

Preparing for your science **GCSE** mocks exams

# Mock exam dates

Dates	Combined science	Separate science
Friday 12 <sup>th</sup> Jan	Chemistry paper 1 (C1-C5) 1hr 15min	Chemistry (Electrolysis, C6, C7, C9) 1hr 45min
Thursday 16 <sup>th</sup> Jan	Physics paper 1 (P1-P5) 1hr 15min	Physics (P5, P8 plus additional questions from Paper 1 content)
Thurs 18 <sup>th</sup> Jan	-	Biology Paper 2 (B5-B7)



## Keys to success in science



1. To be able to recall key scientific facts and vocabulary

2. Ability to apply these to exam questions

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Kayleigh Davies  
Jan Mock tiers Fri 12/1  
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Ayesha Adil; Tamara Cook; Leyton...  
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Aamina Farooq; Aayla Saeed; Abb...  
Science Mocks January Wed 11/22  
Good afternoon, In J... Sent Items

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Ayesha Adil; Tamara Cook; Leyton...  
Science homework Du... Thu 11/16

### Science Mocks January

Good afternoon,

In January you will sit more science mocks.

For combined science students you will take,  
Chemistry Paper 1 (units C1,C2, C3, C4 and C5) [2. Chemistry paper 1 Jan Mock](#)  
Physics paper 1 (Units P1, P2, P3 and P4 ) [3. Physics paper 1 Jan Mock](#)

For separate science students you will take,  
Biology paper 2 (B5,B6,B7) [4. Biology paper 2 9th June](#)  
Chem - Electrolysis, C6, C7, C9 [5. Chemistry paper 2 13th June](#)  
Physics - P5, P6, P8 (additional questions from P1 content) [6. Physics paper 2 16th June](#)

You will be given printed revision resources by your teacher.  
You can access additional resources using the links above.  
You can also revise using the study packs on carousel. Your teacher will set these up for you and send you a link and provide you with a printed QR code.  
If you do not have a revision guide, you should buy one from SIMS parent app.

If you have any questions, please speak to your science teacher or come and see me.

You should pin this email to the top of your inbox by pressing the pin shape on the email banner. This will mean you can find this email again easily over the next few weeks.

[2. Chemistry paper 1 Jan Mock](#)

[3. Physics paper 1 Jan Mock](#)

## An Introduction to Electricity

You must be able to:

- Draw and interpret circuit diagrams
- Calculate the charge that flows in a circuit
- Relate current, resistance and potential difference
- Explain how to investigate factors that affect the resistance of an electrical component.

### Standard Circuit Symbols

- In diagrams of electrical circuits:
  - standard circuit symbols are used to represent the components
  - wires should be drawn as straight lines using a ruler.
- You need to know all of the circuit symbols in the table below:

Component	Symbol	Component	Symbol
Switch (open)		LED (light emitting diode)	
Switch (closed)		Bulb / lamp	
Cell		Fuse	
Battery		Voltmeter	
Diode		Ammeter	
Resistor		Thermistor	
Variable resistor		LDR (light dependent resistor)	

### Electric Charge and Current

- Electric **current** is the flow of electrical **charge** – the greater the rate of flow, the higher the current.
- Current is measured in amperes (A), which is often abbreviated to amps, using an ammeter.
- Electric charge is measured in coulombs (C) and can be calculated with the equation:

$$\text{charge flow} = \text{current} \times \text{time}$$

$$Q = It$$

Charge flow ( $Q$ ) is measured in

#### Key Point

An ammeter is connected in series. A voltmeter is connected in parallel to the component.

## Resistance and Potential Difference

- The **resistance** of a component is the measure of how it resists the flow of charge.
  - the higher the resistance:
    - the more difficult it is for charge to flow
    - the lower the current.
- Resistance is measured in ohms ( $\Omega$ ).
- **Potential difference** (or voltage) tells us the difference in electrical potential from one point in a circuit to another.
  - Potential difference can be thought of as electrical push.
- The bigger the potential difference across a component:
  - the greater the flow of charge through the component
  - the bigger the current.
- Potential difference is measured in volts (V) using a voltmeter.
- Potential difference, current and resistance are linked by the equation:

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

$$V = IR$$

## Revise

### Key Point

Increasing the resistance reduces the current.  
Increasing the voltage increases the current.

Potential difference ( $V$ ) is measured in volts (V).  
Current ( $I$ ) is measured in amps (A).  
Resistance ( $R$ ) is measured in ohms ( $\Omega$ ).

### REQUIRED PRACTICAL

Investigate the factors that affect the resistance of electrical circuits.

