SCIENCE

Sequence of Learning

A Visual Roadmap Through Key Stages

Learning Journey Overview

Progressive development across key stages

Discover
KS2

Explore
KS3

Aspire
Year 9

Lead
KS4

Ready
Post-16

Physics • Chemistry • Biology woven throughout each stage

Three Science Disciplines

Building understanding through interconnected learning

Physics

- Forces and motion
- Energy and electricity
- Magnetism
- Particle model

Chemistry

- States of matter
- Chemical reactions
- The periodic table
- Bonding and structure

Biology

- Cells and organisms
- Health and disease
- Evolution and genetics
- Ecosystems

DISCOVER

Key Stage 2 • Building foundations for scientific thinking

Physics

- Name common materials
- Understand forces exist around us
- Identify magnetic materials
- Simple practical enquiries

Chemistry

- Classify materials as solids, liquids, gases
- Identify common chemicals
- Investigate separation methods
- Simple observations

Biology

- Explore living and non-living things
- Name basic organs
- Simple life processes (MRS NERG)
- Basic classification

EXPLORE

Key Stage 3 • Developing independence and scientific reasoning

Physics

- Identify states of matter using particle model
- Separate forces into contact and non-contact
- Explore streamlining and motion
- Plot graphs on semi-completed tables

Chemistry

- Elements grouped in periodic table
- Draw particle diagrams
- Write word and symbol equations
- Record and plot results with support

Biology

- Describe circulation, respiration, digestion
- Understand cell to organism relationship
- Introduce photosynthesis and genetics
- Recognize continuous and discontinuous variation

ASPIRE

Year 9 • Making informed choices about learning pathways

Physics

- Explain physical properties using particle model
- Understand magnetic fields exert non-contact force
- Independent research through reading
- Discuss methods for practical enquiries

Chemistry

- Place elements in correct periodic table group
- Explain reactivity based on electronic structure
- Apply knowledge to predict outcomes
- Independent reading and research

Biology

- Understand structure and function of organs
- Know how characteristics are passed genetically
- Explain how evolution occurs
- Independently work through practicals

LEAD

Key Stage 4 • Taking responsibility and demonstrating mastery

Physics

- Understand scalar and vector forces
- Apply Newton's laws of motion
- Explain Earth's magnetism
- Exam walkthroughs and assessments

Chemistry

- Explain ionic and covalent bonding
- Understand giant lattice structures
- Apply chemistry to solve complex enquiries
- Frequent low stakes assessment

Biology

- Understand homeostasis and coordination
- Differentiate disease types
- Recognize human impact on ecosystems
- Produce independent predictions

READY

Post-16 • Preparing for independent adult life and further study

Physics

Advanced problem-solving: Complex scientific enquiries using mathematical analysis

Communication: Develop written and oral scientific skills

Career readiness: Support for life after school

Chemistry

Best outcomes: Achieve optimal GCSE results and confidence

Lifelong learning: Become enthusiastic, independent science learners

Real-world links: Understand chemistry's role in everyday life

Biology

Complex understanding: Master intricate biological systems and processes

Scientific literacy: Apply knowledge to global challenges

Future pathways: Prepared for careers and further education

Progressive Development

How learning deepens across key stages

Foundation

KS2: Identify, explain, describe

Development

KS3-Y9: Suggest, recognize, manage

Mastery

KS4: Assess, demonstrate, evaluate

Confidence

P16: Confidently apply & analyze

Continuous growth from basic awareness to confident, independent scientific thinking

Empowering Students

Through progressive science education

Building confident, curious, and capable young scientists ready for life beyond school