

<b>Exam Board:</b>	AQA
<b>Subject:</b>	Physics (Combined)
<b>Topics:</b>	<p><b>Paper 1 - 70 marks (1hr 15min)</b> Energy, electricity, particle model, atomic structure</p> <p><b>Paper 2 - 70 marks (1hr 15min)</b> Forces, waves, magnets and electromagnets</p>

### Exam Information, guidance and hints

**Command words:**

- Complete - Fill in gaps/add labels, finish diagrams or graphs
- Give - Recall a simple fact
- Draw - Draw a symbol, diagram or graph
- Describe - Give details about an event, idea or a process
- Explain - Give reasons for an event, idea or process (use because/so)
- Compare - Identify how things are similar/different
- Suggest - Use your own knowledge in an unfamiliar context
- Calculate - Use numbers in a formula
- Complete - Fill the gaps or add to a diagram
- Determine - Work out mathematically
- Evaluate - Compare the pros and cons then give a judgement

**Online Resources**

- [Cognito past papers](#)

**Hints/tips:** You need to memorise the following formulae/calculations

- All equation sheet formula - they are on the sheet but you need to know how to substitute and solve!
- How to calculate a % of a number
- **Higher Tier:** Rate from a graph = change in Y / change in X
- **Higher Tier:** Rate from a curve requires you to draw a tangent
- Area of a triangle
- Area of a rectangle
- Volume of a cube

#### Foundation Example Papers and Markschemes

#### Paper 1 - Higher Example Papers and Markschemes

[2018 H paper](#)

[Annotated P1](#)

[2018 MS](#)

[2018 F Paper](#)

[Annotated P1](#)

[2018 MS](#)

[2019 H Paper](#)

[Annotated P1](#)

[2019 MS](#)

[2019 F Paper](#)

[Annotated P1](#)

[2019 MS](#)

[2020 H Paper](#)

[Annotated P1](#)

[2020 MS](#)

[2020 F Paper](#)

[Annotated P1](#)

[2020 MS](#)

#### Paper 2 - Foundation Example Papers and Markschemes

#### Paper 2 - Higher Example Papers and Markschemes

[2018 H paper](#)

[Annotated P2](#)

[2018 MS](#)

[2018 F Paper](#)

[Annotated P2](#)

[2018 MS](#)

[2019 H Paper](#)

[Annotated P2](#)

[2019 MS](#)

[2019 F Paper](#)

[Annotated P2](#)

[2019 MS](#)

[2020 H Paper](#)

[Annotated P2](#)

[2020 MS](#)

[2020 F Paper](#)

[Annotated P2](#)

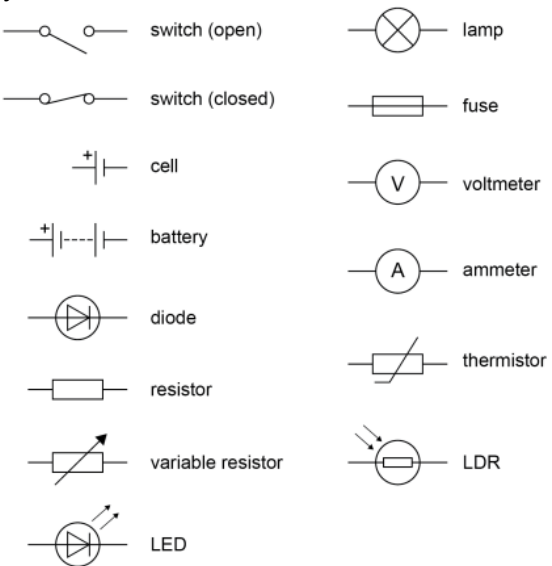
[2020 MS](#)

