

Welcome!



**How can you support your
child with revision for
separate science?**

The GCSE Science Courses

Your child is studying for three separate science GCSEs:

Biology

Chemistry

Physics



IF IT MOVES, IT'S

BIOLOGY

IF IT STINKS, IT'S

CHEMISTRY



IF IT DOESN'T WORK, IT'S

PHYSICS

Exams



So, your child will sit 6 science exams → 2 per subject → 1 hr 45 min each

Each subject can be sat at higher or foundation tier:

Higher tier has access to grades 9 (A**) to 4 (C)

Foundation tier has access to grades 5 (“good” pass) to 1

There is no coursework. However, during all three courses your child will experience practical work that includes the AQA required practicals which they will be tested on.

Biology



The content for the 2 biology papers is below.

Paper 1

Unit 1	Cell biology
Unit 2	Organisation
Unit 3	Infection & response
Unit 4	Bioenergetics

Paper 2

Unit 5	Homeostasis & response
Unit 6	Inheritance, variation & evolution
Unit 7	Ecology



The content in the November internal exams

The content for the 2 chemistry papers is below.

Paper 1

Unit 1	Atomic structure & the periodic table
Unit 2	Bonding, structure & the properties of matter
Unit 3	Quantitative chemistry
Unit 4	Chemical changes
Unit 5	Energy changes

Paper 2

Unit 6	The rate & extent of chemical change
Unit 7	Organic chemistry
Unit 8	Chemical analysis
Unit 9	Chemistry of the atmosphere
Unit 10	Using resources



The content in the November internal exams

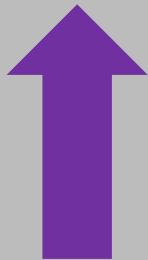
The content for the 2 physics papers is below.

Paper 1

Unit 1	Energy
Unit 2	Electricity
Unit 3	Particle model of matter
Unit 4	Atomic structure

Paper 2

Unit 5	Forces
Unit 6	Waves
Unit 7	Magnetism & electromagnetism
Unit 8	Space physics

