



Curriculum Map cover sheet

Subject: KS3 Science	Year Group: 7-9	Key Stage 3
Links to prior learning Y7: Students build on their prior knowledge of following practical scientific methods, processes and skills as per KS2 National Curriculum (particularly those from Upper KS2). Links to KS2 curriculum are stated in the SOW to ensure teachers are aware. Y7 - Y9: links to prior topics are made clear on the front of topics booklets and included in SOW. A recap lesson is expected at the start of each new topic in Y8 & 9 to gauge understanding and reinforce key points of expected prior learning.	Retrieval Practice Retrieval is embedded into the lessons planned and delivered by individual teachers. There is an expectation to include a variety of appropriate retrieval tasks in the starters throughout the week (autonomous for staff to plan but across the week they should be 1) practical skills - graph analysis, 2) questions linked to relevant key content for the lesson, 3) Sparx Science feedback to improve sections that have been highlighted by HW completion). Topic booklets provide students with a selection of key questions that they need to focus on learning and applying. The SOW across KS3 has been designed to build upon itself by retrieving and applying key content to continue to develop students' knowledge of key scientific concepts.	Adaptive teaching strategies Lessons are planned to be inclusive for all mixed ability classes, while incorporating the QM T&L fundamentals. • Support: Tasks are designed to incorporate challenge while stepping stones/scaffolds are provided to support the success of all students. • Modelling: Teachers have high expectations of all students and are aware of who in their class may require more tiered activities. Independence is encouraged through modelling and the incorporation of 'I do, We do, You do', gradually removing scaffolds and support as appropriate. • AfL checks: Frequent AfL is employed in lessons through the use of MWBs to gauge understanding before moving on. Teachers adapt in real time and provide personalised feedback as necessary. • Targeted feedback is delivered after the end of topic assessments based on the class responses. • Explicit instruction: ensure that the cognitive load of students is not overwhelmed ie. content is chunked and pace managed appropriately.

Literacy Precise language and the accurate use of subject-specific vocabulary are key to achieving high marks. We develop these skills through a range of strategies embedded in our teaching: • Topic booklets: Each student receives a copy of the key content points for every topic. They are expected to regularly annotate these documents with definitions, key terms, diagrams, and concise summaries. This process not only supports content revision but also helps students practise selecting and using subject-specific vocabulary effectively. Stepping stones and access to independent study tasks on Sparx Science provide help to students completing this. • Vocabulary development: New scientific vocabulary is explained in lessons, word lists are available on the science Padlet, definitions are included within the retrieval questions.	Oracy Oracy is actively practised and demonstrated through various interactive strategies that promote student engagement, communication, and critical thinking, such as: • Collaborative learning: Activities like Think-Pair-Share and group discussions allow students to work together, share ideas, and build on each other's contributions. • Questioning and Answering (Cold Calling): Cold calling is used to encourage all students to actively participate in answering questions. This practice helps students refine their ability to respond concisely, articulate their thoughts clearly, and listen attentively to peer contributions. • Use of Scientific Language: Throughout lessons, students are encouraged to use and refine their scientific vocabulary. This includes practicing pronunciation and using the correct terminology.	Numeracy Students will continue to build on foundation skills; • Converting between units • Calculating percentage increase and decrease • Using significant figures and decimal places • Calculating means • Entering values into equations • Rearranging equations Students will also be required to analyse and interpret data presented in tables and graphs. Regular practice with these question types helps build students' confidence and proficiency in preparation for KS4.
Careers across the Curriculum • Science week: highlight skills required by those working in scientific fields alongside case studies/examples. • Careers board in Science building.	Wider Curriculum opportunities • Sparx Science HW support • Science club • STEM club • Cross curricular links: eg. Maths, Food, PE, Geography, English (literacy skills), DT. • Trips eg. Zoo, Kew Gardens, museums. • Science week activities.	Super Curriculum  Super Curriculum - SCIENCE

Assessment and feedback

Regular assessment and targeted feedback are essential in helping students monitor their progress and identify areas for improvement. A range of assessment methods is used throughout the course to support learning and prepare students end of topic assessments:

End-of-Topic Tests:

At the end of each topic, students complete a more formal assessment. These tests help track progress over time and inform future teaching and revision. They focus on skills as well as content to ensure students continue to develop their application of knowledge to various contexts.

Mini Whiteboard Checks:

Mini whiteboards are used in every lesson to carry out quick, low-pressure checks of student understanding, enabling teachers to identify and address learning needs immediately.