# PLC Combined Science: Physics Paper 1

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Energy	Identify energy stores and transfers in a range of examples, including; <ul style="list-style-type: none"> <li>an object projected upwards</li> <li>a moving object hitting an obstacle</li> <li>an object accelerated by a force</li> <li>a vehicle slowing down</li> <li>bringing water to a boil in an electric kettle</li> </ul>	R393	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.01</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.02</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.05</a>			
Energy	Calculate energy changes using the equations: <ul style="list-style-type: none"> <li><math>\Delta E = m \times c \times \Delta\theta</math></li> <li>Work = force x distance</li> <li>Electrical work = charge x potential difference</li> </ul>	R180	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07</a>			
Energy	Calculate the energy stored in springs, moving objects and objects that are high up: $E_k = \frac{1}{2} m v^2$ $E_e = \frac{1}{2} k e^2$ $E_p = m g h$	R704 R802	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.05</a>			
Energy	Explain how the mass and velocity of an object influence its store of kinetic energy	R704	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.03</a>			
Energy	Explain how the mass and height of an object influence its store of gravitational potential energy	R751	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.04</a>			

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Energy	Explain how the spring constant and extension of a spring influence its store of elastic potential energy	R802	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_2.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_2.08</a>			
Energy	<b>Required Practical:</b> Describe how to experimentally calculate the specific heat capacity of a solid or a liquid using an immersion heater or heating pad.	R544 R251	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07</a>			
Energy	<b>Required Practical:</b> Explain how to make improvements to the method of this practical to reduce heat loss.	R251	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.01</a>			
Energy	Define and calculate power (energy / time)	R602	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.11</a>			
Energy	Compare the power of different appliances based on energy consumption and time	R602	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.11</a>			
Energy	State the law of conservation of energy	R606	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.08</a>			
Energy	Explain scenarios where it appears energy is not conserved due to dissipation	R384	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.1">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.1</a>			
Energy	Define dissipation	R384	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.1">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.1</a>			
Energy	Explain how to reduce unwanted energy transfers for example by using lubrication or insulation	R996	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.1">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.1</a>			
Energy	Define and calculate efficiency	R666	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.12">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.12</a>			
Energy	Describe ways to increase the efficiency of an intended energy transfer.	R593	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.12">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.12</a>			

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Energy	Identify different global resources for energy (fossil fuels, nuclear, biofuel, wind, solar, hydroelectric, geothermal, tidal and waves)	R496	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.16">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.16</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.17">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.17</a>			
Energy	Identify and define renewable and non-renewable sources of energy	R911 R476	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.18">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.18</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.19">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.19</a>			
Energy	Compare the reliability of the different ways of generating electricity, evaluating their use	R911 R476	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.2">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.2</a>			
Energy	Describe the environmental impact of energy resources, evaluate their use	R496				
Energy	Explain patterns and trends in changing energy use using graphs and pie charts	R496				
Electricity	State the requirements for a current (potential difference and complete circuit)	R274	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.03</a>			
Electricity	Define and calculate charge flow in coulombs	R274	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.03</a>			
Electricity	Understand that in a series circuit, current is the same at all points.	R274	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.04</a>			
Electricity	State the relationship between current and potential difference	R274	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	State the relationship between current and resistance	R779	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			

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Electricity	Identify electrical components from their symbols 	R780	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.01</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06</a>			
Electricity	Know that voltage is the same as potential difference (you can use either term)	R779	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	Current, potential difference and resistance can be calculated using $V = I \times R$	R779	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	<b>Required Practical:</b> Describe how to use circuits to find the resistance of; <ul style="list-style-type: none"> <li>the length of a wire at constant temperature</li> <li>combinations of resistors in series and parallel</li> </ul>	R831	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.03</a>			