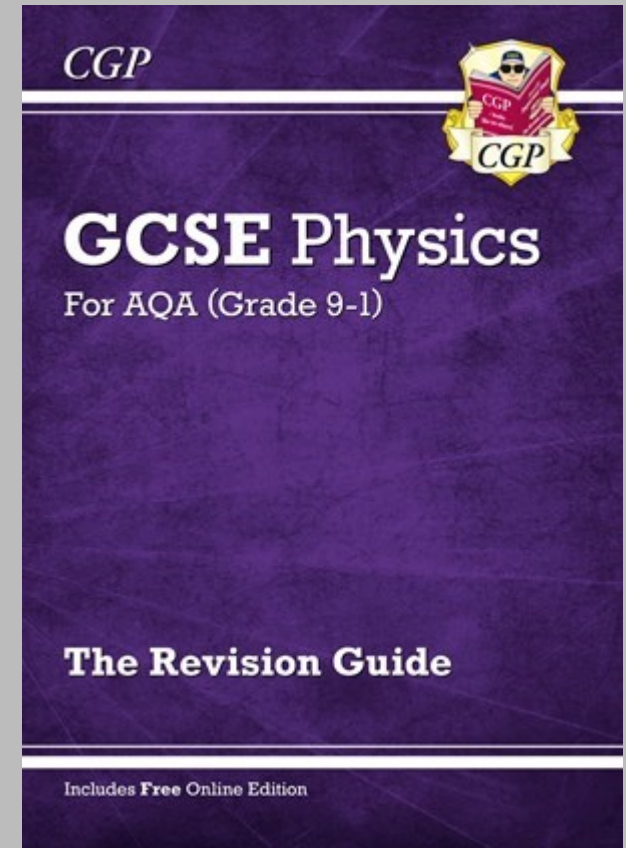
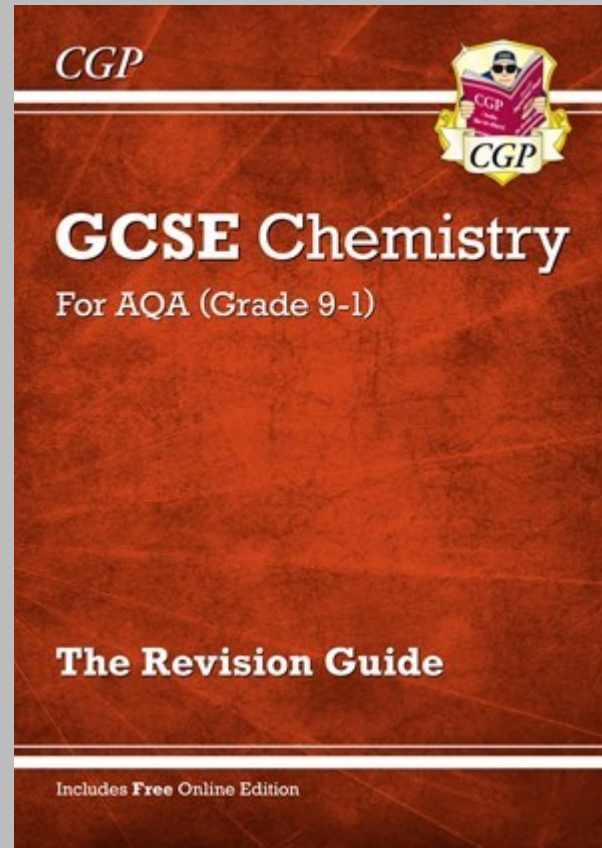
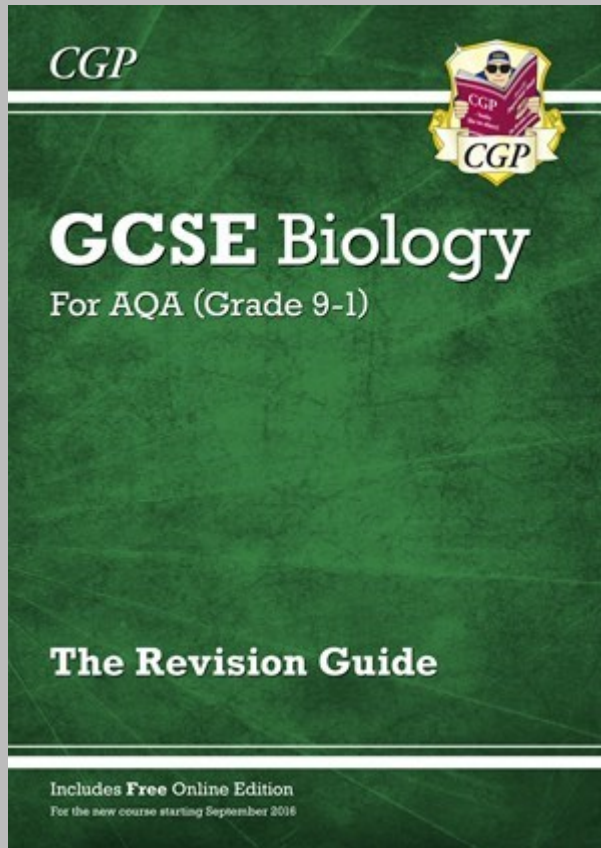