Feedback: After a formal assessment students receive whole class feedback where we will re-teach any areas that the class as a whole found difficult. Students will use the stepping stones that are provided to make improvements to all of their answers.

Students receive frequent feedback in day to day lessons; verbal/written comments as teachers circulates or responds to MWB check, use of visualise or sample answers to help understand what is being looked at in mark schemes and answers.

Science Curriculum Map KS3

September - February

Year 7 Working Scientifically
Linked throughout KS3
- Working safely - Good vs Bad Science - Sketch scientific diagrams - Choosing variables - Making predictions - Plan investigative methods - Present results - Analyse results - Deduce conclusions - Evaluate investigations

Year 7 Cells
- Using microscopes - Animal cells - Plant cells - Specialised cells - Organ systems - Movement of substances
Links to: Y7 Plants Y7 Particles Y8 Body processes Y8 Ecology

Year 7 Forces
- Balanced & unbalanced forces - Friction - Motion - Pressure - Forces at a distance
Links to: Y7 Particles Y7 Electricity Y8 Energy & Waves Y8 Magnetism

Year 7 Particles
- Particle model - Diffusion - Elements - Mixtures - Compounds - Density
Links to: Y7 Cells, Y7 Periodic table Y7 Plants, Y7 Forces Y8 Body processes, Y8 Ecology Y8 Chemical reactions, Y8 Acids

Year 7 Plants
- Structure of a plant - Photosynthesis - Adaptations of leaves - Reproduction - Seed dispersal - Germination
Links to: Y7 Cells Y7 Particles Y8 Chemical reactions Y8 Ecology

Year 7 Electricity
- Static electricity - Building circuits - Current electricity - Potential difference - Series & parallel - Resistance
Links to: Y7 Particles Y7 Forces Y8 Magnetism Y8 Energy & waves

Year 7 Periodic table
- Development of the periodic table - Chemical properties - Physical properties - Trends of the table - Reactions of non-metals
Links to: Y7 Particles Y8 Magnetism Y8 Chemical reactions Y8 Acids

Year 8 Body processes
- Gas exchange - Pathogens - The immune response - Reproduction - Muscles - The skeleton
Links to: Y7 Cells, Y7 Particles Y7 Plants Y8 Ecology Y9 Health

Year 8 Magnetism
- Properties of magnets - Magnetic fields - Domains - Electromagnetism - Magnets & motors
Links to: Y7 Particles, Y7 Electricity Y7 Periodic table, Y7 Forces Y8 Energy & Waves Y9 Space, Y9 The Earth

Year 8 Chemical reactions
- Chemical reactions - Rate of reaction - Energy changes in reactions - Reactions of metals - The reactivity series - Displacement reactions
Links to: Y7 Particles, Y7 Periodic table Y8 Body processes, Y8 Ecology Y8 Acids Y9 The Earth

Year 8 Ecology
- Abiotic & biotic factors - Photosynthesis - Food chains & webs - Interdependence - Variation - Ecosystems
Links to: Y7 Cells, Y7 Plants Y8 Chemical reactions Y9 The Earth

Year 8 Energy & waves
- Energy transfer & stores - Fuels - Renewable energy - Properties of waves - Light - Sound
Links to: Y7 Particles Y7 Forces Y8 Magnetism Y9 Energy transfer, Y9 Space

Year 8 Acids
- Acids & alkalis - pH & indicators - Neutralisation - Acids & metals - Acids & metal carbonates
Links to: Y7 Particles Y7 Periodic table Y8 Chemical reactions Y9 The Earth

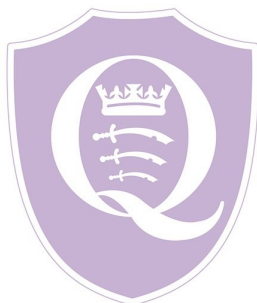
Year 9 Health
- Enzymes & enzyme action - Carbohydrates - Proteins - Fats - Unhealthy diet - Genetics
Links to: Y8 Body processes, Y8 Acids Y8 Energy & waves, Y8 Ecology Y8 Chemical reactions Y9 Energy transfer, Y9 The Earth

Year 9 Space
- Objects in space - Rockets - The Solar System - Seasonal changes - Moon phases - Investigating Space
Links to: Y7 Forces, Y8 Ecology Y8 Energy & waves Y8 Chemical reactions, Y9 Energy transfer