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Electricity	<b>Required Practical:</b> Explain the safety precautions that should be taken in this experiment.	R831 R238	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.03</a>			
Electricity	State Ohm's law (the directly proportional relationship between current and potential difference in ohmic conductors)	R779 R238	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	Identify ohmic conductors from graphs showing current and potential difference (straight line through the origin)	R959 R238	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	Identify diodes and filament lamps from graphs showing the relationship between current and potential difference.	R959 R238	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	Explain the shapes of the graphs of ohmic conductors, filament lamps and diodes using ideas about resistance.	R959 R238	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			
Electricity	Describe the role of a thermistor	R658	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06</a>			
Electricity	Describe the relationship between temperature and resistance in a thermistor	R658	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06</a>			
Electricity	Describe the role of a light dependent resistor (LDR)	R658	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06</a>			
Electricity	Describe the relationship between light intensity and resistance in a light dependent resistor (LDR)	R658	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.06</a>			
Electricity	Identify linear and non-linear relationships from graphs	R779	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.02</a>			

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Electricity	<b>Required Practical:</b> use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements, including a filament lamp, a diode and a resistor at constant temperature.	R439	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_10.04</a>			
Electricity	Identify series and parallel circuits	R955	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.04</a>			
Electricity	State the rules for current in series and parallel circuits	R302 R409	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.05</a>			
Electricity	State the rules for potential difference in series and parallel circuits	R302 R409				
Electricity	State the rules for resistance in series and parallel circuits	R302 R409				
Electricity	Explain the difference in total resistance when resistors are added in series or in parallel	R955				
Electricity	Explain the effect of adding a short circuit on readings on voltmeters and ammeters in circuits.	R955				
Electricity	Identify alternating current and direct current from graphs	R499	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.1">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.1</a>			
Electricity	Describe alternating current and direct current including examples of where they are found (batteries D.C, mains A.C)	R499	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.1">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.1</a>			
Electricity	Describe the properties of the mains electricity supply in the UK	R121	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.11</a>			

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Electricity	Describe the safety features of a three pin plug	R361	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.11</a>			
Electricity	Explain the role of a fuse	R361	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.12">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.12</a>			
Electricity	Explain the role of an Earth wire	R361	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.12">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.12</a>			
Electricity	Label the colours, names and potential differences of the wires in a three pin plug	R361	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.11</a>			
Electricity	Calculate power in circuits using; <ul style="list-style-type: none"> <li>• <math>P = I \times V</math></li> <li>• <math>P = I^2 \times R</math></li> <li>• <math>P = \text{energy transferred} / \text{time}</math></li> </ul>	R773 R815	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08</a>			
Electricity	Calculate energy in circuits using: <ul style="list-style-type: none"> <li>• <math>E = P \times t</math></li> <li>• <math>E = Q \times V</math></li> </ul>	R490	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08</a>			
Electricity	Explain how the power of an appliance depends on the energy transferred over a period of time	R145	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08</a>			
Electricity	Explain how the power of an appliance depends on the current and potential difference	R145	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.08</a>			
Electricity	Describe the national grid (including the voltages)	R507	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.09</a>			
Electricity	Describe and explain the role of step up and step down transformers	R507	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_5.09</a>			
Particle Model	Define and calculate density	R136	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.02</a>			

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Particle Model	Draw and interpret diagrams of the particle arrangement in solids, liquids and gases.	R252 R161	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.01</a>			
Particle Model	Describe the arrangement, energy and motion of particles in solids, liquids and gases.	R252 R161	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.01</a>			
Particle Model	Explain changes of state in terms of energy and forces of attraction	R791	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.01</a>			
Particle Model	Define internal energy as the sum of the total kinetic energy and potential energy of the particles	R621				
Particle Model	Interpret graph showing heating and cooling including identifying changes of state and pure/impure substances	R927	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.04</a>			
Particle Model	Define and calculate specific heat capacity	R527	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07</a>			
Particle Model	Explain how objects with different specific heat capacities experience different temperature changes with the same amount of energy	R527	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_1.07</a>			
Particle Model	Explain why temperature remains constant during state changes using ideas about specific latent heat	R641	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.04</a>			
Particle Model	Define and calculate specific latent heat	R641	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.04</a>			
Particle Model	Explain how changing temperature changes pressure in gases	R614	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.06</a>			

