



KING JAMES'S  
SCHOOL  
KNARESBOROUGH

CURRICULUM OVERVIEW

SCIENCE

2021/22

At King James' School the Science curriculum is designed to foster a curiosity about the world around us, enable citizens of the future to understand and explore the world effectively. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes through the specific disciplines of Biology, Chemistry and Physics.

Our **KS3** course follows the Exploring Science scheme of work. It is clearly divided into biology, chemistry and physics units and all students will follow a balanced curriculum. As well as developing our students' knowledge and understanding of scientific theory, our curriculum has an integrated working scientifically component and a clear focus on literacy and communication that seeks to develop students' confidence in articulating their scientific ideas. Teachers use a range of formative and summative assessment methods to monitor student progress. Each individual taught unit is assessed to allow teaching staff to offer effective and targeted intervention and ensure all students make the progress we feel they are capable of.

#### Working scientifically

Working scientifically is the set of skills that enable someone to work as a scientist. It is on this foundation of skills that the three main areas of content sit. Working scientifically covers both the skills needed for thinking about scientific problems and the skills needed to process and analyse data.

The other essential component of working scientifically is doing things in a scientific way and understanding the use of what has come to be called 'the scientific method'. This forms the essential backbone of what science is: an idea is developed and then rigorously tested to provide evidence upon which an objective opinion can be formed as to whether the original idea is correct.

#### Literacy and Communication

Literacy and communication covers a variety of skills, including taking and making notes, summarising information, presenting ideas, title writing, persuasive writing and arguments.

The Science **KS4** curriculum is designed to enable good learning habits and skills such as metacognition. Teachers enable pupils to understand key concepts, presenting information clearly and encourage appropriate discussion. Teachers check pupils understanding effectively, and identify and correct misunderstandings. Teachers ensure that pupils embed key concepts in their long term memory through lesson and curriculum design, together with assessment, review and DIRT. This further encourages pupils to transfer key knowledge to long term memory, it is sequenced so that new knowledge and skills build on what has been taught before and pupils are working towards clearly defined end points, by topic, year and key stage. Teachers use assessment to check pupils' understanding in order to inform teaching, and to help pupils embed and use knowledge fluently, and develop their understanding of the science curriculum. We are very privileged to have a highly qualified team of biology, chemistry and physics teachers; therefore, we can offer all our pupils specialist teachers in each subject area.

Science is a core subject and must be studied by all students until they leave school. There are two routes of study at KS4 Science, both routes follow AQA specifications:

- Separate science GCSEs ( 3 GCSEs)
- Combined Science GCSE- Trilogy (2 GCSEs)

For more details on each of the GCSEs we offer including specification (knowledge and skills needed) and final assessment details, please use the links below.

- GCSE Biology - <http://www.aqa.org.uk/subjects/science/gcse/biology-8461>
- GCSE Chemistry - <http://www.aqa.org.uk/subjects/science/gcse/chemistry-8462>
- GCSE Physics - <http://www.aqa.org.uk/subjects/science/gcse/physics-8463>