

KS4 Science - Year A (2026-27)

Two-Year Rolling Programme | EVERY THURSDAY | 1 x 45-minute session per week

First lesson: Thursday 10 September 2026 | Final lesson: Thursday 15 July 2027

Programme positioning: A progressive two-year programme developing core Biology, Chemistry and Physics knowledge alongside scientific reasoning, data analysis, practical understanding and GCSE-style problem solving. It is aligned with the core KS4/GCSE science curriculum and designed to complement a student's own GCSE course rather than replace a specific examination-board programme.

AUTUMN TERM 2026

Half term: 26-30 October

Autumn 1 - Biology - Bioenergetics & Ecosystems

Week	Date	Lesson focus	Progressive curriculum objective	Working Scientifically / GCSE skill
1	Thu 10 September 2026	Photosynthesis: From Word Equation to Process	Secure the photosynthesis equation and explain how plants transfer light energy into chemical energy, connecting reactants and products to the plant's needs.	Interpret equations and connect scientific models to biological processes.
2	Thu 17 September 2026	Limiting Factors of Photosynthesis	Explain how light intensity, carbon dioxide concentration and temperature affect photosynthesis and interpret graphical data showing limiting factors.	Interpret graphs; identify variables; recognise limiting factors.
3	Thu 24 September 2026	Respiration: Releasing Energy	Compare aerobic and anaerobic respiration and explain how cells use energy released through respiration for biological processes.	Compare processes; interpret word equations; apply knowledge to exercise contexts.
4	Thu 1 October 2026	Photosynthesis & Respiration: Making the Connections	Compare photosynthesis and respiration and apply understanding to unfamiliar situations involving plants, exercise and changing environmental conditions.	Make scientific connections and apply knowledge to unfamiliar contexts.
5	Thu 8 October 2026	Ecosystems & Interdependence	Explain how organisms depend upon one another and their environment, including competition, predator-prey relationships and adaptations.	Analyse relationships in ecological data and food webs.
6	Thu 15 October 2026	Food Chains, Biomass & Energy Transfer	Analyse feeding relationships and explain why energy and biomass decrease between trophic levels.	Interpret quantitative ecological information and compare proportions.
7	Thu 22 October 2026	Biodiversity & Human Impact	Evaluate how human activities affect ecosystems and biodiversity and consider evidence for different conservation strategies.	Evaluate evidence and distinguish scientific evidence from opinion.

Autumn 2 - Chemistry - Chemical Changes & Quantitative Chemistry

Week	Date	Lesson focus	Progressive curriculum objective	Working Scientifically / GCSE skill
8	Thu 5 November 2026	Reactivity & Displacement	Use the reactivity series to predict and explain reactions, including displacement reactions, and use observations as evidence for relative reactivity.	Use patterns to predict outcomes and interpret experimental observations.
9	Thu 12 November 2026	Acids, Alkalis & the pH Scale	Develop understanding of acids and alkalis through ions, pH and neutralisation rather than simply identifying acidic and alkaline substances.	Interpret pH data and connect particle-level models to observations.
10	Thu 19 November 2026	Making Salts	Explain neutralisation reactions and select appropriate methods for preparing soluble salts from different reactants.	Select and sequence practical methods; consider variables and safety.
11	Thu 26 November 2026	Electrolysis	Explain how ionic compounds can be decomposed using electricity and predict products at electrodes in accessible examples.	Use models and rules to predict products; interpret electrode observations.
12	Thu 3 December 2026	Conservation of Mass & Chemical Equations	Connect balanced chemical equations with conservation of mass and use equations to represent quantitative relationships in reactions.	Balance equations and apply conservation principles to reaction data.

13	Thu 10 December 2026	Relative Formula Mass & Reacting Masses	Calculate relative formula mass and use chemical equations to explore simple reacting-mass relationships.	Use formulae, ratios and multistep calculations accurately.
14	Thu 17 December 2026	Quantitative Chemistry GCSE Challenge	Apply quantitative chemistry to progressively more challenging problems, introducing mole reasoning according to readiness.	Select mathematical methods, show units and working, and interpret answers.