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				Red	Amber	Green
Particle Model	Explain how changing volume changes pressure in gases	R614	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.06</a>			
Particle Model	Define temperature as the average kinetic energy of the particles in a substance	R614	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_7.06</a>			
Atomic Structure	Describe atomic structure including the approximate size of atoms	R139	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Describe the arrangement of protons, neutrons and electrons in atoms	R139	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Explain why atoms are neutral in terms of the number of electrons and protons	R767	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Define mass number	R548	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Define atomic number	R548	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Define isotopes	R889	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Compare the atomic structure of isotopes	R889	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.02</a>			
Atomic Structure	Describe the development of the model of the atom including the work of Thompson, Dalton, Rutherford, Bohr and Chadwick	R617	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01</a>			
Atomic Structure	Describe the alpha scattering experiment	R617	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01</a>			
Atomic Structure	Describe the results of the alpha scattering experiment	R617	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01</a>			
Atomic Structure	Explain how the results of the alpha scattering experiment lead to changes in the model used for the atom	R617	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Atomic Structure	Explain why scientists change their theories and ideas	R617	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.01</a>			
Atomic Structure	Describe what is meant by radioactive decay	R549	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05</a>			
Atomic Structure	Define radioactive activity including the unit	R549	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05</a>			
Atomic Structure	Describe alpha decay including decay equations	R937 R193	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.04</a>			
Atomic Structure	Describe beta decay including decay equations	R937 R193	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.04</a>			
Atomic Structure	Describe gamma decay including an explanation of why no new element is formed	R937 R193	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			
Atomic Structure	State that during some examples of radioactive decay a neutron is released	R549	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			
Atomic Structure	State the penetrating power of alpha, beta and gamma	R694	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			
Atomic Structure	State the ionising ability of alpha, beta and gamma	R694	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			
Atomic Structure	Explain why different materials absorb alpha, beta and gamma	R694	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			
Atomic Structure	Describe an investigation of the penetrating power of alpha beta and gamma using a geiger muller tube	R694	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Atomic Structure	Describe radioactive decay as a random process	R549	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.03</a>			
Atomic Structure	Define half life	R905	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05</a>			
Atomic Structure	Calculate half life from graphs or data	R905	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_8.05</a>			
Atomic Structure	Describe radioactive contamination	R661	<a href="https://www.youtube.com/watch?v=teGu0VAPIOo">https://www.youtube.com/watch?v=teGu0VAPIOo</a>			
Atomic Structure	Describe radioactive irradiation	R661	<a href="https://www.youtube.com/watch?v=teGu0VAPIOo">https://www.youtube.com/watch?v=teGu0VAPIOo</a>			
Atomic Structure	Compare irradiation and contamination	R661	<a href="https://www.youtube.com/watch?v=teGu0VAPIOo">https://www.youtube.com/watch?v=teGu0VAPIOo</a>			

