Science
Year 10 GCSE preparation evening

What does the exam structure look like?

General information: Exam board is AQA

Triple science
Three separate GCSEs
Biology - 8461
Chemistry - 8462
Physics - 8463

Each subject is broken down and assessed over two papers, worth 100 marks each. Paper 1 and paper 2 are both 1 hour and 45 mins long.

Trilogy science - known as double award
Two GCSEs - 8464
Biology
Chemistry
Physics

Each subject is broken down and assessed over two papers, worth 70 marks each. Paper 1 and paper 2 are both 1 hour 15 mins long.

What does the exam structure look like?

Assessment objectives

The exams will measure how students have achieved the following assessment objectives†.

AO1: Demonstrate knowledge and understanding of:

40% 1) scientific ideas

2) scientific techniques and procedures.

AO2: Apply knowledge and understanding of:

40% 1) scientific ideas

2) scientific enquiry, techniques and procedures.

AO3: Analyse information and ideas to:

20% 1a) interpret

1b) evaluate

2a) make judgements

2b) draw conclusions

3a) develop experimental procedures

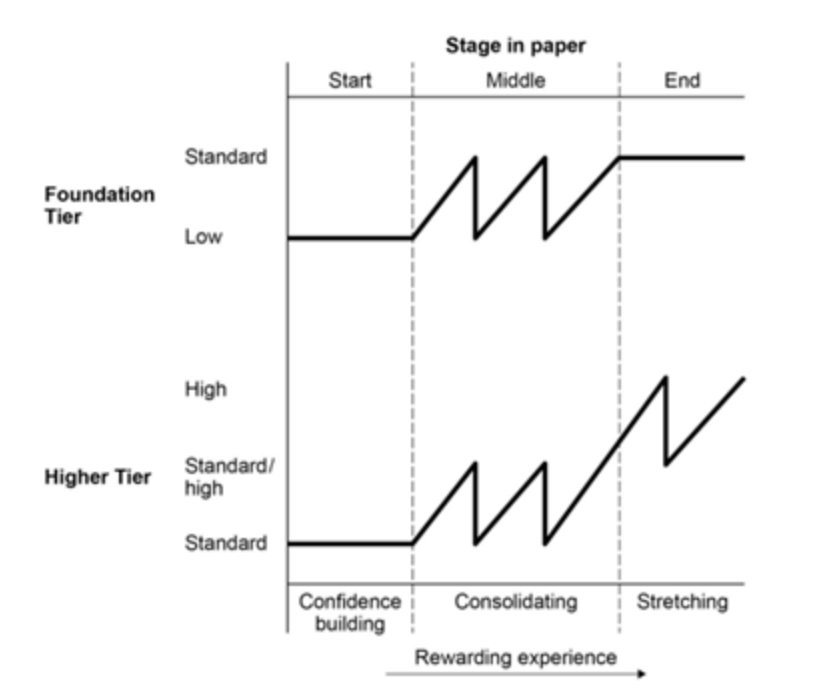
3b) improve experimental procedures.

The different scientific skills are broken down across each assessment.

Teachers, alongside students and parents, make decisions about Higher and Foundation Tiers of entry by February 2027.

