

Beths Grammar School

KS4 Curriculum Map - Year 10 Chemistry

Academic Year 2026-2027 | OCR GCSE (9-1) Chemistry A (Gateway Science) J248

Curriculum intent. Year 10 develops the Year 9 foundations of particles, atomic structure, formulae, purity and bonding. All C3 content is completed by Thursday 25 March 2027. The end-of-Year 10 examination covers C1.1 to C3.4 inclusive only. C4 is excluded from the examination. C4.1 is taught before the examination where timetable capacity permits, and C4.2 is completed after it.

Calendar and examination basis. Year 10 Chemistry is planned across the 2026-2027 teaching calendar. Holiday weeks do not count as teaching weeks. All C3 content is completed by Thursday 25 March 2027. One additional Chemistry lesson is protected for a practice mock before the actual end-of-Year 10 examination. The examination covers C1.1-C3.4 inclusive only; C4 is excluded. C4.2 is completed after the examination.

Curriculum and Assessment Overview

Period	Core content	Progression from Year 9	Leads to	Principal checkpoint
Autumn 1-Autumn 2	C3.1 Introducing chemical reactions	C1.2 ions; C2.1 relative mass and formulae	Quantitative chemistry and all later reaction units	C3.1 practice, official test and combined DIRT/reteaching/transfer
Autumn 2-Spring 1	C3.2 Energetics	C1.1 particle energy; C2.2 bonding	Rates, equilibrium and industrial chemistry	Temperature-change and calculation checkpoints
Spring 1-Spring 2	C3.3 Types of reaction	C1.2 ions; C2.1 formulae; C2.2 bonding	Electrolysis and qualitative analysis	Practical, equation and pH checkpoints
Spring 2	C3.4 Electrolysis	C2.2 ionic bonding and structures	Extraction and electrochemistry	C3 cumulative practice, official test and combined DIRT/reteaching/transfer
Summer 1	C4.1 Predicting reactions	C2.2 periodicity and electronic structure	C4.2 analytical chemistry	Formative trend and displacement checks; excluded from end-of-year exam
June 2027	End-of-Year 10 examination	Cumulative retrieval from Year 9 C1-C2 and Year 10 C3	Evidence-led revision and Year 11 handover	Scope is C1.1-C3.4 inclusive only; C4 excluded
Summer 2 after examination	C4.2 Identifying products	C2.1 chromatography and separation; C2.2 ions	Year 11 C5-C6 and A Level analysis	Practical competency and synoptic task

Teaching, Inclusion and Assessment Principles

1. Begin with retrieval that explicitly connects Year 10 learning to the Year 9 curriculum and Scheme of Work.
2. Present new knowledge in small steps and move from I do to We do to You do.
3. Use practical observation, cold calling, mini whiteboards and hinge questions to adapt teaching.
4. Maintain the same ambitious curriculum for all pupils; scaffold language, representations and calculations without reducing outcomes.
5. Provide whole-class feedback, DIRT, responsive reteaching and transfer within the same lesson after each official test.

6. Use cumulative assessment to strengthen retention across C1-C3.
7. Make clear that the end-of-Year 10 examination covers C1.1-C3.4 inclusive and excludes C4.

1. C3.1 Introducing chemical reactions

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Period 1. Autumn 1-Autumn 2	Progression 1. Builds directly on Year 9 C1.2 ions and C2.1 relative formula mass and empirical formula. 2. Extends Year 9 symbolic and quantitative representation into formal chemical equations and stoichiometry.	Substantive knowledge 1. Formulae of elements, molecules and ionic compounds. 2. Conservation of mass; balanced, half and ionic equations; state symbols. 3. Mole, mass, stoichiometry and limiting reactants. OCR mapping 1. C3.1a-C3.1l; CM3.1i-CM3.1iv	Curriculum enactment 1. Use worked examples and models before independent equation and calculation practice. 2. Interleave C1-C2 retrieval and use particle diagrams to explain mass changes. Misconceptions and fixes 1. Subscripts can be changed to balance equations -> preserve formulae and alter coefficients. 2. Mass is lost in open reactions -> model matter crossing the system boundary. 3. One mole means one gram -> connect amount, molar mass and Avogadro constant. Inclusive access 1. Pre-teach vocabulary and symbols. 2. Chunk equations and calculations. 3. Use guided practice before independent application.	Assessment checkpoints 1. C3.1 practice and official test; combined DIRT, responsive reteaching and transfer. Department response 1. Use question-level evidence to identify underlying gaps. 2. Complete DIRT, responsive reteaching and transfer in the same feedback lesson.