The content in the November internal exams

Revision Guides



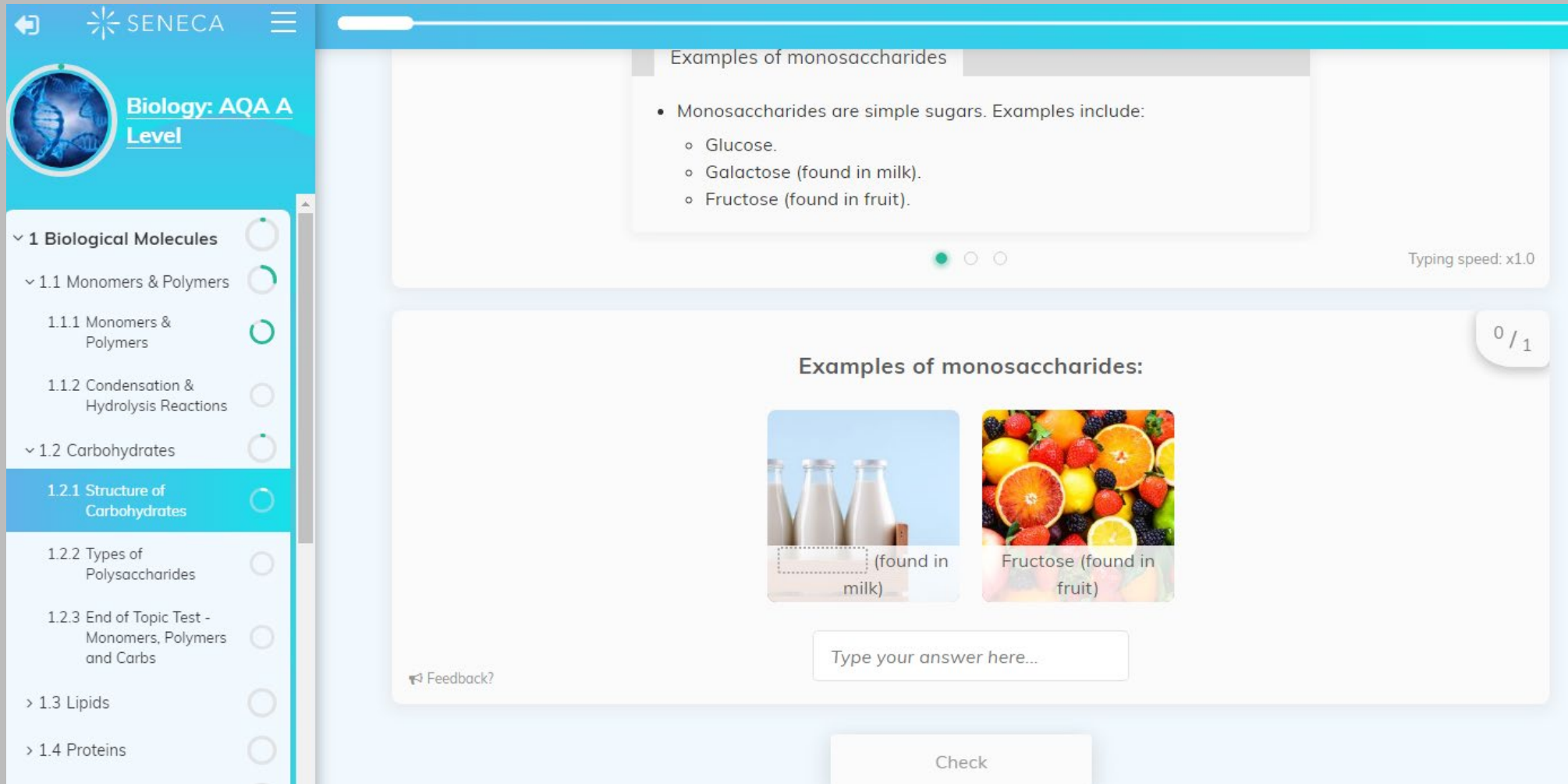
Please ensure they are specific to AQA and the new 9-1 course.



SENECA Learning



A free website that plays videos and animations, and then asks short questions to test knowledge.



The screenshot displays the SENECA Learning interface. On the left is a navigation menu for 'Biology: AQA A Level' with a tree structure:

- 1 Biological Molecules
 - 1.1 Monomers & Polymers
 - 1.1.1 Monomers & Polymers
 - 1.1.2 Condensation & Hydrolysis Reactions
 - 1.2 Carbohydrates
 - 1.2.1 Structure of Carbohydrates (highlighted)
 - 1.2.2 Types of Polysaccharides
 - 1.2.3 End of Topic Test - Monomers, Polymers and Carbs
 - > 1.3 Lipids
 - > 1.4 Proteins

The main content area is titled 'Examples of monosaccharides' and contains a list:

- Monosaccharides are simple sugars. Examples include:
 - Glucose.
 - Galactose (found in milk).
 - Fructose (found in fruit).

