

Maths GCSE

There are 3 papers for Maths: 1 non calculator, 2 calculator papers

Each paper is out of 80, is 1 hour 30mins long and contributes one third of the marks to the final score.

Paper	Date
Paper 1 Non Calculator	24 th May
Paper 2 Calculator	7 th June
Paper 3 Calculator	12 th June

Students either sit Higher tier (Grades 3 – 9) or Foundation Tier (grades 1 – 5)

How to help your child:

1. Make sure that they have Maths equipment and a scientific calculator that they are confident using.
2. The best way to revise Maths is to practise answering questions – sites such as Mathsgenie and mymaths.co.uk have lots of questions and answers to check.
3. Revision guides, websites and Mathswatch CDs can be used if students are stuck on a particular topic.
4. The PIXL Maths app and Corbett Maths are good resources for daily practice.
5. Make sure they know the formulae needed

Maths GCSE Revision Sites

Corbett Maths – 5 a day questions, extra questions

<https://corbettmaths.com/>

Maths Genie (exam style topic tests, past papers and specimen papers with worked solutions)

<http://www.mathsgenie.co.uk/gcse.html>

Diagnostic questions (create a free login) Higher class code: **SC-APZSQL6XD9YY** Foundation: **SC-APZSQL6XD9YY**

<https://diagnosticquestions.com/>

Mr Barton Maths

<http://mrbartonmaths.com/students/index.html>

Bitesize AQA

<https://www.bbc.co.uk/education/examspecs/z8sg6fr>

Mymaths

www.mymaths.co.uk (login: ousedale Password: segment)

Booster packs are good for revision

Video Tutorials

<https://www.examsolutions.net/gcse-maths/>

Study Maths

<http://studymaths.co.uk/workoutMenu.php?type=all>

AQA Official spec

<http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300>

PIXL Maths app – daily challenge on phone/tablet

<http://mathsapp.pixl.org.uk>

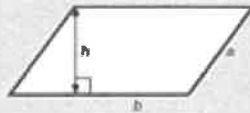
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Areas

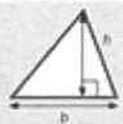
Rectangle = $l \times w$



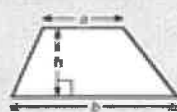
Parallelogram = $b \times h$



Triangle = $\frac{1}{2} b \times h$



Trapezium = $\frac{1}{2} (a + b)h$

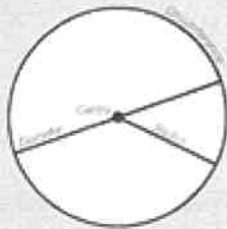


Circles

Circumference = $\pi \times \text{diameter}$, $C = \pi d$

Circumference = $2 \times \pi \times \text{radius}$, $C = 2\pi r$

Area of a circle = $\pi \times \text{radius squared}$ $A = \pi r^2$



Pythagoras

Pythagoras' Theorem

For a right-angled triangle,
 $a^2 + b^2 = c^2$



Trigonometric ratios (now to F)

$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}$, $\cos x^\circ = \frac{\text{adj}}{\text{hyp}}$, $\tan x^\circ = \frac{\text{opp}}{\text{adj}}$



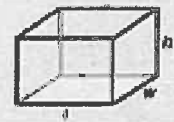
Quadratic equations

The Quadratic Equation

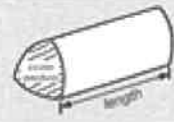
The solutions of $ax^2 + bx + c = 0$,
where $a \neq 0$, are given by $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Volumes

Cuboid = $l \times w \times h$



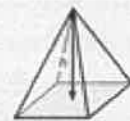
Prism = area of cross section \times length



Cylinder = $\pi r^2 h$



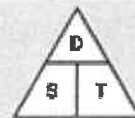
Volume of pyramid = $\frac{1}{3} \times \text{area of base} \times h$