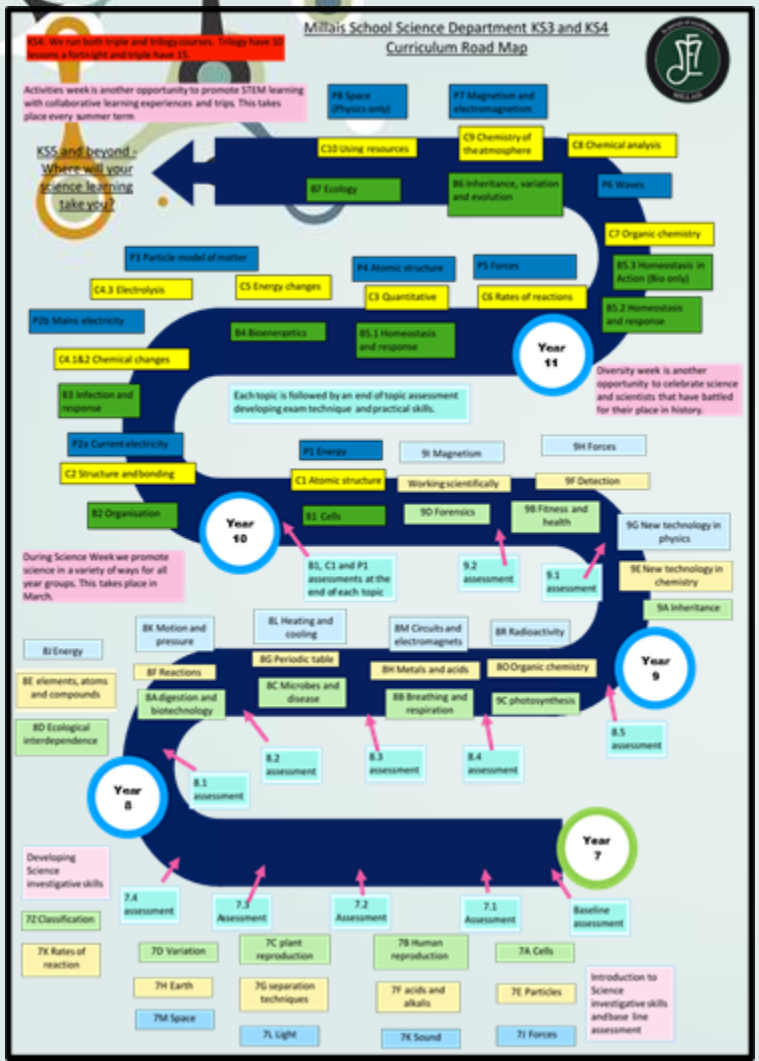
Foundation - grade 1-5
Higher - grade 4-9

What does the exam structure look like?



Exams are designed to increase in challenge as you move through the paper.

The first questions are there to build confidence in the process. Every questions gets harder and then the next questions starts at a more accessible level.



What assessment do students do in preparation for the exams?

Students complete regular end of topic tests and they are provided with feedback to help them move forward in their learning.

Mock exams take place in year 10, April (P1), year 11 November (P1), January (mid paper 2) and April (P2).

The learning journey is in the front of your child's books and shows the order of topics and assessments.

Learning for all students

To ensure that all students feel supported we get to know them quickly.

We provide knowledge organisers at the start of each topic which contain key information and keywords, students can use these to check answers or find information to help them be independent in their learning.

We focus on key literacy skills such a comprehension, keywords and definitions and command words for exam technique throughout the curriculum.

We use lots of different strategies such as modelling using visualisers, scaffolding and explicit instruction to support all learners in our classrooms.

Home learning

https://osa.exampro.co.uk/portal/

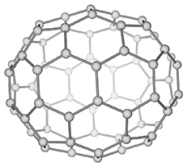
The majority of homework is set through Exampro Onscreen. Students answer a set of GCSE exam paper questions based on each topic they are studying.
Students then receive feedback enabling them to progress in their learning.

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total marks	Percent
-	-	-	-	-	-	-	-	-	-	-	-
1	1	1	2	2	2	4	1	2	1	17	94.4
1	1	0	2	2	1	3	1	1	2	14	77.8
1	1	0	1	0	1	1	0	0	2	7	38.9
1	1	1	2	0	1	2	1	1	2	12	66.7
1	1	0	2	1	1	1	1	0	1	9	50.0
1	1	1	1	1	0	2	1	2	1	11	61.1
1	1	1	2	1	0	1	0	0	1	8	44.4
1	0	1	2	1	1	3	0	1	1	11	61.1
1	1	1	2	0	1	3	1	2	1	13	72.2
1	1	1	2	1	2	4	0	0	1	13	72.2
1	1	1	2	2	1	3	1	2	1	15	83.3
1	1	1	2	1	0	1	1	0	2	10	55.6
1	1	0	0	0	0	0	0	0	0	2	11.1
1	1	1	2	1	0	1	0	0	1	8	44.4
1	1	0	2	1	2	2	1	1	0	11	61.1
1	1	1	2	1	0	1	1	0	2	10	55.6
1	1	1	2	2	2	0	0	0	2	11	61.1
1	1	1	2	1	2	3	0	2	2	15	83.3
1	1	1	0	0	1	0	1	0	0	5	27.8
0	1	1	2	1	0	1	1	0	2	9	50.0
1	1	1	2	1	0	1	1	0	2	10	55.6
-	-	-	-	-	-	-	-	-	-	-	-
1	1	1	2	1	0	1	1	0	2	10	55.6

Question 8

Figure 1 represents the molecule C_{70}

Figure 1



Molecules such as C_{70} can be used in medicine to move drugs around the body.

