

Exam Board:	AQA
Subject:	Physics
Paper:	Physics Paper 1
Marks available:	100
Length of paper:	1 hour 45 minutes
Topics:	Energy, Electricity, Particle Model of Matter, Atomic Structure

Exam Information, guidance and hints

Command words:

- Complete - Fill in gaps/add labels
- 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
- **Higher Tier:** Determine - Work something out mathematically or with a graph and use this in a written answer

Online Resources

- [Cognito past papers](#)

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

- How to calculate a % of a number
- Energy = power / time
- Potential difference = current x resistance
- Energy = charge x potential difference
- Power = current² x resistance
- Charge = current x time
- Elastic potential energy = $\frac{1}{2} \times \text{spring constant} \times \text{extension}^2$
- Gravitational potential energy = mass x gravitational field strength x change in height
- Density = mass / volume
- Change in thermal energy = mass x specific heat capacity x change in temperature (**this one is on the equation sheet**)
- Energy required to change state = mass x specific latent heat (**this one is on the equation sheet**)
- **Higher Tier:** Rate from a graph = change in Y / change in X
- **Higher Tier:** Rate from a curve requires you to draw a tangent

Foundation Example Papers and Markschemes

Higher Example Papers and Markschemes

2018 F Paper	Annotated P1	2018 MS	2018 H paper	Annotated P1	2018 MS
2019 F Paper	Annotated P1	2019 MS	2019 H Paper	Annotated P1	2019 MS
2020 F Paper	Annotated P1	2020 MS	2020 H Paper	Annotated P1	2020 MS

PLC Physics Paper 1 - Mock 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
Calculations	Carry out calculations using the equations in the hints/tips box above	R322	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.08			
Calculations	Calculate a mean	R414	X			
Energy	Give the energy stores involved when heating, moving objects uphill, stretching elastic	R393	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.01			
Energy	Calculate the gravitational potential energy using the equation	R751	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.04			
Energy	Compare the advantages and disadvantages of methods of storing energy	R606 R996	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.14			
Energy	Explain how we can reduce the amount of carbon dioxide being produced through changes to transportation and how we generate electricity.	R911 R476	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.16			
Energy	Describe the principle of conservation of energy	R606	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.08			
Energy	Explain why energy transfers are not 100% efficient and calculate efficiency	R666	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.12			
Energy	Explain what is meant by dissipation	R384 R996	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.1			
Energy	Describe how to calculate the extension of an elastic object	R353	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_10.06			
Energy	Definitions of renewable and non renewable resources, as well as examples	R476	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.14			

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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	Pros and cons of wind energy Pros and cons of tidal energy Pros and cons of solar energy Pros and coupons of hydroelectric dams		https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.17 https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.2			
Energy	Describe and explain specific heat capacity Carry out the practical to calculate the specific heat capacity (you need to be able to recognise and describe this experiment for liquids and solids)	R527 R641	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.07 https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_10.01			
Energy	Describe and explain, specific latent heat and use the equation to calculate it	R641	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_7.04			
Electricity	Explain how the risk involved with electricity changes with potential difference.	R361	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.12			
Electricity	Explain how static charge can cause uncharged objects to become charged and attract or repel one another.	R147	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.13			
Electricity	Explain how static charges can lead to sparks	R147	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.13			
Electricity	Describe what is meant by an electric field	R151	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.15			
Electricity	Describe the relationship between electric field strength and distance	R151	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.15			
Electricity	Give the frequency and potential difference of electricity in UK homes	R121	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_5.11			

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Electricity	Describe the difference between electrical conductors and insulators	R959	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.01			
Electricity	Draw symbols for fuses, fixed resistors, thermistors, LDRs, variable resistors, voltmeters, ammeters, batteries, cells, switches, filament lamps, LEDs and diodes.	R780	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.06			
Electricity	Describe the resistance properties of filament lamps, fixed resistors and diodes and recognise these when displayed as graphs (You should be able to explain the shape of the graphs for diodes and filament lamps)	R959	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.02			
Electricity	Use the $V = IR$ equation to calculate resistance, current, voltage	R831	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.02			
Electricity	Calculate the potential difference of components in series circuits based on the rule that the potential difference is shared between components. Calculate the potential difference of components in parallel circuits based on the rule that the potential difference is equal in each branch	R302	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.04			
Electricity	Describe the colours and functions of wires in a plug, including their potential differences	R121	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.11			
Electricity	Calculate charge using $Q = It$	R274	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.03			

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Particle Model	Explain the properties of solids, liquids and gases using the particle model (arrangement, motion and energy)	R252	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_7.01			
Particle Model	Explain the relationship between temperature and pressure in gasses.	R614	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_7.06			
Particle Model	Define temperature (not just hot/cold!) using the term kinetic energy	R614	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_7.01			
Particle Model	Describe and explain internal energy using the terms kinetic energy and potential energy	R621	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_1.07			
Atomic Structure	Describe and explain isotopes using the terms element, atom, neutrons and protons	R889	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_8.02			
Atomic Structure	Describe the process of nuclear fusion (without using the word join)	R851	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_8.1			
Atomic Structure	Describe the process of nuclear fission	R345	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_8.09			
Atomic Structure	Describe precautions when using radioactive substances and when disposing of radioactive waste	R316	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_8.06			
Atomic Structure	Explain how to identify alpha, beta and gamma radiation using a geiger counter and different materials based on their penetrating power You should be able to apply this to different uses for the radiation types	R694	https://cognitoedu.org/coursesubtopic/p2-gcse-aq-a-h-t_8.03			

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Atomic Structure	Explain the relationship between radiation dose and proximity/length of exposure	R316	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_8.06			
Atomic Structure	Describe the difference between irradiation and contamination	R661	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_8.06			
Atomic Structure	Identify sources of background radiation	R690	https://www.youtube.com/watch?v=Z7394DMkfQs			
Atomic Structure	Suggest how to reduce the risk of contamination by a radioactive source when handling one	R316	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_8.06			
Atomic Structure	Higher Tier: Calculate the rate of decay of a radioactive source from a half life graph using a tangent	R905	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_8.05			
Density	What is density? Recall and use the equation	R136	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_7.02			
Prac - Density	Identify random, systematic and zero errors	R128	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_10.05			
Prac - Density	Describe how to correct a zero error on a balance after the readings have been taken.	R128	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_10.05			
Prac - Density	Identify sources of error and improvements when investigating density	R128	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_10.05			
Prac - Resistance of a length of wire	Describe how to investigate how changing the length of wire affects the resistance	R831	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_10.03			

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Prac - Resistance of a length of wire	Describe the relationship between resistance and length of wire when temperature is constant	R831 R779	https://cognitoedu.org/coursesubtopic/p2-gcse-aqa-h-t_5.02			