2. C3.2 Energetics

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Period 1. Autumn 2-Spring 1	Progression 1. Builds on Year 9 C1.1 particle energy and C2.2 bonding. 2. Develops structure and energy reasoning required for rates and equilibrium.	Substantive knowledge 1. Exothermic and endothermic reactions. 2. Reaction profiles, activation energy and energy change. 3. Bond-energy calculations. OCR mapping 1. C3.2a-C3.2d; CM3.2i-CM3.2ii	Curriculum enactment 1. Measure temperature change; model profiles; calculate bond-energy changes. Misconceptions and fixes 1. Breaking bonds releases energy -> breaking requires energy and making releases energy.	Assessment checkpoints 1. Practical and calculation checkpoints; included in cumulative C3 assessment. Department response 1. Use question-level evidence to identify underlying gaps. 2. Complete DIRT, responsive reteaching and transfer in the same feedback

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
			2. Activation energy is energy released -> identify it as the energy barrier. Inclusive access 1. Pre-teach vocabulary and symbols. 2. Chunk equations and calculations. 3. Use guided practice before independent application.	lesson.

3. C3.3 Types of chemical reaction

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Period 1. Spring 1-Spring 2	Progression 1. Builds on Year 9 ions, formulae and particle representations. 2. Prepares students for electrolysis, qualitative analysis and later equilibrium.	Substantive knowledge 1. Redox in terms of oxygen and electrons. 2. Acids, alkalis, pH, neutralisation and salt formation. 3. Strong/weak and concentrated/dilute; hydrogen-ion concentration and pH. OCR mapping 1. C3.3a-C3.3k; CM3.3i	Curriculum enactment 1. Use pH practical evidence, equation writing and linked particulate/symbolic representations. Misconceptions and fixes 1. Strong and concentrated mean the same -> distinguish ionisation from amount per volume. 2. Neutral solutions contain no ions -> show equal acid/alkali effects. 3. A one-unit pH change is linear -> emphasise factor-of-ten change. Inclusive access 1. Pre-teach vocabulary and symbols. 2. Chunk equations and calculations. 3. Use guided practice before independent application.	Assessment checkpoints 1. Hinge questions, practical-method check and cumulative C3 assessment. Department response 1. Use question-level evidence to identify underlying gaps. 2. Complete DIRT, responsive reteaching and transfer in the same feedback lesson.

4. C3.4 Electrolysis

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Period 1. Spring 2; complete by 25 March 2027	Progression 1. Builds on Year 9 ionic bonding and Year 10 redox and equations. 2. Completes C3 before Easter and prepares for extraction and electrochemistry.	Substantive knowledge 1. Electrolysis of molten salts and aqueous solutions. 2. Products at electrodes; half equations; inert and non-inert electrodes. OCR mapping 1. C3.4a-C3.4e; CM3.4i	Curriculum enactment 1. Use demonstrations/practical work to connect ion movement with electrode products. Misconceptions and fixes 1. Electrons move through electrolyte -> distinguish electron flow in wires from ion movement. 2. Positive ions move to positive electrode -> use opposite-charge attraction. 3. Water can be ignored in solutions -> compare competing ions. Inclusive access 1. Pre-teach vocabulary and symbols. 2. Chunk equations and calculations. 3. Use guided practice before independent application.	Assessment checkpoints 1. C3 cumulative practice and official test; combined DIRT/reteaching/transfer before Easter. Department response 1. Use question-level evidence to identify underlying gaps. 2. Complete DIRT, responsive reteaching and transfer in the same feedback lesson.

