

“Science is the creative and passionate pursuit of answers to nature’s most precious secrets. So long as there are unexplored and unexplained parts of the natural world, science will continue to investigate them.”



WHY STUDY SCIENCE?

Science is both a body of knowledge and a process. Science allows us to link facts into a coherent and comprehensive understanding of the natural world. Science is a way of discovering what is in the universe and how those things work today, how they worked in the past, and how they are likely to work in the future.

Scientists are motivated by the thrill of seeing or figuring out something that no one has before. People all over the world participate in the process of Science. The knowledge generated by Science is powerful and reliable. It can be used to develop new technologies, treat diseases, and deal with many other sorts of problems.

Science is continually refining and expanding our knowledge of the universe, and as it does, it leads to new questions for future investigation.

SCIENCE AT ST FRANCIS OF ASSISI

There are two routes in GCSE Science:

AQA Trilogy- Combined Science (Equivalent to 2 GCSEs)

AQA Separate Science- Biology, Chemistry and Physics (3 GCSEs).

Students will select the Separate Science or Combined Science route in year 10.

Exam Board-AQA

WHAT WILL I STUDY?

You will study the AQA specification and study Biology, Chemistry and Physics with three specialist teachers.

You will be studying all the parts of what good Science is at GCSE: whether it be investigating, observing, experimenting, or testing out ideas and thinking about them. The way scientific ideas flow through the course will support you in building a deep understanding of Science. This will involve talking about, reading, and writing about science plus the actual doing, as well as representing Science in its many forms both mathematically and visually through models. You will be encouraged and supported in the development of scientific thinking; experimental skills and strategies; and analysis and evaluation of scientific data.

HOW WILL I BE ASSESSED?

AQA Trilogy- Combined Science Equivalent to 2 GCSEs

- ✓ You will be assessed on your knowledge and understanding of the key ideas in Biology, Chemistry and Physics, and the use of apparatus and techniques.
- ✓ There will be 6 exams in total
2 in Biology
2 in Chemistry
2 in Physics
- ✓ The total marks across all 6 papers will equate to two GCSE grades. Each written exam will last 1 hour 15 minutes and have 70 marks available.
- ✓ The questions will range from multiple choice, structured, closed short answer, and open response.
- ✓ There is the option of either foundation or higher tier and a grade range of 9-9 to 1-1.

HOW WILL I LEARN?

Lessons will be engaging, challenging, and thought provoking. You will be taught by Science specialists, each with subject knowledge in Biology, Chemistry and Physics.

Your teachers will help you understand the subject better by teaching you how to consolidate the key scientific concepts and apply these to unfamiliar situations, by developing your skills as a scientist and to master the manipulative skills required for further study or jobs in STEM subjects.

HOW WILL I BE ASSESSED?

AQA Separate Science Biology, Chemistry and Physics Equivalent to 3 GCSEs

- ✓ You will be assessed on your knowledge and understanding of the key ideas in Biology, Chemistry and Physics; and the use of apparatus and techniques.
- ✓ There will be 6 exams in total
2 Biology papers will equate to a GCSE grade in Biology.
2 Chemistry papers will equate to a GCSE grade in Chemistry.
2 Physics papers will equate to a GCSE grade in Physics.
- ✓ The total marks across all 6 papers will equate to 3 GCSE grades if following the Separate Science route.
- ✓ Each written exam will last 1 hour 55 minutes and have 70 marks available.
- ✓ The questions will range from multiple choice, structured, closed short answer, and open response.
- ✓ There is the option of either foundation or higher tier and a grade range of 9-9 to 1-1.

IN BIOLOGY I WILL EXPLORE:

How the development of stem cell technology allows doctors to repair damaged organs by growing new tissue from stem cells. How the population can reduce their risk of coronary heart disease through improved diet and lifestyle; and the surgical techniques used if preventative measures are unsuccessful.

How vaccine development has enhanced our bodies to protect against unusual or dangerous diseases. How plants harness the Sun's energy and why this is vital for all life on Earth.

How our knowledge of hormones has developed treatments for infertility and diabetes. How species evolve and how we have utilised this knowledge to enhance selective breeding techniques.

Why cloning and genetic modification remain highly controversial even though they have huge potential benefits in medical science. How humans are threatening biodiversity and the actions needed to ensure our future health, prosperity, and well-being.

IN CHEMISTRY I WILL EXPLORE:

How scientists use knowledge of structure and bonding to engineer new materials with desirable properties and how these materials may offer new applications in a range of different technologies. How chemists use quantitative analysis to determine the purity of chemical samples and to monitor the yield from chemical reactions.

How in industry, chemists and chemical engineers can determine the optimal conditions needed to make a chemical product. How chemists can take organic molecules and make new and useful materials such as polymers, pharmaceuticals, perfumes and flavourings, dyes and detergents.

How the development of instrumental methods has provided an accurate means of analysing chemicals and how forensic scientists and drug control scientists rely on these methods in their work. How scientists and engineers have developed solutions that help to reduce air pollutants and the impact of human activity on the Earth.

How chemists operate sustainably to minimise the use of limited resources, use of energy, waste, and environmental impact in the manufacture of these products.

IN PHYSICS I WILL EXPLORE:

Why the use of fossil fuels and global warming are critical problems for this century. How Physicists and engineers are working hard to identify ways to reduce our energy usage. How our continued demand for all things electrical means building power stations that promise a sustainable future.

How engineers use physics when designing vessels to withstand high pressures and temperatures, such as submarines and spacecraft. Why radioactive materials are hazardous and how today they are used widely in medicine, industry, agriculture, and electrical power generation.

How engineers analyse forces when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microscopes. How modern technologies such as imaging and communication systems can make the most of electromagnetic waves.

How electromagnetism works and how and engineers have taken advantage of this to develop a wide range of applications. Separate Physicists will also study the structure of the universe and what is causing the universe to expand.

CAREERS - HOW CAN I PROGRESS IN SCIENCE?**College**

A-level Biology,
A-level Chemistry
A-level Physics,
Health and Social Care BTEC,
Applied Science BTEC

Science Careers

You could work in publishing, consultancy, or patent law and in industries as diverse as communications, business and manufacturing.

Visit the National Careers website for more information [CLICK HERE](#)