Compound measures

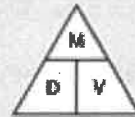
Speed

speed = $\frac{\text{distance}}{\text{time}}$



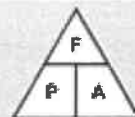
Density

density = $\frac{\text{mass}}{\text{volume}}$



Pressure

pressure = $\frac{\text{force}}{\text{area}}$

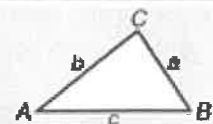


Trigonometric formulae

Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle = $\frac{1}{2} ab \sin C$



Foundation tier formulae

Higher tier formulae

QUICK REVISION SHEET – TRIAL EXAM 1 (English)

LANGUAGE PAPER	LITERATURE PAPER
Paper 1 - Fiction (1 hour 45 mins) Monday 11th December, 9.00am	Paper 1 – ‘Macbeth’ and ‘A Christmas Carol’ (1 hour 45 mins) Thursday 14th December, 11.15am
READING SECTION	‘MACBETH’
Q1 – List 4 things (4 marks)	Starting with this extract... (30 marks + 4 SPAG)
Q2 – Focus on language (8 marks) 2 to 3 detailed paragraphs	You will be given an extract to analyse. This can be from anywhere in the play. The question will focus on a character or a theme . You are expected to link your findings on the extract to the whole text .
Q3 – Focus on structure (8 marks) 2 to 3 detailed paragraphs	
Q4 – To what extent... Focus on language and structure (20 marks) 4 to 5 detailed paragraphs	
WRITING SECTION	‘A CHRISTMAS CAROL’
Q5 – Descriptive writing (40 marks) <ul style="list-style-type: none"> • Assessed for creative content, use of methods and SPAG <p style="text-align: right;">1 ½ to 2 pages</p> <p>You could include...</p> <ul style="list-style-type: none"> ✓ Interesting verbs ✓ Adjectives ✓ Similes, metaphors and personification ✓ Juxtaposition ✓ Repetition and reiteration ✓ Shift in perspective – big to small/outside to inside ✓ Narrative perspective ✓ Isolated words or sentences <p>You should consider...</p> <p>Semi-colons Colons Accurate use of apostrophes Range of verbs, adverbs and prepositions to open your sentences/paragraphs</p>	<p>Starting with this extract... (30 marks)</p> <p>You will be given an extract to analyse. This can be from anywhere in the novel.</p> <p>The question will focus on a character or a theme.</p> <p>You are expected to link your findings on the extract to the whole text.</p> <p>You could include...</p> <ul style="list-style-type: none"> ✓ How the character develops from the start of the text to the end ✓ How the themes are explored or developed across the text as a whole ✓ The importance or significance of this extract in relation to the character or the plot ✓ How this extract links to the moral message or authorial intent <p>You should consider...</p> <p>Analysis of linguistic methods, analysis of structural devices or aspects of form, effect or impact on the audience or reader, contextual relevance, evaluation of the writer’s successes.</p>

You have **one source** for this paper. You are advised to spend **15 minutes reading** the source.

Top Tip – Time Saver! Read what you need for each question. You don't need to have read the whole text until Q3.

You have **two questions** for this paper but you will need to check the **contents page** in order to find the texts that you have studied. You are advised to spend **5–10 minutes reading** the extracts and planning your response to each question. This will give you approximately 40 – 45 minutes writing time per question.

Top Tip – Time Saver! Read the question before you read the extract. Choose the question you feel most confident about to get you motivated. Make links in your planning to 'elsewhere' in the text so you don't forget!

PLANNING! FOR BOTH EXAMS:

Plan directly on the sources/extracts. Highlight your chosen quotes, **circle the powerful words or images** that you want to analyse in more detail then write the connotations around the outside. **Identify linguistic and structural features** on the page and comment on the **effects**.