Below the list are two images: a photograph of three milk bottles and a photograph of various fruits. The milk bottles image has a dashed box around it with the text '(found in milk)'. The fruit image has the text 'Fructose (found in fruit)'. A text input field below the images contains the text 'Type your answer here...'. At the bottom right is a 'Check' button. The interface also shows a 'Feedback?' icon, a 'Typing speed: x1.0' indicator, and a '0 / 1' score indicator.

SENECA Learning



A screenshot of the SENECA Learning application interface. The top navigation bar is blue and contains a back arrow, the SENECA logo, and a menu icon. Below this, the course title "Biology: AQA GCSE Higher" is displayed next to a circular image of a deer. A sidebar on the left lists seven topics: 1 Cell Biology, 2 Organisation, 3 Infection & Response, 4 Bioenergetics, 5 Homeostasis & Res..., 6 Inheritance, Variati..., and 7 Ecology, each with a radio button. The main content area has a blue header with "CONTINUE" and "5.2.1 The Nervous System", and a "Start learning" button. Below the header is a "Smart Learning Mode" section with a lightning bolt icon and a toggle switch currently set to "OFF". At the bottom, three white boxes show "Knowledge score 0", "Questions answered 0", and "Total learning time 0s". A purple arrow points to the "Total learning time" box. At the very bottom, there are three tabs: "Global leaderboard", "Class leaderboard", and "Your memories".

An easy way to monitor the time spent revising.

Free Science Lessons



Search in YouTube or google 'free science lessons...'



Freesciencelessons ✓
319K subscribers

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How to revise effectively.

540,282 views • 3 years ago

In this video, I'm going to take you through ten top tips for effective revision. If you follow my advice, you'll put yourself in a great position to get the grades that you need.

<http://www.aqa.org.uk/subjects/scienc...>

<http://www.aqa.org.uk/subjects/scienc...>

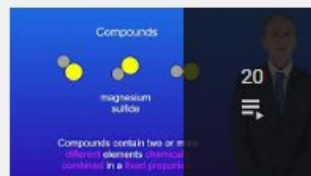
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9-1 Chemistry Paper 1



9-1 GCSE Chemistry Paper 1 Atomic Structure and the Periodic Table

Freesciencelessons ✓

GCSE Science Chemistry (9-1) Elements, Compounds and Mixtures. • 4:03

GCSE Science Chemistry (9-1) Interpreting a chemical formula • 3:41

VIEW FULL PLAYLIST (20 VIDEOS)

Required Practical Work

As there is no coursework there will be a greater proportion of exam questions drawing on practical work.

PRACTICAL

2 A student has a collection of metal toy soldiers of different sizes made from the same metal.

Grade 6-7

2.1 Which of the following statements about the toy soldiers is true? Tick **one** box.

- The masses and densities of each of the toy soldiers are the same.
- The masses of each of the toy soldiers are the same, but their densities may vary.
- The densities of each of the toy soldiers are the same, but their masses may vary.
- The densities and masses of each toy soldier may vary.

[1 mark]

The student wants to measure the density of one of the toy soldiers. He has a eureka can, a measuring cylinder, a mass balance and some water.

2.2 State the **two** quantities the student must measure in order to calculate the density of the toy soldier.

[2 marks]

2.3* Describe the steps the student could take to find the density of the toy soldier using the equipment he has.

[6 marks]

26

PRACTICAL

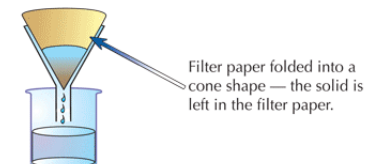
Filtration and Crystallisation

Filtration and crystallisation are **methods of separating mixtures**. Chemists use these techniques all the time to separate **solids** from **liquids**, so it's worth making sure you know how to do them.

Filtration Separates Insoluble Solids from Liquids

- 1) Filtration can be used if your **product** is an **insoluble solid** that needs to be separated from a **liquid reaction mixture**.
- 2) It can be used in **purification** as well. For example, **solid impurities** in the reaction mixture can be separated out using **filtration**.

Insoluble means the solid can't be dissolved in the liquid.