# PLC Combined Science: Physics Paper 1

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Forces	Describe scalar and vector quantities including examples.	R197	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.02</a>			
Forces	Describe contact and non-contact forces including examples.	R853	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.01</a>			
Forces	Explain how and why objects accelerate as they fall.	R893 R760	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	Explain why objects reach terminal velocity	R112	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.06</a>			
Forces	Calculate resultant forces through addition and subtraction	R893	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05</a>			
Forces	Describe the changes in motion of objects based on the forces applied to them	R744	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02</a>  <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	<b>HT: Use free body diagrams to calculate force</b>	R589	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05</a>			
Forces	<b>HT: Use vector diagrams to resolve forces into two components</b>	R589	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05</a>			
Forces	<b>HT: Use vector diagrams to find the resultant force</b>	R589	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.05</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Forces	Use Newton's first law to describe the motion of objects with different resultant forces (e.g, what happens to an object if the resultant force is 100N left or 0N?)	R744	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	<b>HT: Use Newton's first law to define inertia</b>	R597	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	Explain changes in velocity using ideas about forces (thrust and air resistance)	R893 R760	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	Apply ideas about forces and acceleration to explain terminal velocity	R112	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.06</a>			
Forces	Interpret velocity time graphs to identify acceleration and constant speed	R176 R663	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.05</a>			
Forces	Interpret velocity time graphs to calculate acceleration and distance  <b>HT - also need to do instantaneous acceleration from a curve using a tangent</b>	R760 R176 R663	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.05</a>			
Forces	Interpret distance time graphs to identify speed and periods where the object is stationary	R908	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.04</a>			
Forces	Interpret distance time graphs to calculate speed	R908	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.04</a>			
Forces	Calculate distance using distance = speed x time	R374 R908	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.04</a>			
Forces	Recall average speeds for walking, running, cycling and driving	R374	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Forces	Recall the speed of sound	R374	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01</a>			
Forces	Define velocity and compare it to speed.	R639	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01</a>			
Forces	Calculate velocity using $v = s \times t$	R639	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.01</a>			
Forces	Calculate velocity using the equation for uniform acceleration ( $v^2 - u^2 = 2as$ )	R799	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02</a>			
Forces	<b>HT: Explain how an object can have a changing velocity when its speed is constant</b>	R639	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02</a>			
Forces	Calculate acceleration using $a = (v - u) / t$	R760	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.02</a>			
Forces	Calculate values using $F = m \times a$	R138	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	Explain how changing force and mass affect acceleration	R138	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	<b>HT: Use <math>F = m \times a</math> to calculate inertial mass and explain its significance</b>	R597	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.07</a>			
Forces	Describe how to investigate the relationship between force and acceleration using a trolley, pulley, light gates and masses	R149	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.07</a>			
Forces	Use Newton's third law to describe force pairs (action and reaction forces)	R519	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.08</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Forces	Describe factors affecting the gravitational force on an object	R590	<a href="https://www.youtube.com/watch?v=W2aBVbcHrk&amp;t=6s">https://www.youtube.com/watch?v=W2aBVbcHrk&amp;t=6s</a>			
Forces	Describe how to measure mass and weight (not the same way!).	R590	<a href="https://www.youtube.com/watch?v=W2aBVbcHrk&amp;t=6s">https://www.youtube.com/watch?v=W2aBVbcHrk&amp;t=6s</a>			
Forces	Calculate mass from weight and gravitational field strength	R590	<a href="https://www.youtube.com/watch?v=W2aBVbcHrk">https://www.youtube.com/watch?v=W2aBVbcHrk</a>			
Forces	Describe the relationship between weight, mass and gravitational field strength.	R590	<a href="https://www.youtube.com/watch?v=W2aBVbcHrk">https://www.youtube.com/watch?v=W2aBVbcHrk</a>			
Forces	Describe the relationship between weight and distance from the Earth	R590	<a href="https://www.youtube.com/watch?v=W2aBVbcHrk">https://www.youtube.com/watch?v=W2aBVbcHrk</a>			
Forces	Calculate force from mass and acceleration	R138	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_3.07">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_3.07</a>			
Forces	Describe and calculate stopping distance	R823 R134 R107				
Forces	Explain how different factors affect stopping distance	R823 R134 R107	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_3.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_3.09</a>			
Forces	Explain the relationship between braking force and stopping distance	R823 R134 R107	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_3.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-c_3.09</a>			
Forces	Explain the dangers caused by large accelerations	R554 R870	<a href="https://www.youtube.com/watch?v=XL01aEducWE">https://www.youtube.com/watch?v=XL01aEducWE</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Forces	Evaluate vehicles based on their stopping distances (which is best, worst, why?)	R823 R134 R107	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.09</a>			
Forces	Explain how to calculate thinking distance from reaction time and velocity	R134	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.09</a>			
Forces	State the typical reaction time for humans	R134	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.09</a>			
