Science KS4 Learning Journey

At Cardinal Langley, you will study GCSE Science with AQA, building on the knowledge and skills you develop during Key Stage 3. Throughout the course, you will deepen your understanding of Biology, Chemistry and Physics through clear explanations, practical experiments and investigative work. Lessons are designed to help you think like a scientist, ask questions about the world around you and apply what you learn to real-life situations.

Studying GCSE Combined Science will help you develop a broader understanding of how the world works. You will gain valuable skills such as problem-solving, logical thinking and analysing evidence, which are useful in many subjects and future careers. The more you explore Science, the more interesting it becomes — from improving healthcare and food production to developing new technologies in communication and transport. Science is constantly evolving and gives you the opportunity to be part of shaping the future.

Science also supports your personal and intellectual development by encouraging curiosity, independence and confidence in your own ideas. All you really need to succeed at GCSE Science is an open mind and a willingness to learn.

In addition to Combined Science, some students may have the opportunity to study the Sciences separately and achieve three GCSEs in Biology, Chemistry and Physics. This decision is made towards the end of Year 9 through discussions between students, parents and teachers, and is based on achievement and enthusiasm for science. Studying Separate Sciences allows you to explore each subject in greater depth and provides strong preparation for A Level study and future science-related pathways.

What will I do and how will I be assessed?

The AQA GCSE Sciences are examined in a clear and structured way, designed to test both your knowledge and how well you can think and work like a scientist. Separate exams in Biology, Chemistry and Physics are taken. All exams are terminal and are taken in the summer of year 11.

What can I do afterwards?

It gives you the knowledge and understanding you need to go on to study Science in the sixth form, whether that's A Levels or vocational courses, or to move into a technical or practical career. At the same time, it keeps your future options open by developing skills that are valued in many different subjects and jobs.

Electronic Links

Bitesize Teams Century AQA Specification

How do we make alcohols?
What is DNA?
- Organic reactions
- Polymers

Why does Chemistry feed the world?
- Using our resources

How does pressure differ in solids, liquids & gases?
- Forces & pressure

How does light behave when it interacts?
- Light

How do bats see?
What lies beyond the naked eye?
How do generators work?
- Wave properties
- Electromagnetic waves
- Electromagnetism

Why do you jump when something scares you?
What do we need all our hormones for?
- Homoeostasis
- The human nervous system
- Hormonal coordination

Are all offspring made in the same way?
Why are there so many different species of dog?
Why do some species survive and others do not?
- Reproduction
- Variation & evolution
- Genetics & evolution

Why do populations increase and decrease?
What is the problem with cutting down trees?
- Organising an ecosystem
- Biodiversity & ecosystems

Why do oven chips cook quicker than a jacket potato?
- Rates
- Equilibrium

Is climate change real?
Is it really important to use our recycling bins?
- The Earth's atmosphere
- The Earth's resources

Yr11

How can we call in a spanner a machine?
What is the difference between speed, velocity, and acceleration?
How does a Newton's cradle work?
- Forces in balance
- Forces & motion
- Motion

How would our lives change if we did not have oil?
- Crude oil & fuels

How do electrical circuits work?
How much does it cost to charge your mobile phone each year?
- Electric circuits
- Electricity in the home

Why does the sea always feel cold upon entering?
Why can't a pregnant woman be x-rayed?
- Molecules & matter
- Radioactivity

What happens to my Nando's chicken dinner?
- Organisation & the digestive system

Why are we not just a big ball of cells?
Are you putting your life at risk?
- Organising animals & plants and non-communicable diseases

Can a disease cause the end of the human civilisation?
Is it really important to vaccinate your children?
- Communicable diseases and preventing and treating diseases

How do we use Science to make sure there is enough food to go around?
Why do we get cramp?
- Photosynthesis & respiration

What keeps materials together?
- Structure & bonding

Why does everything need to add up?
- Chemical calculations

How do chemicals react with each other?
Where does aluminium foil come from?
How do hand warmers work?
- Chemical changes
- Electrolysis
- Energy changes

Yr10