39 - 8 th Jul – C6 and C5 interleaving
Assessment Biology	Wk 5 – 2 nd Oct B2 and B1 interleaving	Wk 11 – 20 th Nov B2 all and B1 interleaving	Wk 19 – 22 nd Jan B3 and B2 interleaving	Wk 25 – 11 th Mar B4 and B3 interleaving	Biology: B1-4 Physics: P1-4	Wk 36 – 8 th Jul B7 part and B4 interleaving
Assessment Physics	Wk 5 – 2 nd Oct P2 prt 1 and P1 interleaving	Wk 10 – 12 th Nov Assessment of P2 topic – P1 KE and GPE interleaving	Wk 16 – 1 st Jan P3 and P2 interleaving	Wk 22 – 18 th Feb P4 and P3 interleaving		Wk 39 – 8 th Jul P5 and P4 interleaving

Entry Level Certificate (ELC) and Trilogy co-teaching

A small number of students will be completing the entry level certificate alongside Trilogy Science. While this is a separate qualification, our main purpose in teaching the ELC is to support students obtaining a grade in Trilogy Science through ensuring key ideas from Key stage 3 are fully embedded. The 6 components are taught alongside the trilogy components and include:

Biology

1. Component 1- Biology: The human body
2. Component 2 - Biology: Environment, evolution and inheritance

Chemistry

3. Component 3 - Chemistry: Elements, mixtures and compounds

4. Component 4 - Chemistry: Chemistry in our world

Physics

5. Component 5 - Physics: Energy, forces and the structure of matter

6. Component 6 - Physics: Electricity, magnetism and waves

Students complete 12 internal assessments over the course of the 2 years – 6 teacher devised assessments which comprises planning, carrying out and analysing a short practical and 6 externally set assignments which are short tests done in class. There is an opportunity to complete an alternative version of the assessment to improve a mark. Components 1 and 3 are assessed in year 10. The other components are assessed in year 11.

How you can help (Revision and support)

- Ensure your child completes their 4 daily goals per week on Tassomai and completes their assigned exam question on the class notebook. All homework is assigned weekly to students on Teams. If your child has issues logging into Tassomai, they must contact their class teacher immediately.
- Short, succinct, and informative videos covering all content can be accessed via GCSE pod. Students can access GCSE pod using their school Microsoft 365 logins. Encourage your child to summarise the video into bullet points or flash cards, you could then test them by asking questions about material written down on the flashcards. Regular recall of key concepts will help embed the content into your child's long-term memory.
- A large bank of practice exam questions and mark scheme can be found on physics and maths tutor. Practicing exam questions really helps students identify key phrases and content that examiners are looking for in answers.
 - [AQA GCSE \(9-1\) Biology Revision - PMT \(physicsandmathstutor.com\)](https://www.physicsandmathstutor.com/gcse/biology/revision/)
 - [AQA GCSE \(9-1\) Physics Revision - PMT \(physicsandmathstutor.com\)](https://www.physicsandmathstutor.com/gcse/physics/revision/)
 - [AQA GCSE \(9-1\) Chemistry Revision - PMT \(physicsandmathstutor.com\)](https://www.physicsandmathstutor.com/gcse/chemistry/revision/)