Suggest **one** reason why the C_{70} molecule is suitable for this use.

it can be absorbed easily and quickly into the body of affected areas

Teacher comment:

(CX70 is) hollow Allow (CX70) acts as a cage Allow (CX70) traps the drug (CX70 is) unreactive (CX70 is) not toxic (CX70 has) a large surface area to volume ratio

0

1 Mark

Question 10

This question is about acids, alkalis and bases.

A student reacted zinc oxide powder with hydrochloric acid to produce zinc chloride solution.

Complete the equation for the reaction by writing the state symbols.

$$ZnO (\ \ ) + 2\ HCl (\ \ ) \rightarrow ZnCl_2 (\ \ ) + H_2O (\ \ )$$

Teacher comment:

ZnO (s) + HCl (aq) ? ZnCl2 (aq) + H2O (l)

0

2 Marks

Question 11

A student added copper metal to colourless silver nitrate solution.

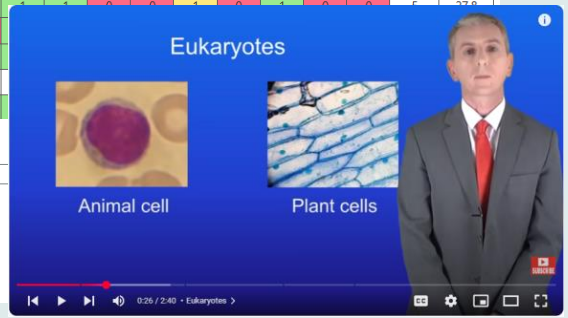
The student observed:

- Pale grey crystals forming
- The solution turning blue

Explain how these observations show that silver is less reactive than copper.

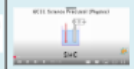
Teacher comment:

The (grey) crystals are silver 1 The copper ions (produced) are blue Allow the copper nitrate / compound (produced) is blue 1 (Because) copper displaces silver



Physics (Triple) Paper 1		
Revision Resources Links	Past papers	SPA rota (see lab door!)
Practice Questions	Practice Questions (Mark Scheme)	

Topics and Resources			
P1 Energy transfers	**P2 Circuits**	**P3 Molecules and matter**	**P4 Radiation**
• Energy transfers • Work done • Kinetic energy • Gravitational Potential Energy • Elastic Potential Energy • Power • Efficiency • Thermal conductivity • **RP Specific Heat Capacity** • **Triple: RP Insulation**	• Charge • Series and parallel circuits • Resistance • **RP Resistance in a wire** • **RP Resistance of components** • Thermistors and LDR • **RP Resistance in series and parallel circuits** • Triple: Static charge • AC/DC • Wires in a plug • Power • Energy transformations • Energy transfers in appliances • The national grid	• **RP density** • Particle model (states of matter) • Changing state • Internal energy • Specific Latent Heat (SLH) • Gas pressure and temperature • Triple: Gas pressure and volume	• Atomic structure • Development of the model of the atom • Rutherford's experiment • Radioactive decay (alpha, beta and gamma) • Half-life • Uses of radiation • Triple: Medical uses of radiation • Contamination and irradiation • Nuclear equations • Triple: Nuclear fission • Triple: Nuclear fusion
P1 - BBC Bitesize	P2 - BBC Bitesize	P3 - BBC Bitesize	P4 - BBC Bitesize
P1 - Free Science Lessons	P2 - Free Science Lessons	P3 - Free Science Lessons	P4 - Free Science Lessons
P1 - Knowledge Organiser	P2 - Knowledge Organiser	P3 - Knowledge Organiser	P4 - Knowledge Organiser
P1 Revision Activity and MS	P2 Revision Activity and MS	P3 Revision Activity and MS	P4 Revision Activity and MS

Required practicals (Link to resource folder)						
	Specific Heat Capacity	Triple: Insulation	Resistance of a wire	Resistance of components	Resistance in series and parallel circuits	Density
YouTube GB						

Teams resources – using the curriculum overview document

The curriculum overview document has been shared with students on teams. It has links to all of the resources available in student sharepoint to support students in their independent study or for homework.