Forces	Describe how to measure reaction time in humans	R134	<a href="https://www.youtube.com/results?search_query=free+science+lessons+reaction+time">https://www.youtube.com/results?search_query=free+science+lessons+reaction+time</a>			
Forces	Describe work done as when a force is applied over a certain distance. Include examples of when work is done or identify work being done in given examples	R307	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.11</a>			
Forces	Convert between Nm and joules	R307	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.11</a>			
Forces	Describe the effect of doing work against frictional forces	R853	<a href="https://www.youtube.com/watch?v=xxK8N23nx9M">https://www.youtube.com/watch?v=xxK8N23nx9M</a>			
Forces	Calculate work done using force and distance moved	R307	<a href="https://www.youtube.com/watch?v=PY80j_iNT9Y">https://www.youtube.com/watch?v=PY80j_iNT9Y</a>			
Forces	Describe different ways that objects can be deformed by applying forces	R337	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08</a>			
Forces	Compare elastic and inelastic deformation	R337	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Forces	Explain the relationship between force and extension/compression in springs and other elastic objects.	R337 R598	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.06</a>			
Forces	Explain the relationship between extension/compression in a spring and the energy stored in a spring	R337 R598 R353	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.06</a>			
Forces	Calculate elastic potential energy from extension and a spring constant	R494	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_1.06</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.06</a>			
Forces	Describe how to measure extension and compression in springs using original length	R353	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_2.08</a>			
Forces	Describe how to investigate the relationship between force and extension in springs.	R353	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.06</a>			
Forces	<b>HIGHER:</b> Calculate momentum	R980	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.11</a>			
Forces	<b>Higher: Describe the principle of conservation of momentum</b>	R695	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.11</a>			
Forces	<b>Higher: Use conservation of momentum to explain and calculate the changes in velocity during collisions.</b>	R695	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.11">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_3.11</a>			
Waves	Describe waves (what do they transfer, what do they not transfer?)	R186 R103	<a href="https://www.youtube.com/watch?v=lTe6snlZBp8">https://www.youtube.com/watch?v=lTe6snlZBp8</a>			
Waves	Compare transverse and longitudinal waves.	R186	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.01</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Waves	Describe the properties of waves including frequency, amplitude, wavelength and period. Where appropriate, identify these on diagrams. (including peaks, troughs, compressions and rarefactions)	R186 R103	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.01</a>			
Waves	State the speed of sound in air and the speed of light in a vacuum.	R103 R452	<a href="https://www.youtube.com/watch?v=ITe6snlZBp8&amp;t=2s">https://www.youtube.com/watch?v=ITe6snlZBp8&amp;t=2s</a>			
Waves	Describe how to measure the speed of sound	R803	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.03</a>			
Waves	Describe how to measure the speed of water waves on water	R452	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.08</a>			
Waves	Describe how to investigate the properties of waves in a ripple tank	R625	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.08">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.08</a>			
Waves	Describe how to investigate the properties of waves on a string	R625	<a href="https://www.youtube.com/watch?v=ZXAmiRC0GB0&amp;t=33s">https://www.youtube.com/watch?v=ZXAmiRC0GB0&amp;t=33s</a>			
Waves	Interpret wave diagrams to identify different frequencies and wavelengths	R103	<a href="https://www.youtube.com/watch?v=3qCmEHRFRH8">https://www.youtube.com/watch?v=3qCmEHRFRH8</a>			
Waves	Calculate periods from a frequency	R103	<a href="https://www.youtube.com/watch?v=3qCmEHRFRH8">https://www.youtube.com/watch?v=3qCmEHRFRH8</a>			
Waves	Describe the electromagnetic spectrum and the properties of its waves	R288	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.05</a>			
Waves	Identify the uses of different electromagnetic waves	R993	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.05</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
				Red	Amber	Green
Waves	Identify the dangers of different electromagnetic waves	R919	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.05</a> <a href="https://www.youtube.com/watch?v=u5vkYjV1V1A&amp;t=3s">https://www.youtube.com/watch?v=u5vkYjV1V1A&amp;t=3s</a>			
Waves	State the unit of dose for radiation and explain its significance	R919	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.09">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.09</a>			
Waves	Calculate wavelength from frequency and wave speed	R569	<a href="https://www.youtube.com/watch?v=Aucu7YshyQ0">https://www.youtube.com/watch?v=Aucu7YshyQ0</a>			
Waves	Describe the relationship between wavelength and colour in visible light	R233 R288	<a href="https://www.youtube.com/watch?v=u5vkYjV1V1A">https://www.youtube.com/watch?v=u5vkYjV1V1A</a>			
Waves	<b>HT: Describe how the wavelength of EM waves can change when absorbed, reflected or transmitted.</b>	R992	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.04</a>			
Waves	<b>HT: Explain how refraction occurs using wavefront diagrams</b>	R992	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.04</a>			
Waves	<b>HIGHER: Explain how radio waves are produced, transmitted and received</b>	R556	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.06">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_4.06</a>			
Waves	Describe how to Investigate the amount of infrared absorbed and radiated by different surfaces	R699	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.1">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_10.1</a>			
Magnetism and Electromagnetism	Describe magnetic fields including which direction the field lines go	R847	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01</a>			
Magnetism and Electromagnetism	Describe how to use iron filings and plotting compasses to demonstrate and draw magnetic field lines	R847 R882	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01</a>			