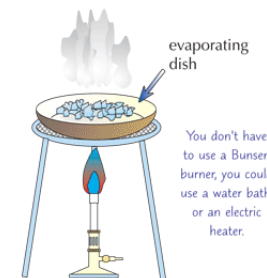


Two Ways to Separate Soluble Solids from Solutions

If a solid can be **dissolved** it's described as being **soluble**. There are **two** methods you can use to separate a soluble salt from a solution — **evaporation** and **crystallisation**.

Evaporation

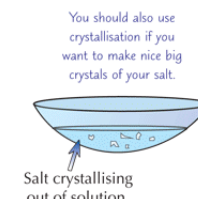
- 1) Pour the solution into an **evaporating dish**.
- 2) Slowly **heat** the solution. The **solvent** will evaporate and the solution will get more **concentrated**. Eventually, **crystals** will start to form.
- 3) Keep heating the evaporating dish until all you have left are **dry crystals**.



Evaporation is a really **quick** way of separating a soluble salt from a solution, but you can only use it if the salt **doesn't decompose** (break down) when it's heated. Otherwise, you'll have to use **crystallisation**.

Crystallisation

- 1) Pour the solution into an **evaporating dish** and gently **heat** the solution. Some of the **solvent** will evaporate and the solution will get more **concentrated**.
- 2) Once some of the solvent has evaporated, **or** when you see crystals start to form (the **point of crystallisation**), remove the dish from the heat and leave the solution to **cool**.
- 3) The salt should start to form **crystals** as it becomes **insoluble** in the cold, highly concentrated solution.
- 4) **Filter** the crystals out of the solution, and leave them in a warm place to **dry**. You could also use a **drying oven** or a **desiccator**.



Required Practical Workbooks

Required Practical Review



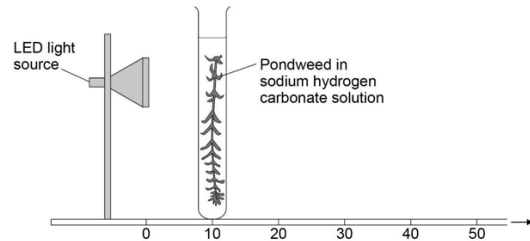
Biology Practical - Photosynthesis

Video link:

Know it

Read the summary of the practical below.

1. Set up a test tube rack containing a boiling tube at a distance of 10 cm away from the light source
2. Fill the boiling tube with the sodium hydrogen carbonate solution.
3. Put the piece of pondweed into the boiling tube with the cut end at the top. Gently push the pondweed down with the glass rod.
4. Leave the boiling tube for 5 minutes.
5. Start the stop watch and count the number of bubbles produced in one minute.



6. Record the result.
7. Repeat the count twice more. Then use the data to calculate the mean number of bubbles per minute.
8. Repeat steps 1–7 with the test tube rack and boiling tube at distances of 20 cm, 30 cm and 40 cm from the light source.

Review it

Complete the tasks below into your book.

Up to grade 4

1. Name the: independent, dependent and 2 control variables.
2. Bullet point a method for how to complete this practical.
3. Calculate the means for data below.

Distance (cm)	Light Intensity	Number of bubbles per minute			Mean
		1	2	3	
10		94	97	83	
20		69	67	68	
30		29	61	33	
40		2	2	2	
50		1	20	1	

Grade 5-7

1. What is an anomaly and are there any in the table above?
2. If you identified an anomaly how did you process your data as a result?
3. Calculate the light intensity use this equation: $\text{light intensity} = 1000/\text{distance}^2$
4. What does the data above show?
5. How can you explain the reason for this.

Grade 7+

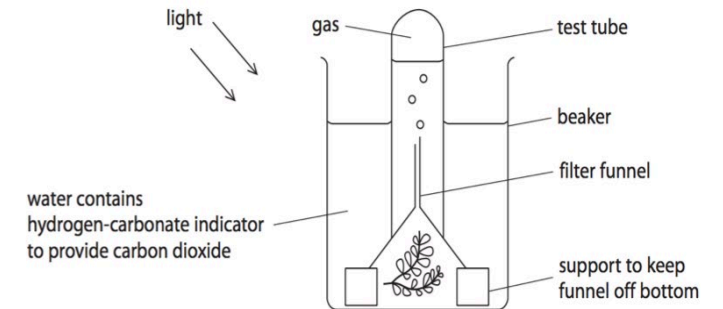
1. Why was it important to put a beaker of water between the lamp and the boiling tube.