5. C4.1 Predicting chemical reactions

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Period 1. Summer 1	Progression 1. Builds on Year 9 electronic structure and periodic-table position and Year 10 redox. 2. Develops prediction from periodic patterns and prepares for C4.2 analysis.	Substantive knowledge 1. Group 1, Group 7 and Group 0 trends. 2. Halogen displacement, transition metals and reactivity patterns. OCR mapping 1. C4.1a-C4.1 content statements; CM4.1i	Curriculum enactment 1. Use observations, data, equations and electron arrangements to justify predictions. Misconceptions and fixes 1. All groups become more reactive down the group -> contrast Group 1 and Group 7. 2. Displacement depends on mass -> use relative reactivity and electron transfer. Inclusive access 1. Pre-teach vocabulary and symbols. 2. Chunk equations and calculations. 3. Use guided practice before independent application.	Assessment checkpoints 1. Formative trend and displacement checkpoints. C4 is excluded from the end-of-Year 10 examination. Department response 1. Use question-level evidence to identify underlying gaps. 2. Complete DIRT, responsive reteaching and transfer in the same feedback lesson.

6. C4.2 Identifying products

TERM	PROGRESSION FROM YEAR 9	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Period 1. Summer 2, after the end-of-Year 10 examination	Progression 1. Builds on Year 9 separation/chromatography and Year 10 equations and periodicity. 2. Prepares for Year 11 applied chemistry and post-16 analytical chemistry.	Substantive knowledge 1. Tests for gases, cations and anions. 2. Instrumental analysis and comparison with chemical tests. OCR mapping 1. C4.2 specification statements; practical analysis skills	Curriculum enactment 1. Complete identification practicals; record reagent, observation and inference. Misconceptions and fixes 1. A positive gas test reveals the whole mixture -> separate species identity from sample composition. 2. Flame colours are always unambiguous -> address contamination and limitations. Inclusive access 1. Pre-teach vocabulary and symbols. 2. Chunk equations and calculations. 3. Use guided practice before independent application.	Assessment checkpoints 1. Post-examination practical and synoptic checkpoints; not included in the end-of-Year 10 examination. Department response 1. Use question-level evidence to identify underlying gaps. 2. Complete DIRT, responsive reteaching and transfer in the same feedback lesson.

Assessment Checkpoint Summary

Checkpoint	Indicative timing	Progression from Year 9	Content	Follow-up
Consider an Entry diagnostic – to do online for homework?	September 2026	Checks retention of C1, C2.1 and C2.2	Year 9 prerequisite knowledge	Plan retrieval and targeted support.
C3.1 practice and official test	Autumn 2026	Extends Year 9 formulae, ions and relative mass	C3.1	Combined DIRT, responsive reteaching and transfer in next lesson.
C3 practical and calculation checkpoints	Autumn-Spring	Applies Year 9 particles, bonding and practical skills	C3.2-C3.4	Responsive teaching and targeted retrieval.
C3 cumulative practice and official test	Before 25 March 2027	Cumulative C1-C3 progression	C3.1-C3.4 with retrieval of C1-C2	Combined DIRT, responsive reteaching and transfer before Easter.
End-of-Year 10 examination	June 2027	Cumulative progression from Year 9 through Year 10	C1.1-C3.4 inclusive only; C4 excluded	Question-level analysis informs revision and Year 11 handover.
C4.2 post-examination task	After the examination	Builds on Year 9 separation, ions and chromatography	C4.2	Record Year 11 retrieval priorities.

Document Control

Owner	Academic year	Examination scope	Status
Head of Chemistry	2026-2027	End-of-Year 10 examination: C1.1-C3.4 inclusive only; C4 excluded	Updated working document

Year 10 Chemistry Delivery and Examination Controls

Control	Department expectation
Curriculum scope	C3.1-C4.2; all C3 complete by 25 March 2027.
End-of-year exam	Scope C1.1-C3.4 inclusive only; C4 excluded.
Practice mock	Protect one Chemistry lesson immediately before the actual end-of-year examination.
Unit tests	Each practice test and official test uses one lesson only.
Feedback	Use the next Chemistry lesson for combined DIRT, responsive reteaching and transfer.
Homework	Teacher-set revision and relevant Past Paper Question Unit Booklet sections completed by each practice-test date.
Post-exam teaching	Complete C4.2 after the end-of-year examination.
Calendar governance	Use the latest school calendar and replace provisional SIMS or examination dates when final dates are published.