PLANNING! FOR LANGUAGE:

- **Read the Qs before you read the sources** so that you know what you are looking for. Circle or highlight the 'focus' words to keep your answer focussed throughout.
- **Stick to timings!** Follow the basic rule 'a mark a minute' to answer. Remember that if you go over by a minute, you need to adjust your timings for the following questions.
- **Claw back some minutes from Q5.** It won't take you 45 minutes to prove you're a good writer. Get all the good stuff in early in case you do run out of time. And ALWAYS find 3 minutes to proof-read for silly skills errors.
- **Be cheeky!** Use the sources to help you craft your own writing for Q5. For all the methods you identified in the Reading section, use them in the Writing section. Use the sources as inspiration - just don't plagiarise!
- **ANSWER ALL OF THE QUESTIONS!** You will never achieve a Grade 6 (typical entry grade for a good Sixth-form course) if you leave questions unanswered.

COMPLETE THE PRACTISE QUESTIONS AND MOCK-UP PAPERS THAT YOUR TEACHER GIVES YOU FOR REVISION HOMEWORK, IN PREPARATION FOR THE DECEMBER TRIAL EXAMS. PRACTISING TIMINGS AND WRITING AT SPEED IS CRUCIAL OVER THE NEXT FEW WEEKS.

LOOK OVER YOUR ANSWERS, MODEL ANSWERS AND THE NOTES IN YOUR EXERCISE BOOK. THIS IS WHERE YOU DID ALL OF YOUR LEARNING, SO IT IS JUST AS USEFUL.

Parental Guide to Science Exams

In science all students will sit 6 exams, 2 in each science (Biology, Chemistry and Physics). The exams details are below.

Paper	Date	Length	Weighting
Biology 1	15 th May	Triple: 1hr 45 Combined 1hr 15	50% 16.6%
Biology 2	11 th June	Triple: 1hr 45 Combined 1hr 15	50% 16.6%
Chemistry 1	17 th May	Triple: 1hr 45 Combined 1hr 15	50% 16.6%
Chemistry 2	13 th June	Triple: 1hr 45 Combined 1hr 15	50% 16.6%
Physics 1	23 rd May	Triple: 1hr 45 Combined 1hr 15	50% 16.6%
Physics 2	15 th June	Triple: 1hr 45 Combined 1hr 15	50% 16.6%

Students need to revise the following content for these papers.

Biology: Paper 1

Cell Biology: *structure and function of cells, specialisation, microscopy, microbes, stem cells and movement of particles.*

Organisation: *organ systems and tissues (animal and plant), heart and blood, non-communicable diseases,*

Infection and Response: *Communicable disease, immune system, medicinal drugs, monoclonal antibodies, plant diseases.*

Bioenergetics: *photosynthesis, respiration.*

Biology: Paper 2

Homeostasis and Response: *nervous system, brain, eye, controlling body temp, glucose, water, reproduction, animal and plant hormone*

Inheritance, Variation and Evolution: *Cell division, DNA, selective breeding, genetic engineering, cloning, fossils, extinction, classifying*

Ecology: *communities and factors affecting them, organisation, recycling materials, biodiversity, waste management, biomass.*

Chemistry: Paper 1

Atoms and Periodic Table: *history of atoms, separation of mixtures, atomic mass, history of periodic table, groups 1,7,0 and transition.*

Bonding: *covalent (giant and simple), ionic, metallic, states of matter, polymers, alloys, nanoparticles.*

Quantitative: *balanced equations, relative formula, chemical measurements, moles, limiting reactants, concentrations, yield*

Chemical changes: *reactivity and extraction of metals, acids and neutralisation, titrations, electrolysis,*

Energy Changes: *exo and endothermic, batteries and fuel cells,*

Chemistry: Paper 2

Rate of Reaction: *collision theory, factors affecting rates, catalysts, reversible reactions and equilibrium,*

Organic: *hydrocarbons, fractional distillation, cracking, alkenes and alcohols, carboxylic acids, polymerisation, amino acids and DNA*

Analysis: *chromatography, identification of gases, identification of ions*

Atmosphere: *composition and evolution of, climate change and pollution*

Using Resources: *sustainable development, potable water, life cycle, using materials, Haber process and fertilisers.*

