

GCSE Sciences for 2021 Leavers



Marden High School

SCIENCE



Science

Information for
students and
parents

May 2020



Hello there,

This presentation is a summary of the information that you would normally by now have received from the Science Department with regard to Pathways in Science for year 11.

We are doing everything we can to ensure that the lessons provided for your child are covering the curriculum, providing stretch and challenge, and encouraging continued engagement in science.

The plans that we are putting in place for later this year are still dependent on decisions made by the Government with regard to school closures.

Thank you for your support in this difficult time

Wendy Glover

On behalf of the SLT and the Science team at Marden High

It is our intention to do everything we can to ensure that your progress in science is as good as it can be

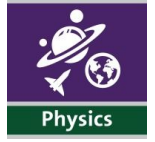


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The GCSE Science Curriculum uses the AQA Specification.

The Specifications can be accessed from the AQA website www.aqa.org.uk

All students follow a full science curriculum and this means that all students study Biology, Chemistry and Physics modules of work



Course Content: Students follow a Big Ideas Curriculum across five years of study. The key themes of the sciences are all included in the GCSE programme of study. They are:

Biology: Genetics, Health, Organisms Environment, Ecosystems

Chemistry: Atoms, Periodic Table, Reactivity, Structures and bonding, Materials

Physics: Forces, Energy, Electricity, Waves and radiation

Normally, by the start of year 11, students would have been guided to an awards pathway; either the GCSE Combined Science Trilogy Award or three separate GCSE sciences.



Biology

Chemistry

Physics

Biology GCSE

Chemistry GCSE

Physics GCSE



Combined Science Trilogy

Biology paper 1

Chemistry paper 1

Physics paper 1

75 mins each



Biology paper 2

Chemistry paper 2

Physics paper 2

75 mins each

Biology paper 1 extended
Biology paper 2 extended

105 mins each

Chemistry paper 1 extended
Chemistry paper 2 extended

105 mins each

Physics paper 1 extended
Physics paper 2 extended

105 mins each

All examinations will be taken in the summer 2021. All students will sit 6 exams. All students will leave with at least two GCSE Science grades



Science



There are two pathways through the GCSE science courses. For either pathway there will be six exams in 2021. For those students following the combined science pathway there will be 75 minute exams. For those following the separate science pathway, there will be 105 minute exams. Each pathway will be assessed at foundation and higher levels.

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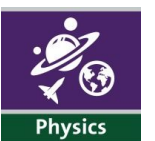
Pathways through Science

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6 exams.
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Decisions about pathways and levels will be made by the science teaching staff and parents/carers will be informed by letter. Discussions about pathway decisions can then be held.



Pathways through Science



Yr 10

Biology

Chemistry

Physics



Yr 11

Biology

Chemistry

Physics

Combined Science units completed

Yr 11

Biology extension

Chemistry extension

Physics extension

We have completed all of the content for Paper 1 exams already in year 10 and so we can see that we are in a good position approaching year 11

Separate Science Pathway

GCSE Science common content has been covered in year 10 and will continue into year 11. Extension topics will be covered in year 11 for the Separate Science pathway



It is our intention to do everything we can to ensure that your progress in science is as good as it can be

Practical skills are an important part of the science curriculum.

Practical skills include:

- Identifying variables,**
- Measuring accurately**
- Investigating hypotheses,**
- Using data correctly**
- Modelling and predicting**

The GCSE science qualifications no longer include an assessed practical element. Instead there will be practical based questions on the exam papers.

Attendance at school is very important for many reasons but also for the fact that the practical lessons happen throughout the two years and we do not want your child to miss any practical sessions that can then be used as a question in the exams.

This will be of even greater significance when we are back in the school building



There are eight required practicals for each of the three sciences. We have covered about half of them in year 9 and year 10 so we know that we can complete all the practicals before the end of the course in 2021



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Science

Some students will leave in 2021 having achieved the GCSE Combined Science Trilogy Award. This is a double award for Science covering the three areas of biology, chemistry and physics. It is equivalent to two GCSE sciences.

We offer two pathways through the GCSE Sciences in order for us to be able to develop the strengths of a wide range of students. For some students they will be more successful and achieve higher grades by taking the GCSE Combined Science Trilogy Pathway.

These students will be awarded a Double grade, equivalent to two GCSE grades.

It is our intention to do everything we can to ensure that your progress in science is as good as it can be



Science

How they are graded

GCSE Combined Science	Triple Science route 9 point scale		
17 point scale	Biology	Chemistry	Physics
9 9	9	9	9
9 8	8	8	8
8 8	7	7	7
8 7	6	6	6
7 7	5	5	5
7 6	4	4	4
6 6	3	3	3
6 5	2	2	2
5 5 etc	1	1	1



Science



Science



Biology



Chemistry



Physics

The students will be awarded number grades.

The double grades for GCSE Combined Science are paired but please note that it is a double grade; two GCSE Sciences.

