

## Year 8 Science

Year 8 science is designed to build on the ideas introduced in year 7 and begin to prepare students for GCSE.

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 through “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, anomalies, etc.. 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

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 8 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	<b>8-1 Farmer</b> Plant and animal cells Photosynthesis Leaf structure Diffusion and transpiration Plant reproduction Pollination and seed dispersal Food webs Bioaccumulation	<b>8-2 Climatologist</b> The composition of the atmosphere The Earth and the seasons Photosynthesis and the atmosphere The carbon cycle Climate change Acids and bases Indicators and the pH scale Neutralisation	<b>8-3 Spy</b> Newton’s first law Newton’s second law Friction and resistance to motion Hooke’s law Elastic energy Light and ray diagrams Reflection and mirrors The Sun and stars Galaxies Floating and sinking	<b>8-4 Research chemist</b> Conservation of mass Chemical reactions Formulae and equations Reactions of acids with metals and bases Reactivity series of metals Displacement reactions Extraction of metals Conservation of mass	<b>8-5 Conservationist</b> Cells and the nucleus Chromosomes, genes and DNA Heredity Variation and natural selection Extinction Biodiversity	<b>8-6 Musician</b> Transverse and longitudinal waves Sound Sound waves Frequency, wavelength and wave speed Light waves Colour Electrical resistance

**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 Year exams covering all the units covered during year 7 and year 8

### 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