

**Intent**

**Breadth and diversity:** The science curriculum offers a wide variety of out of lesson learning opportunities, including STEM club, RAF Cosford Trip, Hobson's Brewery Trip, Environment Club and the yearly Science Fair where pupils from feeder schools are actively included as well as pupils at LCS.

**Inclusive, accessible, aspirational and inspiring:** Our 5-year knowledge rich science curriculum aims to develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics. Developing an understanding of the nature, processes and methods of science through different types of science enquiries helps students to answer scientific questions about the world around them. The department's aim is not just focused on exams and substantive knowledge, but developing disciplinary knowledge and using science to understand the world around us, our own lives and the future we have ahead of us. We endeavour to excite and enthuse our pupils in Science and share information on career opportunities and links to STEM. Practical skills are an important feature of our teaching and we strive to develop independence and their ability to formulate an investigation, using scientific method and analysing results, linking to the bigger picture. Enjoyment in Science is key to ensure full engagement and to maximise progress within and throughout lessons. We offer Triple Science as an option subject, available to all.

**Themes and concepts** are used as strands that run through the curriculum: Year 7 and 8 are taught in tutor groups (mixed ability), where the initial focus is on safety and familiarity of the Science labs and equipment. We then follow the order in the map below; and have developed our own scheme of work around this, based around lessons from the 'Activate' and 'Spotlight on Science' schemes. In Y9 pupils are split into mixed ability groups and the whole cohort is taught in Science at the same time. We focus on the key concepts in Science building on the information and skills learnt in Y7 and 8 and preparing them for Years 10 and 11, where we follow the EDEXCEL GCSE 9-1 Science Syllabus.

**Well-structured development of knowledge and skills:** The department have worked hard to develop a bespoke scheme of work for Biology, Chemistry and Physics. Pupils (from September 2022 onwards) are taught in mixed ability groups in Y9, based on Y7 and 8 data. All pupils complete the same End of Topic and End of Year tests. This ensures inclusivity and fairness across all year groups. These groups are amended in Y10, to accommodate Triple Science. We monitor these groups throughout years 10 and 11 as an ongoing entity, using group dynamics and attainment as a focus. Changes are unusual but can be accommodated if necessary.

**Impact:** *How does the curriculum you have implemented achieve what you intended – consider progress, examination performance, option numbers, pupil voice, study at A level/degree etc.*

Our curriculum enables pupils to be taught by a specialist throughout their time at LCS and being taught all subjects all the time (not in blocks). This enables them to consistently have a broad and balanced curriculum and enables them to manage their time effectively. They can revise all subjects throughout the year and have access to their specialist teacher throughout, to enable them to go over any misconceptions along the way. All pupils are taught by a specialist, and therefore have 3 teachers for their Science lessons.

Year 7 and 8 are taught in mixed ability groups, where the initial focus is on safety and familiarity of the Science labs and equipment. We then follow the bespoke order detailed above and have developed our own scheme of work around this, based around lessons from the 'Activate' and 'Spotlight on Science' schemes. Y9, 10 and 11 follow the EDEXCEL GCSE 9-1 Science Syllabus, with Key Concepts being covered in Y9 in Biology, Chemistry and Physics. The department have worked hard to develop a bespoke scheme of work for Biology, Chemistry and Physics. Pupils (from September 2022 onwards) are taught in mixed ability groups in Y9, based on Y7 and 8 data. All pupils complete the same End of Topic and End of Year tests. This ensures inclusivity and fairness across all year groups. These groups are amended in Y10, to accommodate Triple Science. As of September 2022, we will be analysing how this has gone (as we are 2 years into this), with a view to change Year 11 groups to accommodate higher and foundation tier candidates as necessary.

Examination performance shows an upward trend in terms of attainment and progress (see exam analysis sheets completed yearly).

All pupils study science. The Entry Level qualification is available to those pupils who would benefit from it; however, we strive to enable all pupils to attempt the full (double award) GCSE in Combined Science where possible.

Triple Science is an option subject, where pupils study an additional 5 hours per fortnight in Science. Our numbers are healthy, with roughly 20-25% of the cohort opting to take on this additional qualification.

**Pupil voice:** pupils are regularly given opportunity to give their feedback in terms of what they enjoy, what we do well, and what they would like to see change. On the whole this feedback is positive, with pupils clearly enjoying Science, finding it challenging and exciting at the same time.

A number of pupils go on to study Science at A-Level (actual figure unknown: no school data).