Year 9 The Earth
- The Earth's structure - The Earth's resources - The rock cycle - Human impact - Maintaining resources, recycling.
Links to: Y7 Cells, Y7 Forces Y8 Ecology Y8 Energy & Waves Y8 Chemical reactions Y8 Magnetism Y9 Energy transfer

Year 9 Energy transfer
- Transfer by particles - Transfer by radiation - Conservation of energy - Machines - Moments
Links to: Y7 Particles, Y7 Forces Y8 Body processes Y8 Chemical reactions Y8 Ecology, Y8 Energy & waves

KS3/KS4 Transition
Biology
- Diet - Gas exchange in plants - Transport in plants
Chemistry
- Atomic structure - Reactivity - Metal extraction
Physics
- Stretching objects - Kinetic theory - Density



Year 9 start KS4 Science in April



Curriculum Map cover sheet

Subject: Science	Year Group: 10 & 11	Key Stage: 4
Links to prior learning The skills and scientific understanding that pupils have developed in KS3 will all be built on in GCSE Science. They will need to be able to: - Use the EVERY method for calculations - Devise a method for a practical - Describe and explain trends - Evaluate practical techniques - Plot graphs Each topic sheet references the relevant learning from other topic areas.	Retrieval Practice Each lesson starts with a retrieval starter. Pupils all have access to retrieval questions (and answers) for each topic via their PLC and google classroom. These are also printed on the back of each topic sheet. Retrieval is also built into all lessons. In year 10 we teach the easier half of the course and then revisit this content whilst adding in the more challenging aspects in year 11.	Adaptive teaching strategies To support your child's progress, a range of evidence-based strategies are used consistently in lessons: -Scaffolded exam practice: Students are provided with structured exam questions that may include key vocabulary prompts, hints, or gap-fill exercises to build confidence and understanding. -Verbal support: Teachers offer verbal guidance during class discussions to help students articulate their thinking and deepen their understanding. -Ongoing assessment: Regular formative assessments are used to identify areas for improvement. Targeted feedback is provided to help address any learning gaps. -Cold calling for engagement and assessment: All students are included in cold-calling questioning during lessons. -Collaborative learning opportunities: Activities such as Think-Pair-Share are used to encourage discussion, collaboration, and peer support, helping students refine their ideas and learn from one another.
Literacy Precise language and the accurate use of subject-specific vocabulary are key to achieving high	Oracy Oracy is actively practised and demonstrated through various interactive strategies that promote student	Numeracy Numeracy plays a critical role in GCSE Sciences, Students will develop and practise foundational skills, including:

marks. We develop these skills through a range of strategies embedded in our teaching: - Specification annotations: Each student receives a copy of the specification points for every topic. They are expected to regularly annotate these documents with definitions, key terms, diagrams, and concise summaries. This process not only supports content revision but also helps students practise selecting and using subject-specific vocabulary effectively. Stepping stones and links to myGCSE Science videos are provided to help students to complete this. - Vocabulary development: New scientific vocabulary is explained in lessons, word lists are available on the science Padlet, definitions are included within the retrieval questions.	engagement, communication, and critical thinking, such as: - Collaborative learning: Activities like Think-Pair-Share and group discussions allow students to work together, share ideas, and build on each other's contributions. - Questioning and Answering (Cold Calling): Cold calling is used to encourage all students to actively participate in answering questions. This practice helps students refine their ability to respond concisely, articulate their thoughts clearly, and listen attentively to peer contributions. -Use of Scientific Terminology: Throughout lessons, students are encouraged to use and refine their scientific vocabulary. This includes practicing pronunciation and using the correct terminology.	• Converting between units • Calculating percentage increase and decrease • Using significant figures and decimal places • Calculating means • Entering values into equations • Rearranging equations Students will also be required to analyse and interpret data presented in tables and graphs. Regular practice with these question types helps build students' confidence and proficiency.
Careers across the Curriculum We hold medical and STEM careers events where various professionals come into school and speak to students, answering their questions about routes into the variety of science related careers that are available.	Wider Curriculum opportunities Year 10 UK Biology Challenge Royal Society of Chemistry, Year 10 Chemistry Challenge Cross curricular links with Maths, PE & Geography	Super Curriculum  Super Curriculum - SCIENCE
Assessment and feedback Regular assessment and targeted feedback are essential in helping students monitor their progress and identify areas for improvement. A range of assessment methods is used throughout the course to support learning and prepare students for final exams: Exam Questions: Past paper questions are used regularly in lessons. Pupils normally self or peer assess their answer with teacher guidance. End-of-Topic Tests: At the end of each topic, students complete a more formal assessment. These tests help track progress over time and inform future teaching and revision.		