Test it

Answer the exam questions below into your book.

Question 1

A student investigated the effect of red, green and blue light on the rate of oxygen production of a water plant. She used the apparatus shown.



The student shone different coloured lights on the plant. She measured the rate of oxygen production, for each colour, by counting the number of bubbles released per minute.

The results are shown in the table.

Reading	Rate of oxygen production in bubbles released per minute		
	Red light	Green light	Blue light
1	10	1	12
2	11	1	10
3	9	1	2
Average	10	1	11

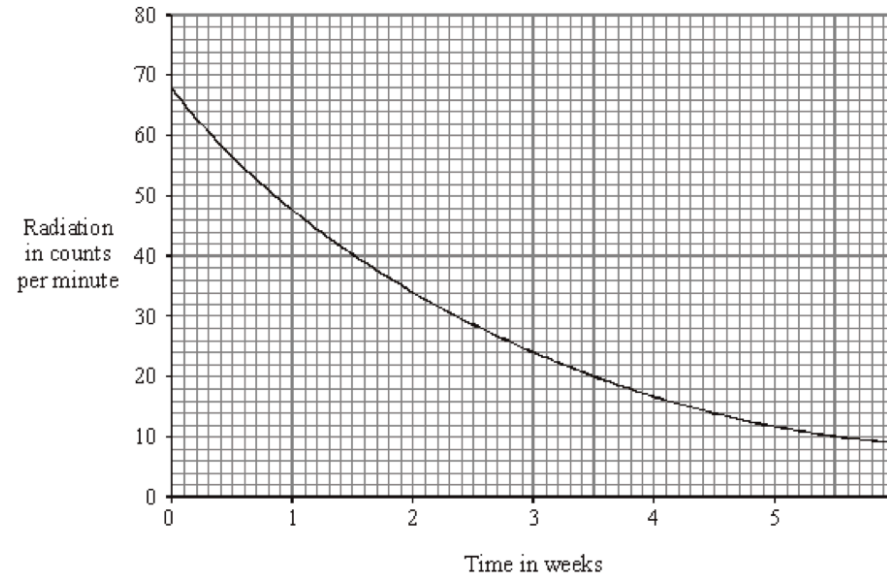
Maths in Science

Around 20% of the exam will link directly to mathematics.

This will include using formulae, calculating means, using standard form, interpreting data from graphs and tables...

Q2. A teacher measured the amount of radiation from a radioactive source, during the same lesson each week, over a period of six weeks.

The results are shown on the graph.



How long does it take for the radiation to fall from 68 counts per minute to half that value?

Show clearly how you work out your answer.

.....
.....

Time taken for radiation to halve

(Total 3 marks)

Testing

It is important for students to complete further past paper questions.

All current specification papers will be given to students for their internal exams or during revision.

Additional old specification, but still relevant, question can be found by searching online:

‘AQA **biology** GCSE past papers’

AQA GCSE Biology Past Papers - Revision Science

<https://revisionscience.com/gcse-revision/aqa-gcse-biology-past-papers>

GCSE COMBINED SCIENCE: TRILOGY

H

Higher Tier Paper 2: Biology 2H

Specimen 2018

Time allowed: 1 hour 15 minutes

Materials

For this paper you must have:

- a ruler
- a calculator.

Instructions

- Answer **all** questions in the spaces provided.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- There are 70 marks available on this paper.
- The marks for questions are shown in brackets.
- You are expected to use a calculator where appropriate.
- You are reminded of the need for good English and clear presentation in your answers.
- When answering questions 02.3 and 03.3 you need to make sure that your answer:
 - is clear, logical, sensibly structured
 - fully meets the requirements of the question
 - shows that each separate point or step supports the overall answer.

Advice

- In all calculations, show clearly how you work out your answer.

Please write clearly, in block capitals.

Centre number Candidate number

Surname

Forename(s)

Candidate signature _____

Other Useful Resources...