## Curriculum Map

### Biology

½ Term	1 7 weeks	2 7 weeks	3 6 weeks	4 6 weeks	5 6 weeks	6 6 weeks
7 1h/ week	Microscopes and cells	Microscopes and cells	Body Systems	Body Systems	Reproduction Year 7 Exam	Reproduction
8 1h/ week	Health and Lifestyle	Health and Lifestyle	Ecosystems	Ecosystems	Adaptations	Adaptations Year 8 Exam
9 1h/ week	10 lesson rotations of the following units: Healthy Lifestyle      Forensic Science Maths in Physics      The Microscopic World		Microscopes and cells Year 9 Exams	Food tests / Enzymes	Mitosis and asexual/ reproduction Growth and Stem Cells	Nervous System, Eye, Brain
10 3h/ fortnight	Genetics	Genetics	Natural Selection	Health and Disease	Plant Structures Year 10 Exam	Plant Structures
10 Triple 4h fortnight	Genetics	Genetics	Natural Selection, Evolution, classification, GM Crops	Health and Disease	Plant Structures Year 10 Exam	Plant Structures, Plant adaptations
11 3h/ fortnight	Animal Coordination/ Exchange and transport	Exchange and transport	Ecosystems	Ecosystems/ Revision	Key Concepts Revisited The Bigger Picture Core practical's revisited	Revision/Exams
11 Triple 5h/ fortnight	Animal Coordination, Thermoregulation and Osmoregulation	Exchange and transport, Surface area to volume ratio and Ficks law	Ecosystems Mock Exams	Ecosystems/ Revision	Key Concepts Revisited The Bigger Picture Core practical's revisited	Revision/Exams

### Chemistry

½ Term	1 7 weeks	2 7 weeks	3 6 weeks	4 6 weeks	5 6 weeks	6 6 weeks
7 1h/ week	Investigation Skills and Reactions	Investigation Skills and Reactions	Substances and separating techniques	Substances and separating techniques	The Periodic Table	How Science Works Year 7 Exam
8 1h/ week	Reactions	Reactions	Acids and Alkalis	Acids and Alkalis	Metals and the Earth	Metals and the Earth Year 8 Exam
9 1h/ week	10 lesson rotations of the following units: Healthy Lifestyle      Forensic Science Maths in Physics      The Microscopic World		States of Matter/Pure & Mixtures Year 9 Exam	Separating subs	Atomic Structure	The Periodic Table
10 3h/ fortnight	Ionic Bonding Covalent Bonding	Covalent Bonding Metallic Bonding Bonding models	Acids and Alkalis	Acids and Alkalis	Calculations Year 10 Exam	Electrolysis
10 Triple 5h fortnight	Ionic Bonding Covalent Bonding	Metallic Bonding Bonding models Acids and Alkalis	Acids and Alkalis	Calculations Electrolysis	Ores, Equilibrium and Metals Year 10 Exam	Quantitative Chemistry
11 3h/ fortnight	Ores and Equilibrium	Groups in the PT Reaction rates	Fuels Mock Exams	Earth and Atmosphere	Key Concepts Revisited Core practicals revisited	Revision/Exams
11 Triple 5h fortnight	Groups in the PT Reactions Fuels	Fuels, Earth and Atmosphere Hydrocarbons, Alcohols & Carboxylic Acids	Hydrocarbons, Alcohols, Carboxylic Acids, Polymers Mock Exams	Testing for Ions, Nanoparticles	Key Concepts Revisited Core practicals revisited	Revision/Exams

Physics

<b>½ Term</b>	<b>1 7 weeks</b>	<b>2 7 weeks</b>	<b>3 6 weeks</b>	<b>4 6 weeks</b>	<b>5 6 weeks</b>	<b>6 6 weeks</b>
<b>7 1h/ week</b>	Forces and Motion	Forces and Motion Energy	Energy	Energy Waves and Sound	Waves and Sound Light	Light Year 7 Exam
<b>8 1h/ week</b>	Space	Space Electricity	Electricity Magnetism	Magnetism	Pressure	Pressure Year 8 Exam
<b>9 1h/ week</b>	10 lesson rotations of the following units: Healthy Lifestyle                      Forensic Science Maths in Physics                      The Microscopic World		Year 9 Exam Motion	Forces and Motion Energy	Energy	Energy
<b>10    3h/ fortnight</b>	Waves Electromagnetic spectrum	Radioactivity	Radioactivity	Work, force, power	Electricity Year 10 Exam	Electricity
<b>10 Triple 5h fortnight</b>	Electromagnetic Spectrum Conduction Magnetism	Electromagnetic Spectrum	Radioactivity	Radioactivity	Astronomy Year 10 Exam	Work, power, energy
<b>11    3h/ fortnight</b>	Electromagnetic Induction	Particle model	Particles and Matter Mock Exams	Forces and Matter	Key Concepts Revisited Core practicals revisited	Revision/Exams
<b>11 Triple 4h fortnight</b>	Electricity Electromagnetic Induction	Electromagnetic Induction	Particles and Matter Mock Exams	Key Concepts Revisited Core practicals revisited	Key Concepts Revisited Core practicals revisited	Revision/Exams