Beths Grammar School

Year 13 Chemistry Curriculum Map 2026-2027

OCR A Level Chemistry A H432 | Modules 5 and 6 | Seven specialist-taught lessons every two weeks

Curriculum intent. Year 13 completes the second-year OCR A Level Chemistry A curriculum by the end of the Spring term and before the Easter holiday. Teacher A, SZP and SXS according to class allocation, teaches four lessons per fortnight and completes Module 5 from 5.1.2. Teacher B, MZS and SXS according to class allocation, teaches three lessons per fortnight and completes Module 6 from 6.1.2. All seven lessons are taught by Chemistry subject specialists. The Summer term is reserved for synoptic revision, practical examination preparation and final external-examination readiness.

Assessment intent. A protected practice mock is completed before the Spring-term mock examinations. The practice mock provides diagnostic evidence without narrowing the curriculum. The official Spring mocks are followed by combined feedback, responsive reteaching, improvement and transfer, while new content continues so that all teaching is complete before Easter.

1. Teaching pathways and allocation

Pathway	Teachers/classes	Allocation	Primary curriculum responsibility
Teacher A pathway	SZP and SXS, according to the Year 13 class allocation	Four specialist lessons every two weeks	All remaining Module 5, beginning at 5.1.2 and carrying on from Year 12 5.1.1.
Teacher B pathway	MZS and SXS, according to the Year 13 class allocation	Three specialist lessons every two weeks	All remaining Module 6, beginning at 6.1.2 and carrying on from Year 12 6.1.1.
Specialist-teaching control	All Year 13 Chemistry lessons	Seven lessons every two weeks	No non-specialist independent-study lesson in Year 13.
Completion control	Both pathways	By the end of Spring term before Easter	No new specification content is taught after Easter.

2. Curriculum and assessment overview

Unit	Core content	Progression from Year 11 and Year 12	Intent	Leads to	Principal checkpoint
5.1.2	Kc, Kp and quantitative equilibrium	GCSE equilibrium and Year 12 qualitative equilibrium/5.1.1 rates	Calculate equilibrium composition/constants and explain temperature effects	Acid equilibria, thermodynamics and synoptic physical chemistry	Equilibrium calculations and PAG-linked determination
5.1.3	Acids, bases, pH and buffers	GCSE acids and Year 12 titration/amount of substance	Develop Brønsted-Lowry models, Ka, pH, Kw, buffers and titration curves	Biological/industrial buffers and unified chemistry	PAG 11 titration curves; calculation checkpoint
5.2.1-5.2.2	Lattice enthalpy, Born-Haber cycles, entropy and free energy	Year 12 bonding, enthalpy and Hess cycles	Connect structure, energy and feasibility quantitatively	Electrochemistry and advanced thermodynamics	Cycle calculations and data evaluation
5.2.3-5.3	Electrode potentials and transition elements	GCSE redox/ions and Year 12 periodicity/qualitative analysis	Predict redox feasibility and explain transition-metal chemistry	Paper 1 and unified synoptic chemistry	PAG 8 cells; transition-metal practical analysis
6.1.2-6.2.2	Phenols, carbonyls, carboxylic acids and esters	Year 12 benzene, alcohols, oxidation and mechanisms	Extend aromatic and carbonyl reactivity using mechanisms and tests	Nitrogen chemistry, synthesis and spectroscopy	PAG 6/7 opportunities and mechanism checkpoints

Unit	Core content	Progression from Year 11 and Year 12	Intent	Leads to	Principal checkpoint
6.2.3-6.3.2	Acyl compounds, nitrogen, polymers, synthesis, chromatography and NMR	Year 12 synthesis, IR/MS and practical purification	Integrate multistep routes and structural determination	Paper 2 and unified synoptic chemistry	PAG 5-7; TLC and combined spectra

3. Teaching, inclusion and assessment principles

1. Begin with cumulative retrieval from GCSE and Year 12, especially amount of substance, bonding, redox, mechanisms and practical skills.

2. Model multistep calculations, mechanisms and synthesis routes explicitly before guided and independent practice.

3. Move between macroscopic evidence, particulate models, equations, graphs, data and mathematical representations.

4. Maintain the same ambitious curriculum for all students; scaffold terminology, calculations and extended reasoning without reducing outcomes.

5. Embed Module 1 practical planning, implementation, analysis and evaluation across both pathways.

6. Complete a practice mock before Spring mock examinations and use question-level evidence for targeted revision.

7. After formal assessment, combine feedback, responsive reteaching, improvement and transfer in the next suitable specialist lesson.