The Double grade is recognised by employers, course providers and apprenticeship schemes

Pathways through Science

It is our intention to do everything we can to ensure that your progress in science is as good as it can be



Programme of assessment and pathway selection

Here is the programme that we intend to follow with the current year 10 students.

Summer term 2020: continue to cover Science content as home learning or in school.

September 2020. Students will be in setted groups, based on assessments from year 10. These groups will remain largely as they are currently to maintain continuity, but will involve some changes.

Early October 2020. All students will complete exams based on the units covered for Paper 1 in biology, chemistry and physics.

October half term 2020: all parents/carers will receive a letter outlining which GCSE pathway their child will be following for summer 2021. Discussion on pathways with parents will follow this. Further adjustments to groups will then be made to allow for the teaching of the two courses.

It is our intention to do everything we can to ensure that your progress in science is as good as it can be



Science

These are the topics that students have already covered. These topics will be tested in examinations soon after we return to school. These topics should be revised thoroughly



Biology

4.1 Cell biology

4.2 Organisation

4.3 Infection and response

4.4 Bioenergetics

5.1 Atomic structure and the periodic table

5.2 Bonding, structure, and the properties of matter

5.3 Quantitative chemistry

5.4 Chemical changes

5.5 Energy changes

6.1 Energy

6.2 Electricity

6.3 Particle model of matter

6.4 Atomic structure (Radioactivity)



Chemistry

**Paper 1
topic list
These are
the topics
that have
already
been
covered**



Physics



Programme of assessment and pathway selection

I do hope that this information is helpful.
If you have any questions at all please email me at
w.glover@mardenhigh.net

As you can appreciate these plans may need to be tweaked a little in order to maximise our time once back in school. We will keep everyone informed of any changes to the programme.

Many thanks

Wendy Glover

Head of Science



Home Learning



While your children are still at home we know that there are lots of great resources online for them to engage with. Here is just a selection.



[The National Academy Online](#) have some key lessons on working scientifically as well as a few other science lessons



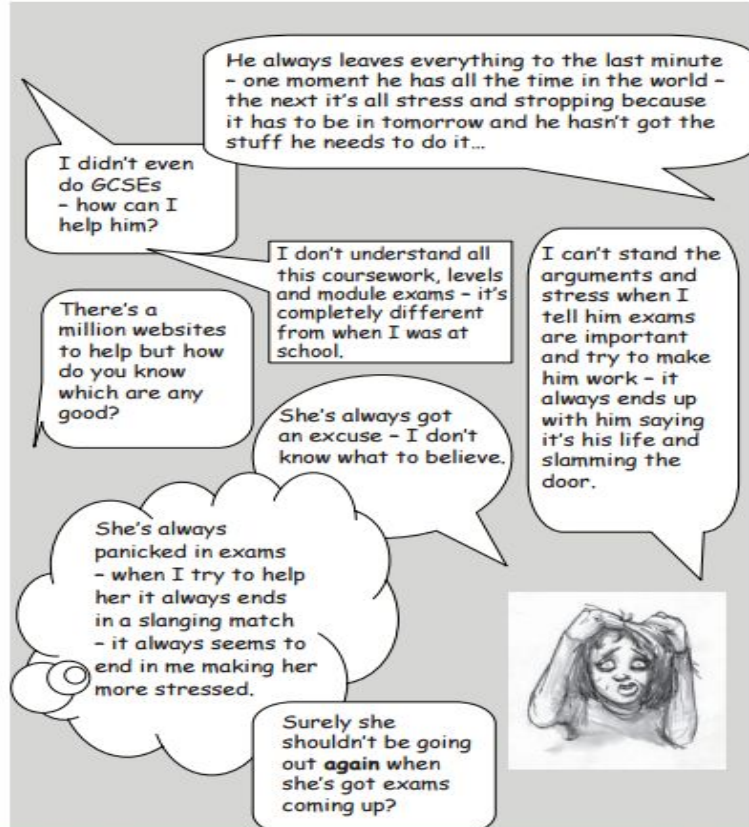
[BBC Bitesize online lessons](#) provide some excellent revision opportunities by going into year 9 topics as well as year 10.

[Seneca learning](#) a revision platform to cover all of the key topics

Section 1: Introduction

The most common frustrations for parents

The following slides cover some general information about the Maths skills needed for the GCSE Science exams, as well as some more tips on resources available for revision



The secret to doing well in exams lies in planning. You can help your child to create a clear revision plan and method of studying that will make them feel in control of their work.

Tips for revision planning:

- work out a revision timetable for each subject
- break revision time into small chunks - hour-long sessions with short breaks at the end of each session often work well
- Treats AFTER a revision session
- make sure your child has all the essential books and materials
- condense notes onto postcards to act as revision prompts
- buy new stationery, highlighters and pens to make revision more interesting
- Make use of youtube revision resources



A set of flashcards for each topic of work helps students to summarise their ideas and get familiar with the key terms.