#### Simple Method

- This example looks at how length affects the resistance of a wire:
1. Set up the standard test circuit as shown.
  2. Pre-test the circuit and adjust the supply voltage to ensure that there is a measurable difference in readings taken at the shortest and longest lengths.
  3. Record the voltage and current at a range of lengths, using crocodile clips to grip the wire at different points.
  4. Use the variable resistor to keep the current through the wire the same at each length.
  5. Use the voltage and current measurements to calculate the resistance.

#### Variables

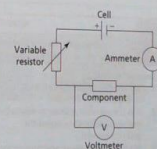
- The independent variable is the length of the wire.
- The dependent variable is the voltage. (which is kept the same, because if it was too high it would cause the wire to get hot and change its resistance).

#### Considerations, Mistakes and Errors

- Adjusting the supply voltage to ensure as wide a range of results as possible is important, as measurements could be limited by the **precision** of the measuring equipment.
- The range of measurements to be tested should always include at least five measurements at reasonable intervals. This allows for patterns to be seen without missing what happens in between, but also without taking large numbers of unnecessary measurements.

#### Hazards and Risks

- Current flowing through the wire can cause it to get very hot.
- To avoid being burned by the wire:
  - a low supply voltage should be used, such as the cell in the diagram
  - adjust the variable resistor to keep the current low.



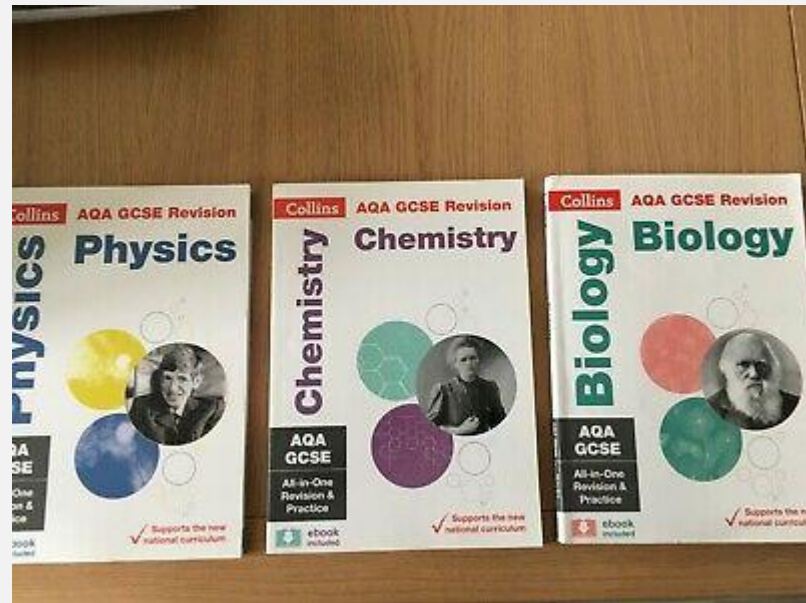
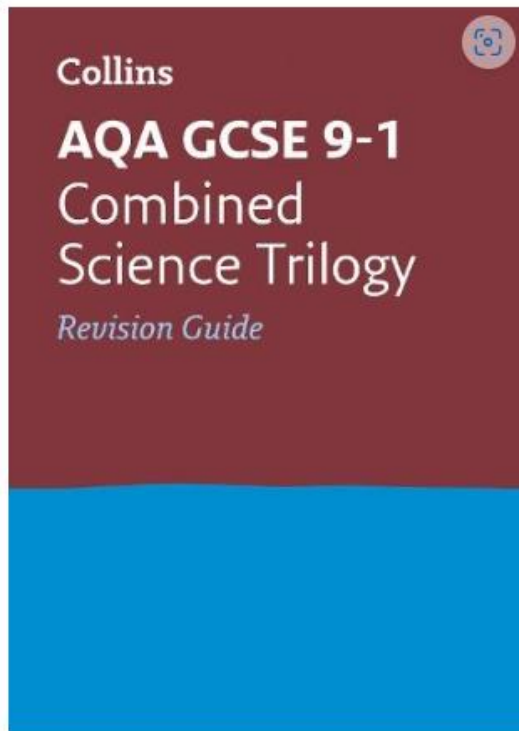
### Quick Test

### Key Words

# Revision guides

-Available on SIMS app

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8464

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STUDY PACK BY MRS MCLOUGHLIN

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Required

LAST NAME

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- Attend P7
- Complete all Carousel homework
- Begin revision now
- Focus on recall of key facts
- Complete practice exam questions and review using mark schemes