Topic	Key information related to topic	Sparx Code	Resources/Information related to topic	How well do you understand this topic? RAG		
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Magnetism and Electromagnetism	Draw diagrams to show magnetic fields	R847	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01</a>			
Magnetism and Electromagnetism	Identify magnetic materials and describe what happens to them when near a magnet	R847	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.01</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.02">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.02</a>			
Magnetism and Electromagnetism	Describe how to construct an electromagnet	R344	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.03</a>			
Magnetism and Electromagnetism	Explain how to increase the strength of an electromagnet	R344	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.03</a>			
Magnetism and Electromagnetism	<b>HIGHER: Identify the direction of a force on a wire using the left hand rule</b>	R766 R206	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.04</a> <a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.05">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.05</a>			
Magnetism and Electromagnetism	<b>HIGHER: Calculate the magnetic flux density using the equation <math>F = B \times I \times L</math></b>	R206	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.04</a>			
Magnetism and Electromagnetism	<b>HIGHER: Explain how to change the size and direction of an electromagnetic field using current, polarity and magnetic field strength.</b>	R766 R344	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.03">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.03</a>			
Magnetism and Electromagnetism	<b>HIGHER: Explain how a motor works using the motor effect</b>	R931	<a href="https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.04">https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-c_6.04</a>			

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Scientific Skills	Calculate the gradient of a graph	X	<a href="https://www.youtube.com/watch?v=zVSq5b3PPfY&amp;t=237s">https://www.youtube.com/watch?v=zVSq5b3PPfY&amp;t=237s</a>			
Scientific Skills	Plot a graph from data in a table	X	<a href="#">Constructing a line graph - Obtaining, analysing and evaluating results – WJEC - GCSE Physics (Single Science) Revision - WJEC - BBC Bitesize</a>			
Scientific Skills	Describe the relationships shown by graphs as linear, non-linear or directly proportional	X	<a href="#">Constructing a line graph - Obtaining, analysing and evaluating results</a>			
Scientific Skills	Convert units from base units (e.g mm → km)	X	<a href="https://www.youtube.com/watch?v=qSKGI-0sf3w">https://www.youtube.com/watch?v=qSKGI-0sf3w</a>			
Scientific Skills	Identify independent, dependent and control variables	X	<a href="#">GCSE Science Revision "Independent Variable, Dependent Variable, Control Variables"</a>			