

At The Maynard School all students follow a three year programme of study in the Sciences. They achieve three separate GCSEs in Biology, Chemistry and Physics at the end of U5. Parents should find the information below helpful. However students also have a Study Guide with additional information.

## Frequently asked questions about GCSEs in Science

1) How does the three year Science GCSE programme fit in with the complete GCSE programme?

The Science GCSE programme runs over U4, L5 and U5. the remaining GCSEs will start in L5. During U4 students will choose between some optional subjects for study at GCSE in L5 and U5. However, like English and Mathematics, there are no choices to be made at this stage for Science as all students follow the same course. In U4 students have one lesson and one homework each week for each Science subject. In L5 and U5 this increases to 2 lessons and one homework each week for each Science subject.

2) What will happen if my daughter joins the school in L5?

There is considerable overlap between the final year of key stage 3 and the U4 year of the GCSE course. Students new to the school in L5 will find that much of the GCSE content is already familiar to them. During the course of L5 we reinforce the U4 work as part of preparation for the unit 1 exam at the end of the year. We provide additional support for newer students to ensure they are confident and ready to take this exam at the end of L5.

3) Which Exam board and syllabus is used?

All three Sciences use the AQA exam board. More details about the courses can be found in the learning objectives sections of the Students' Study Guide and at the exam board website: [www.aqa.org.uk/](http://www.aqa.org.uk/) or the Science area of this website: [www.sciencelab.org.uk/](http://www.sciencelab.org.uk/)

4) What is the structure and content of the courses?

All three Sciences are divided into three topic-based units and a unit entitled 'How Science works'. HSW is the same across all the Sciences. It covers the experimental and analytical skills required for GCSE Science. The content of HSW is dealt with in more detail in the Students' Study Guide. A summary of the content of the topic-based units can be seen in the table below.

## Outline syllabus for AQA GCSE Biology, Chemistry and Physics

		Unit 2	Unit 3
<b>Biology</b>	B1.1 Keeping Healthy	B2.1 Cells and simple cell transport	B3.1 Movement of molecules in and out of cells
	B1.2 Nerves and hormones	B2.2 Tissues, organs and organ systems	B3.2 Transport systems in plants and animals
	B1.3 The use and abuse of drugs	B2.3 Photosynthesis	B3.3 Homeostasis
	B1.4 Interdependence and adaptation	B2.4 Organisms and their environment	B3.4 Humans and their environment
	B1.5 Energy and biomass in food chains	B2.5 Proteins - their functions and uses	
	B1.6 Waste materials from plants and animals	B2.6 Aerobic and anaerobic respiration	
	B1.7 Genetic variation and its control	B2.7 Cell division and inheritance	
	B1.8 Evolution		

<b>Chemistry</b>	C1.1 The fundamental ideas in chemistry	C2.1 Structure and bonding	C3.1 The periodic table
	C1.2 Limestone and building materials	C2.2 How structure influences the properties and uses of substances	C3.2 Water
	C1.3 Metals and their uses	C2.3 Atomic structure, analysis and quantitative chemistry	C3.3 Calculating and explaining energy changes
	C1.4 Crude oil and fuels	C2.4 Rates of reaction	C3.4 Further analysis and quantitative chemistry
	C1.5 Other useful substances from crude oil	C2.5 Exothermic and endothermic reactions	C3.5 The production of ammonia
	C1.6 Plant oils and their uses	C2.6 Acids, bases and salts	C3.6 Alcohols, carboxylic acids and esters
	C1.7 Changes in the Earth and its atmosphere	C2.7 Electrolysis	
<b>Physics</b>	P1.1 The transfer of energy by heating processes and the factors that affect the rate at which that energy is transferred	P2.1 Forces and their effects	P3.1 Medical applications of physics
	P1.2 Energy and efficiency	P2.2 The kinetic energy of objects speeding up or slowing down	P3.2 Using physics to make things work
	P1.3 The usefulness of electrical appliances	P2.3 Currents in electrical circuits	P3.3 Keeping things moving
	P1.4 Methods we use to generate electricity	P2.4 Using mains electricity safely and the power of electrical appliances	
	P1.5 The use of waves for communication and to provide evidence that the universe is expanding	P2.5 What happens when radioactive substances decay, and the uses and dangers of their emissions	
		P2.6 Nuclear fission and nuclear fusion	

5) What is the study and assessment schedule?

The schedule is the same in all three Sciences and is shown in the table below.

<b>Unit</b>	<b>Studied</b>	<b>Assessed</b>
1	U4 and early L5	June L5
2	L5 and early U5	June U5
3	U5	June U5
4/HSW	U4/L5/U5	L5/U5



6) How are units 1 to 3 assessed?

The protocol for assessment is the same for all three Sciences.

- a. Each unit will be assessed by an exam lasting 1 hour.
- b. There will be a total of 60 marks on each exam paper. The style of the paper will be structured questions (see the Exam Questions sections of the Students' Study Guide for examples) with at least one question on each paper assessing the quality of written communication.
- c. Each unit makes up 25% of the final grade of the GCSE qualification.
- d. It is possible to re-take exams. However only 1 retake is permitted by the exam board for each unit.

7) How is HSW assessed?

Unit 4/HSW makes up the final 25% of the GCSE qualification and is tested by controlled assessment. The assessment looks at skills rather than knowledge. Students will do at least one assessment for each Science GCSE. In all cases the assessment will follow this pattern:

- a. Step 1: Planning. You will have a discussion about a practical investigation during class time. For homework you will carry out research into measurement techniques, practical methods and possible safety issues.
- b. Step 2: Reporting on the planning and research. You will sit a 45 minute test in class time. During this time you will answer questions relating to the planning of the investigation using the notes you have made from your research to help you. In addition to the test you will draw up a blank results table for your investigation.
- c. Step 3: Practical work. You will carry out your investigation and record the results in the table. This will probably take no more than one Science lesson. The quality of the data you obtain is not assessed.
- d. Step 4: Processing primary data. You will plot a graph of your results or the pooled class results under exam conditions.
- e. Step 5: Analysing results. You will sit a 50 minute test which is divided into two sections. Section 1 will consist of questions relating to the analysis and evaluation of your own investigation. In section 2 you will be asked to comment on data obtained from similar investigations.
- f. A total of 50 marks are available from the 2 written assessments.

8) What support and resources are available for the Science courses?

Apart from the Students' Study Guide, in L5 and U5 students also receive a textbook and a briefer revision guide for each Science. The Science department also uses the school intranet, 'iLearn' extensively. Here you will be able to find additional support materials including links to useful websites and some of the activities used in lessons.