Mini Whiteboard Checks:

Mini whiteboards are used in every lesson to carry out quick, low-pressure checks of student understanding, enabling teachers to identify and address learning needs immediately.

Mock Examinations:

Full mock exams are held at key points in the academic year, giving students experience with exam-style questions and conditions.

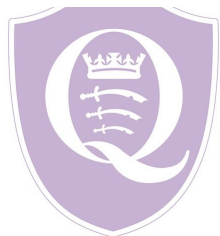
Feedback: After a formal assessment students receive whole class feedback where we will re-teach any areas that the class as a whole found difficult. Students will use the stepping stones that are provided to make improvements to all of their answers.

In lessons students receive lots of feedback, from MWB and cold calling answers as well as when the teacher is circulating during tasks.

Year 9

Topic Group 1
P14 - Density
C2 - States of matter, Separation techniques
B9 - Ecosystems, Field-work techniques, Biodiversity, The water cycle, The carbon cycle
Topic Group 2
C8 - The Earth's atmosphere, The Greenhouse Effect, Climate change
B5 - Communicable disease, Non-communicable disease
B8 - Blood, Blood vessels, the heart
P4 - Waves, Wave velocity
P5 - Electromagnetic spectrum

Science Curriculum Map KS4



More information on the content covered in each topic, along with retrieval questions and revision resources, can be found on the PLC which is shared on google classroom.

Year 10

Topic Group 1
C1 - Atoms, Periodic Table, Ionic bonding, Covalent bonding
P6 - Rutherford, Nuclear decay, Measuring radiation
B1 - Cells, Microscopes, Enzymes, Diffusion
B2 - Growth, Stem cells, Nervous system
P2 - Distance-time graphs, Newton's 1st and 2nd laws, Weight, Reaction times
Topic Group 2
C7 - Rates of Reaction, Energy changes in reactions
C3 - Acids and bases, Making salts
P10 - Electrical circuits, Calculations, Plugs
P13 - Transformers, The National Grid
Topic Group 3
B3 - DNA, Monohybrid inheritance
P9 - Contact and non-contact forces
P15 - Hooke's law
C4 - Reactivity series of metals, Recycling, LCA
Topic Group 4
P3 - Energy stores and transfers, GPE, KE, Efficiency, Renewable and non-renewable energy sources
C8 - Crude oil, Fractional distillation, Combustion
B6 - Photosynthesis, Xylem, Phloem
B9 - Fish farming, Eutrophication
Topic Group 5
C2 - Separation Techniques
P14 - Pressure, Absolute Zero
C6 - Group 0, Group 1
B4 - Natural selection, Antibiotic resistance
P12 - Magnets and magnetic fields
Topic Group 6
B5 - Immune response, Immunisations, Antibiotics, Drug development
B7 - BMI
B8 - Exchange surfaces, Alveoli
P4 - Waves, Measuring wave velocity
P5 - Absorption and transmission of waves

Year 11

Topic Group 1
P2 - Velocity-time graphs, Momentum, Circular motion
C1 - Structure and Bonding, Quantitative Chemistry
B1 - Magnification, Osmosis
Topic Group 2
P8 - Work done, Power
P14 - Specific Heat Capacity, Specific Latent Heat
C8 - Homologous Series, Cracking
B7 - Hormones
Topic Group 3
B6 - Limiting factors in photosynthesis, Transpiration, Translocation
C7 - Bond energies
P10 - Resistance, Calculations
Topic Group 4
P12 - Electromagnets, Fleming's left hand rule
P13 - Electromagnetic induction
C6 - Group 7
B9 - The nitrogen cycle
Topic Group 5
C3 - pH, Solubility, Electrolysis
B4 - Selective breeding, Genetic engineering
Topic Group 6
P6 - Nuclear decay equations, Half-life
B2 - Mitosis, Cancer
B3 - Meiosis, Variation
C2 - Separation Techniques
Topic Group 7
B5 - Health, Disease
P4 - Refraction
P5 - Producing waves
C4 - Displacement reactions, Equilibria
Topic Group 8
P9 - Free body force diagrams, Scale drawings
P15 - Elastic and inelastic distortion
B8 - Respiration