

## Year 9 Science

Year 9 science is designed to build on the ideas introduced in years 7 and 8, before beginning the GCSE courses by studying one GCSE topic from each of the biology, chemistry and physics courses

It is based on the KS3 national curriculum but also uses departmental expertise and our knowledge of the GCSE curriculum.

Every unit is based around a career where science can make a real difference and is designed to give students a sound knowledge of the core principles in terms of content and practical skills while also generating an awe and fascination about science.

There are 15 units throughout KS3 (6 in years 7 and 8 and 3 in year 9) each of which will last roughly one half term. They have been written to be taught in a specific order to form a spiral curriculum with interleaving throughout

Every unit includes a "required practical" with a specific focus to develop students' practical skills while other non-specific ideas such as variables, accuracy, precision and anomalies are taught throughout the curriculum. Throughout the year students will gain credits towards a "Practical Skills Award" by successfully demonstrating skills in the "required practicals"

Every unit also has a SAIL-based task, a literacy homework and "GOAL" (Go Off And Learn) tasks

After "End of Key Stage 3" exams students begin the GCSE science curriculum by studying three GCSE science topics; B7, C9 and P1.

Each lesson begins with a Brain in Gear retrieval task and a Key Learning Question. There will be teacher input of some kind followed by tasks which use prior learning to develop greater knowledge understanding. Once understanding is established then students develop their ability to apply this to unfamiliar situations.

At the end of each unit, students complete a unit test made up of past exam questions. This is then marked and graded and used to identify strengths and areas in need of attention. Note that many topics overlap and so unit assessments may contain elements from different units which also acts as retrieval practice.

Year 9 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<b>9-1 Sports scientist</b> Human skeleton Muscles Healthy diet The lungs and breathing Diffusion and gas exchange Asthma and smoking Aerobic and anaerobic respiration	<b>9-2 Circus performer</b> Gravity and non-contact forces Pressure Moments and turning forces Light and the pinhole camera Static electricity Magnetism Electromagnets	<b>9-3 Scientific pioneer</b> Simple atomic model Symbols and formula Properties of metals and non-metals Patterns in the periodic table Development of scientific ideas	<b>C9 - Chemistry of the Atmosphere</b> Evolution of the atmosphere The greenhouse effect and climate change Air pollution	<b>B7 - Ecology</b> Competition, Adaptations, Food chains, Trophic levels and biomass, The carbon cycle, Food security, Farming and fisheries	<b>P1- Energy</b> Energy stores and systems Kinetic and Potential energy Work and power Specific heat capacity Efficiency Energy resources and their uses

### Assessment

“GOAL” (Goal Off And Learn) mini-tests within each topic  
SAIL task is an extended task with shared success criteria  
Formal end of unit tests  
End of “key stage” exams covering all the units covered during year 7, 8 and 9 are sat in February prior to starting GCSE courses

### Independent Work

Regular homework covering a variety of skills:

- GOALs (“Go Off And Learn”) for factual recall
- Application
- Practice questions to gain experience of recall, application and unfamiliar contexts
- Write ups of experimental work, especially work related to the Required Practicals
- SAIL extended homework tasks