A breakdown of each topic is shown per exam paper as a starting point for revision.

Independent learning in science – a model for revision

Chemistry Topics and Videos

Use this list of videos as a revision checklist. Tick off ✓ each one as you watch it and rate how confident you feel about the topic. Focus more on the topics you find harder than the ones you already know well.

- Videos marked CHEM are for triple science only.
- Videos marked HT ONLY are for the higher tier only.
- Required practicals are highlighted – these often come up in exams, so don't skip them!

Keep your revision sessions short and focused, and come back to tricky topics regularly to help them stick.

TOP TIP: To get the most out of each video, make notes while you watch – try mind maps, short summaries, or keyword lists. Don't just copy everything from the screen!

Paper 1

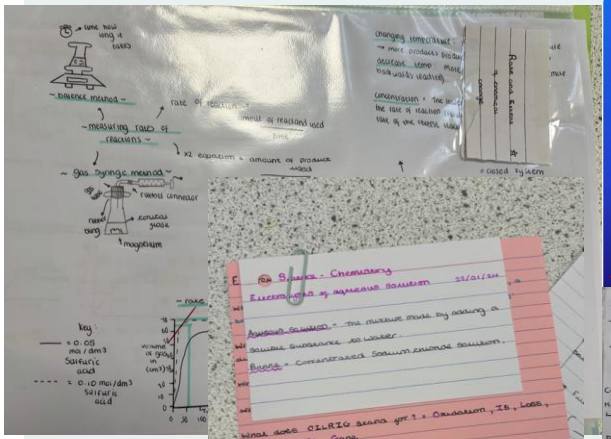
C1.1 Atomic structure

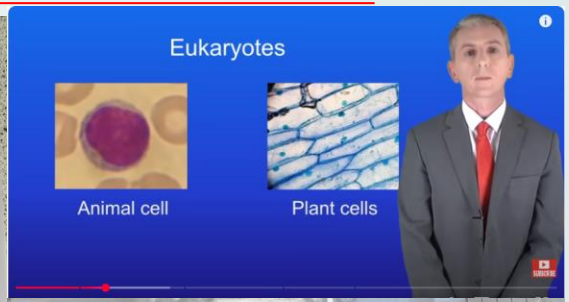
Video	Watched ?	☹	😐	☺
Elements, Compounds and Mixtures [4:17]	☐	☐	☐	☐
Paper Chromatography [3:56]	☐	☐	☐	☐
Filtration and Crystallisation [4:10]	☐	☐	☐	☐
Simple Distillation [3:14]	☐	☐	☐	☐
Fractional Distillation [4:38]	☐	☐	☐	☐
Alpha Scattering Experiment [4:03] (common content with physics)	☐	☐	☐	☐
Nuclear model [4:16] (common content with physics)	☐	☐	☐	☐
Atomic and Mass Numbers [5:32]	☐	☐	☐	☐
Relative Atomic mass [3:41]	☐	☐	☐	☐
Electronic Structures [4:28]	☐	☐	☐	☐