8. Complete all new Module 5 and 6 content before Easter; use Summer only for synoptic examination preparation.

1. Unit 5.1.2: How far? Quantitative equilibrium

TERM	PROGRESSION FROM YEAR 11	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Autumn 1 | Teacher A: SZP/SXS | Four lessons per fortnight	1. Builds on GCSE reversible reactions and industrial equilibrium. 2. Develops Year 12 3.2.3 qualitative equilibrium and 5.1.1 quantitative rate skills. 3. Requires secure moles, concentration, gas and equation ratios.	1. Mole fraction, partial pressure and equilibrium composition. 2. Kc and Kp expressions, calculations, units and temperature effects. 3. OCR mapping: 5.1.2. 4. Why now: creates the quantitative equilibrium foundation for acids and synoptic physical chemistry.	1. Model ICE-style reasoning without unsupported algorithms. 2. Link K magnitude to position, not rate. 3. Misconceptions: catalysts alter K; pressure changes K; large K means fast reaction. 4. Inclusion: equation scaffolds, unit prompts and faded worked examples. 5. Practical opportunity: determine equilibrium quantities where feasible.	1. Students construct expressions and calculate Kc/Kp and related quantities. 2. Evidence: retrieval, calculations, practical analysis, Unit 5 booklet and unseen transfer. 3. Department response: question-level analysis followed by reteaching and transfer.

2. Unit 5.1.3: Acids, Bases and Buffers

TERM	PROGRESSION FROM YEAR 11	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 11	INTENT	IMPLEMENTATION	IMPACT
Autumn 1-Autumn 2 | Teacher A: SZP/SXS	1. Builds on GCSE strong/weak acids and neutralisation. 2. Extends Year 12 2.1.4 titration, moles and equilibrium. 3. Uses logarithms and equilibrium approximations.	1. Brønsted-Lowry acids/bases, conjugate pairs, Ka, pKa, pH and Kw. 2. Strong/weak acid and base calculations; buffers and titration curves. 3. OCR mapping: 5.1.3. 4. Why now: applies equilibrium quantitatively and develops high-demand mathematical fluency.	1. Use conceptual acid-base models before calculation algorithms. 2. PAG 11 titration curves with pH calibration and small additions near equivalence. 3. Misconceptions: strong equals concentrated; equivalence always pH 7; buffers keep pH constant. 4. Inclusion: calculation pathways, visual conjugate-pair coding and staged curve interpretation.	1. Students calculate pH/Ka and explain buffer action. 2. Evidence: PAG 11, calculation checkpoint, booklet completion and extended explanations. 3. Transfer to unfamiliar acid-base systems is checked.

3. Units 5.2.1-5.2.2: Lattice Enthalpy, Entropy and Free Energy

TERM	PROGRESSION FROM YEAR 11	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Autumn 2-Spring 1 | Teacher A: SZP/SXS	1. Builds on Year 11 ionic structure and Year 12 enthalpy/Hess cycles. 2. Develops electrostatic explanations into quantitative energy cycles. 3. Uses equations, state symbols and algebra securely.	1. Lattice enthalpy, Born-Haber cycles, solution enthalpy and hydration. 2. Entropy change, feasibility and Gibbs free energy. 3. OCR mapping: 5.2.1-5.2.2. 4. Why now: integrates bonding and thermodynamics before electrochemical feasibility.	1. Build cycles from definitions and state symbols. 2. Use ionic size/charge to explain trends. 3. Misconceptions: lattice formation and dissociation signs interchangeable; feasible means fast; entropy means disorder only. 4. Inclusion: colour-coded cycles, sign checks and guided data selection.	1. Students calculate unknown enthalpies, entropy and temperature feasibility. 2. Evidence: cycle assessments, unfamiliar-data questions and Unit 5 booklet. 3. Errors are classified as definition, sign, algebra or chemical-model gaps.

4. Units 5.2.3-5.3: Redox, Electrode Potentials and Transition Elements

TERM	PROGRESSION FROM YEAR 11	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Spring 1-Spring 2 | Teacher A: SZP/SXS | Complete before Easter	1. Builds on GCSE electrolysis/redox and Year 12 oxidation numbers, Group chemistry and qualitative analysis. 2. Uses thermodynamic ideas to predict redox feasibility. 3. Extends ligand and ion ideas into transition-metal chemistry.	1. Standard electrode potentials, cells, Ecell and feasibility. 2. Transition-metal properties, complexes, ligand substitution, precipitation and redox. 3. OCR mapping: 5.2.3 and 5.3.1. 4. Why now: completes the Paper 1 pathway and integrates practical inorganic evidence.	1. PAG 8 electrochemical cells and voltages. 2. Transition-metal test-tube reactions and ionic equations. 3. Misconceptions: positive electrode always anode; positive Ecell guarantees rapid reaction; all complexes are octahedral. 4. Inclusion: half-cell conventions, ligand maps and observation-equation-inference frames.	1. Students calculate Ecell, predict feasibility and explain complex-ion chemistry. 2. Evidence: PAG 8, practical records, Unit 5 assessment and Spring mock transfer. 3. All Module 5 content complete before Easter.