Collins publishers are offering free downloads of science flashcards

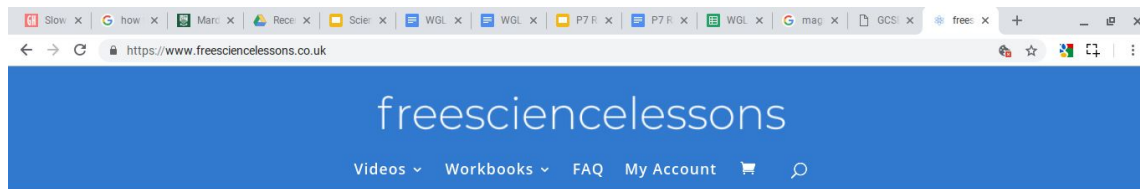
Click here for the link

[Collins flashcards](#)

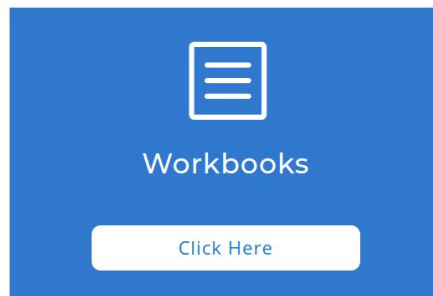
The exam board is AQA



www.freesciencelessons.co.uk



Welcome to freesciencelessons



Students use this website regularly and have found the resources very helpful

Other websites: [GCSEScience](#). [Five Minute Physics](#) [Five Minute Chemistry](#) [Biology paper 1](#)

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User ID	
Password	Sign in ▶

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<https://www.samlearning.com/about-us/>

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SAMlearning is an online resource that makes the most of short tasks and repetition to build memory for key terms and ideas in science.



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PRICING

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PARENTS

SCHOOLS

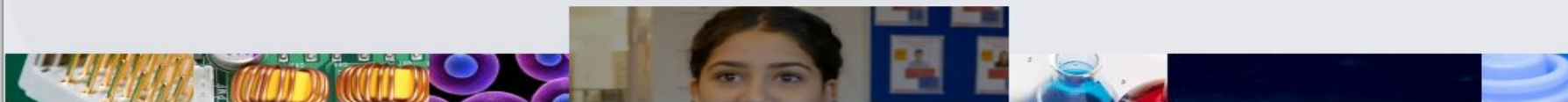
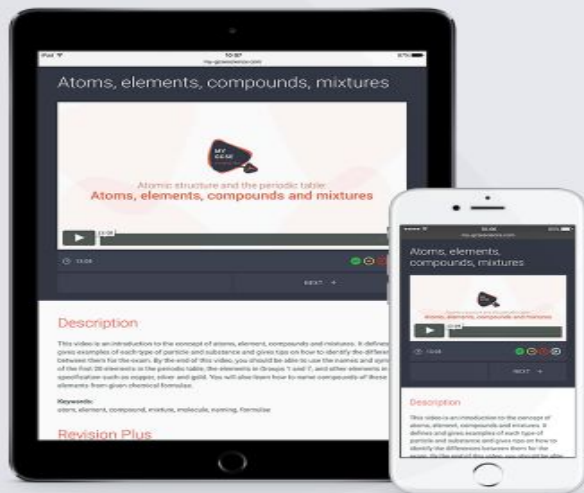
BLOG



my-GCSEscience

The leading source of online video tutorials dedicated to the **new 9-1 Science GCSEs**

SIGN UP NOW





We recommend these revision books. You can order them from amazon but they are cheaper when bought through the school



Here is some information from AQA, the exam board for GCSE Sciences

Straightforward questions mean straightforward answers

Our assessment experts have made improvements to our question papers. You'll find that our exams:

- **have fewer words, so they're easier to understand**
- **have fewer contexts, so students don't get confused**
- **have questions that increase in difficulty, so students feel confident**
- **are being written with our GCSE Maths and AS and A-level science teams, giving students consistency between content and questions.**



All students will leave Marden High School with at least two GCSE Science qualifications



Maths skills in GCSE sciences

Maths skills are included in the assessment of all GCSE science qualifications. A minimum percentage of marks must be allocated to assessing mathematical skills at an appropriate level of difficulty, in line with new rules and guidance from the Department for Education

10% Maths skills



20% Maths skills



30% Maths skills





Maths skills in GCSE sciences



Standard form and order of magnitude calculations

Estimates and significant figures

Averages

Simple probability

Algebra skills

Graphs





Maths skills in GCSE sciences



Students should be able to recall and apply the following equations for the physics exam papers

$$\text{Kinetic energy} = \frac{1}{2} mv^2$$

$$\text{Gravitational potential energy} = mgh$$

$$\text{Power} = \text{energy transferred} / \text{time taken}$$

$$\text{Power} = \text{potential difference} \times \text{current}$$



These are just a few equations that need to be learned. Here is a link to the full list [Physics equations sheet](#)