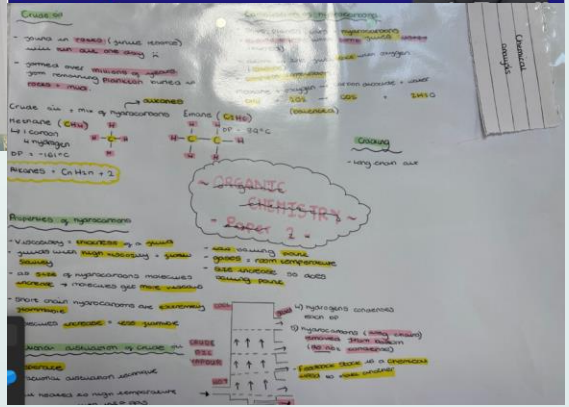
C1.2 The periodic table

Video	Watched ?	☹	😐	☺
Development of the Periodic Table [5:19]	☐	☐	☐	☐
Group 0 [3:19]	☐	☐	☐	☐
Metals [4:59]	☐	☐	☐	☐
Group 1 Part 1 [4:30]	☐	☐	☐	☐
Group 1 Part 2 [3:57]	☐	☐	☐	☐

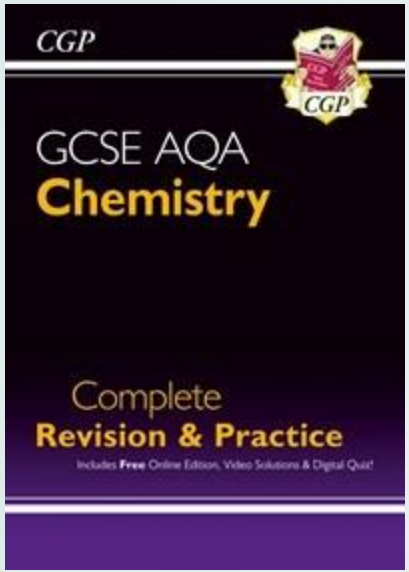
1. Evaluate strengths and weaknesses in learning to prioritise independent study – use the checklist.
2. Use free science lessons on youtube to create mind maps and flash card for retrieval practice.
3. Complete past paper questions from the sharepoint, from the AQA website or https://www.physicsandmathstutor.com/

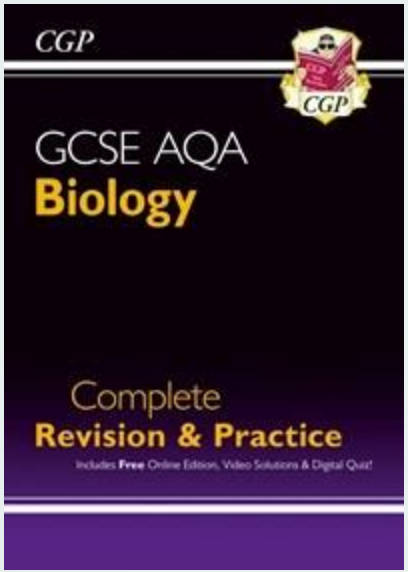


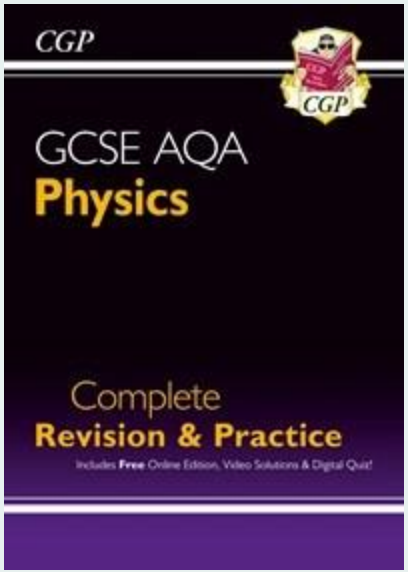


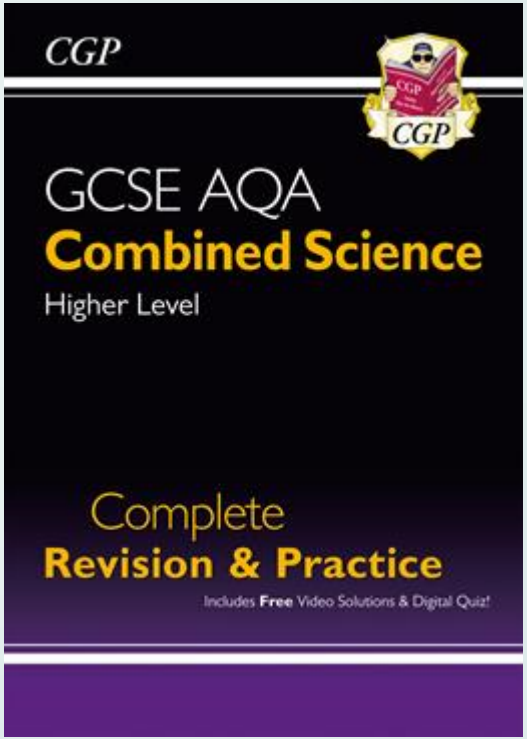


Revision strategies









We recommend these revision guides, but any guide will be helpful as long as it is AQA and the right course.