5. Units 6.1.2-6.2.2: Phenols, Carbonyls, Carboxylic Acids and Esters

TERM	PROGRESSION FROM YEAR 11	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Autumn 1-Autumn 2 | Teacher B: MZS/SXS | Three lessons per fortnight	1. Continues directly from Year 12 6.1.1 aromatic chemistry and Module 4 mechanisms. 2. Retrieves GCSE functional groups and Year 12 alcohol oxidation/IR. 3. Extends nucleophilic and electrophilic reasoning.	1. Phenol reactions and directing effects where specified. 2. Aldehydes/ketones, nucleophilic addition and tests. 3. Carboxylic acids, esters and related reactions. 4. OCR mapping: 6.1.2-6.2.2. 5. Why now: broadens functional-group transformations before advanced synthesis.	1. Model mechanisms with precise curly arrows and lone pairs. 2. PAG 7 functional-group tests and PAG 6 solid preparation where appropriate. 3. Misconceptions: phenol behaves like an alcohol; carbonyl carbon is nucleophilic; reduction removes hydrogen. 4. Inclusion: reaction grids, mechanism checkpoints and spectral evidence prompts.	1. Students predict reactions, construct mechanisms and identify functional groups from evidence. 2. Evidence: practical observations, mechanism checks, Unit 6 booklet and unseen synthesis steps. 3. Feedback distinguishes reagent, condition, product and mechanism errors.

6. Units 6.2.3-6.3.2: Acyl Compounds, Nitrogen, Polymers, Synthesis and Analysis

TERM	PROGRESSION FROM YEAR 11	INTENT	IMPLEMENTATION	IMPACT
Curriculum period	Prior knowledge and conceptual development	Knowledge and rationale	Pedagogy, misconceptions and inclusion	Outcomes and assessment evidence
Spring 1-Spring 2 | Teacher B: MZS/SXS | Complete before Easter	1. Builds on Year 12 organic synthesis, purification, IR and mass spectrometry. 2. Extends carbonyl chemistry into acyl substitution and nitrogen compounds. 3. Integrates all Year 12/13 functional groups into multistep synthesis and NMR.	1. Acyl chlorides/anhydrides, nitrogen compounds and polymers. 2. Multistep synthesis, purification, yield and route design. 3. Chromatography and combined IR, MS and NMR analysis. 4. OCR mapping: 6.2.3-6.3.2. 5. Why now: completes Paper 2 content and enables full synoptic structure determination.	1. Teach reaction networks before open route design. 2. PAG 5/6 organic preparation, PAG 7 tests and TLC opportunities. 3. Misconceptions: one spectrum determines a unique structure; all amines are equally basic; condensation polymers retain all atoms. 4. Inclusion: route templates, annotated spectra and progressive removal of scaffolds.	1. Students devise multistep routes and justify purification/analysis. 2. Evidence: PAG records, synthesis assessment, combined spectra, Unit 6 booklet and Spring mocks. 3. All Module 6 content complete before Easter.

10. Assessment checkpoint summary

Checkpoint	Timing	Scope and booklet rule	Follow-up
Entry diagnostic	September 2026	Year 12 Modules 2-4 plus 5.1.1 and 6.1.1	Plan pathway retrieval.
Unit 5/6 topic checks	Autumn-Spring	Current taught content; booklets tracked progressively	Responsive teaching.
Practice mock	Before Spring mocks	Cumulative content taught to that point; protected examination conditions	Question-level revision before official mocks.
Spring mock examinations	Spring term	Cumulative A Level content taught to that point	Combined feedback, responsive reteaching, improvement and transfer.
Content completion audit	Final Spring lesson before Easter	All content from 5.1.2 onward and 6.1.2 onward	No new content after Easter.
Summer revision	After Easter	Modules 1-6 synoptic preparation	QLA-led revision and timed practice.

11. PAG and practical endorsement overview

PAG / practical	Curriculum connection	Pathway	Indicative timing
PAG 8	Electrochemical cells	Teacher A	Spring 1/2
PAG 10	Initial rates/Arrhenius retrieval where required	Teacher A	Autumn/diagnostic revision
PAG 11	pH titration curves	Teacher A	Autumn 2
PAG 5	Organic liquid preparation/purification	Teacher B	Spring
PAG 6	Organic solid preparation/purity	Teacher B	Autumn/Spring
PAG 7	Organic functional-group tests	Teacher B	Autumn
PAG 12	Research/investigative skills across suitable work	Both pathways	Throughout

12. Routine curriculum evaluation and Ofsted readiness

Focus	Expected practice	Routine evidence	Department response
Curriculum coherence	Teachers make Year 12 prerequisites and cross-pathway links explicit.	Retrieval, work, assessment and discussion.	Adjust pacing where foundations are insecure.
Ambition and inclusion	All students study the same core with supportive scaffolds.	Participation, practical evidence and outcomes.	Refine modelling and deliberate practice.
Practical endorsement	PAGs develop CPAC competence and examination knowledge.	PAG records, observations, analysis/evaluation.	Moderate judgements and revisit weak skills.
Assessment validity	Practice mock precedes Spring mocks and does not narrow curriculum.	Question-level and comparative evidence.	Target causes of error.
Completion	All new content finished before Easter.	Coverage audit and books.	Recover any losses before the holiday.

13. Document control

Owner	Academic year	Qualification	Status
Head of Chemistry	2026-2027	OCR Chemistry A H432	Final departmental draft for timetable, mock, PAG and examination verification