Physics: Paper 1

Energy: *kinetic, spring constant, gravitational potential, specific heat capacity, power, conservation of, efficiency, global resources,*

Electricity: *Circuits and symbols, current, potential difference, resistance, mains electricity, power, transfers, national grid, static,*

Particle model: *density, changes of state, latent heat, particle motion, pressure in gases.*

Atomic Structure: *structure, isotopes, history of, nuclear radiation, equations, hazards and uses, fission and fusion.*

Physics: Paper 2

Forces: *scalar and vector, contact and non, resultant, work done, elasticity, moments and levers, pressure in fluids, atmospheric pressure, velocity, Newton's Laws, braking, momentum,*

Waves: *transverse and longitudinal, reflection, sound, uses, electromagnetic properties and uses, lenses, light, black body radiation.*

Magnetism and Electromagnetism: *magnetic fields, motor effect, loud speakers, induced potential and transformers,*

Space Physics: *solar system, life cycle star, orbital motion, red shift,*

Those sections underlined are in the triple/ separate qualifications only, not combined science.

How to help your child revise:

1. Help your child to write up a revision plan: how much time do they have to revise and how much of that time will be devoted to science? Science needs to be treated as 3 subjects (biology, chemistry and physics). Use the specification sheets on the learning zone to help identify areas that require the most revision and plan how long and when this topic will be revised.
2. Get organised, some students will benefit from creating large mind maps of the topics to see how key terms relate to each other, and how topics cross over each other, others just need to focus on learning key definitions by using flash cards.
3. Educake can be used to test key knowledge.
4. Topic tests with mark schemes are being produced and placed on the science section of the learning zone.
5. Students can access simulations of the required practicals that they may be examined on in the paper (15% of each paper will be directly related to practical tasks they have completed) via the link on the learning zone. They are also being issued with guides containing some you tube vidoes of these as well.
6. When your child does complete exam questions at home, please encourage and reinforce the messages we are giving, which are: underline/highlight key terms in the question and information within the question, plan questions 4 marks and over (eg make a list of key words needed in the answer, order them and cross them off when used), and write in bullet points, the number of points should match the number of marks.

GCSE Science Overview

Revision guides

- [https://www.cgpbooks.co.uk/Student/gcse science range 9 1 explained](https://www.cgpbooks.co.uk/Student/gcse%20science%20range%209%201%20explained)
- Parent Mail emails are sent at various times through the year – textbooks will be more expensive to buy directly from CGP but this allows you to view the catalogue of revision guides available.

GCSE Bitesize

Bitesize has updated their website for science however, please use with caution the links within Bitesize for 'AQA specification' as these are for the old specification content and not all the content is relevant to the new GCSE specification.

- <https://www.bbc.co.uk/education/subjects/z9ddmp3> (Biology subjects)
- <https://www.bbc.co.uk/education/subjects/zs6hvcw> (Chemistry subjects)
- <https://www.bbc.co.uk/education/subjects/zom6fg8> (Physics subjects)

Specifications:

- Biology 'triple':
<http://filestore.aqa.org.uk/resources/biology/specifications/AQA-8461-SP-2016.PDF>
- Chemistry 'triple':
<http://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-8462-SP-2016.PDF>
- Physics 'triple':
<http://filestore.aqa.org.uk/resources/physics/specifications/AQA-8463-SP-2016.PDF>
- Combined course only:
<http://filestore.aqa.org.uk/resources/science/specifications/AQA-8464-SP-2016.PDF>

Specimen papers (due to no previous past paper availability)

- Biology 'triple':
<http://www.aqa.org.uk/subjects/science/gcse/biology-8461/assessment-resources>
- Chemistry 'triple':
<https://www.aqa.org.uk/subjects/science/gcse/chemistry-8462/assessment-resources>
- Physics 'triple':
<https://www.aqa.org.uk/subjects/science/gcse/physics-8463/assessment-resources>
- Combined course only:
<http://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/assessment-resources>

Guide to Science Success