Student reflection – moving forward

Trilogy Chemistry Higher Tier Tasks	
Did you remember a calculator?	Yes/No
Did you run out of time?	Yes/No
Did you check through your paper at the end?	Yes/No
My flightpath is:	My mock grade is:

Q	Topic	Skill	Tasks
1	• Electrolysis of Aqueous solutions, • RP, • The process of Electrolysis, Concentration of solutions	Analyse information and ideas, Maths	During electrolysis of aqueous solutions, which type of ions move to the **cathode**? Describe what happens to the ions during electrolysis of molten lead bromide. (Include which ions move where and what products form.) In the electrolysis of aqueous sodium chloride (brine), which gas is produced at the **cathode**? What is the unit for concentration when expressed in moles? Explain how increasing the concentration of an electrolyte affects the rate of electrolysis.
2	Exothermic and endothermic reactions, RFM, RP	Demonstrate knowledge and understanding, Maths, Extended response.	Draw an energy level diagram for both exothermic and endothermic reactions. Label the activation energy and the overall energy change on each one. Write definitions for the words 'exothermic' and 'endothermic'. Can you give an example of each type of reaction?
3	The development of the model of the atom, Charges of the subatomic particles, Size and mass of atoms, Properties of small molecules, Group 7	Demonstrate knowledge and understanding, Apply knowledge and understanding	Which scientist proposed the *plum pudding model* of the atom? How did Rutherford's gold foil experiment change the model of the atom? Complete the table: Particle / Relative charge / Relative mass Proton / ? / ? Neutron / ? / ? Electron / ? / ? Explain why small covalent molecules have low melting and boiling points. Why don't small molecules conduct electricity? Explain why the reactivity decreases down group7

Following any in class assessment and mock exams students analyse their performance per question/topic and are given tasks based on areas of development. This allows students to reflect on their strengths and weaknesses and actively move forward in their learning.

What are the advantages of revising in this way?

We want to empower students to be independent learners. By following our model, students can self-regulate their learning by identifying their strengths and weaknesses.

It is an active process that students find difficult at times, but it is the most effective way to revise.

Things that aren't useful – copying out textbooks and revision guides for pages and pages. This feels like it is helpful but remember 60% of the exam is analysis and application – practice makes progress!

What other revision resources are available?

Cognito: An online quizzing platform that is free to use for all students. There are topic videos and linked past paper questions.

Seneca: A free online platform the gives students information and then quizzes them as they go through. A very good starting point for students.

BBC bitesize: Useful source of information, has quizzes for retrieval and checking understanding.

Past paper questions: Past papers and mark schemes are available on the AQA website. These are one of the best ways of taking your revision to the next level.

Why science?

- Whether you have chosen triple or trilogy, science is an important subject for your future.
- The skills you learn support many careers not directly linked to science such as catering, cosmetics and aesthetics, caring for people, animals and children and any role that requires health and safety or risk assessment.
- More directly if you want to study any of these subjects at A level you will need at least a 6 at GCSE.
- Biology
- Chemistry
- Medical sciences
- Psychology
- Physics

A grade 4 is needed for many other courses such as BTEC engineering and applied science.
Lots of university courses and apprenticeships also require a grade 4 in science.

What can parents do to support?

- Encourage your child to complete homework, and help them track their progress throughout the course with the curriculum map.
- Check they have the correct equipment for lessons and assessments (green pen, calculator, whiteboard pen).
- Encourage them to attend SPAs or ask their teacher for help if they need it (Tues – Chem, Wed – Phys, Thurs – Bio)