



# International GCSE Physics (9–1)

Pearson Edexcel International GCSE in Physics (4PH1)

Pearson Edexcel International GCSE in Physics (Modular)  
(4XPH1)

Pearson Edexcel International GCSE in Double Science  
(4SD0)

Pearson Edexcel International GCSE in Double Science  
(Modular) (4XSD1)

Command words (exemplar material)



## Introduction

- The purpose of this pack is to support teachers and students by providing examples of how command words are used in assessments, alongside examples of good practice.
- If you have any enquiries about these materials or any other questions about the course, please contact our Science subject advisor at [teachingscience@pearson.com](mailto:teachingscience@pearson.com).



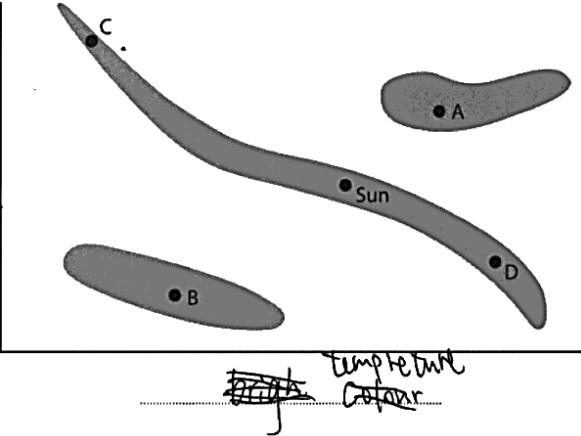
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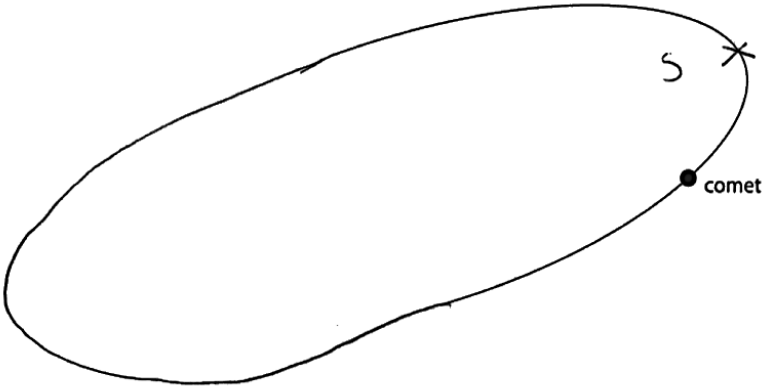


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Add/Label</b>	Requires the addition of labelling of a stimulus material given in the question, for example, labelling a diagram or adding units to a table	<p>June 24 4PH2 1P Q3b</p> <p>(b) The student plots a graph to show how the temperature of the water in each bottle varies with time.</p> <p>Draw two curves to show the expected variation in temperature of the black bottle and the silver bottle during the investigation.</p> <p>Label your curves with the colour of each bottle.</p> <p>The graph shows two curves representing temperature over time. The vertical axis is labeled 'Temperature' and the horizontal axis is labeled 'Time'. Both curves start at the origin (0,0) and rise with a decreasing gradient until they reach a horizontal plateau. The upper curve is labeled 'Black bottle' and the lower curve is labeled 'silver bottle'.</p>	<p>This is a good response as the candidate has identified which of the curves corresponds to the silver and black bottles.</p> <p>Without this labelling one of the two marks available for this question could not have been scored.</p>



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<b>Add/Label</b>	Requires the addition of labelling of a stimulus material given in the question, for example, labelling a diagram or adding units to a table	<p>June 24, 4PH1 2PR, Q1a</p> <p><b>1</b> This question is about stars.</p> <p>The diagram shows an incomplete Hertzsprung-Russell (H-R) diagram.</p>  <p>(a) Label the axes on the diagram. (2)</p>	This is a good example of where labels are required for the x and y axes of the graph.



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Add/Label</b>	Requires the addition of labelling of a stimulus material given in the question, for example, labelling a diagram or adding units to a table	<p>June 22 4PH1 1P Q1 (a) (i) &amp; (iii)</p> <p><b>1</b> The diagram shows a comet as it moves through part of its orbit around the Sun.</p>  <p>(a) (i) Add an S to the diagram to show the position of the Sun. (1)</p> <p>(ii) Complete the diagram to show the orbit of the comet. (2)</p> <p>(iii) Add an X to the diagram to show the position where the comet is moving fastest. (1)</p>	<p>This is a good response as the candidate has added an 'X' and an 'S' in the appropriate place on the diagram to indicate the positions of the comet and the Sun. Please note that the shape of the orbit is not considered when labelling the position of the comet and the Sun. Part (ii) of the question awards a mark for the shape if it is correct.</p>



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<b>Add/Label</b>	Requires the addition of labelling of a stimulus material given in the question, for example, labelling a diagram or adding units to a table	<p>November 25, 4PH1 1P, Q6bi</p> <p>(i) <b>Table 1 lists the variables in the student's investigation.</b></p> <p><b>Add one tick (✓) to each row to show whether each variable is an independent, dependent or control variable.</b></p> <p style="text-align: right;">(3)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Variable</th> <th>Independent</th> <th>Dependent</th> <th>Control</th> </tr> </thead> <tbody> <tr> <td>current</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>length of wire in field</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>force on wire</td> <td></td> <td>✓</td> <td></td> </tr> <tr> <td>magnetic field strength</td> <td></td> <td></td> <td>✓</td> </tr> </tbody> </table> <p style="text-align: center;"><b>Table 1</b></p>	Variable	Independent	Dependent	Control	current			✓	length of wire in field	✓			force on wire		✓		magnetic field strength			✓	<p>This is a good example of a different use of the command word 'add'. The candidate must place a tick in the relevant boxes to identify the types of variables that are in the question.</p> <p><b>NB: This kind of tick box can also appear under the command word 'complete'</b></p>
Variable	Independent	Dependent	Control																				
current			✓																				
length of wire in field	✓																						
force on wire		✓																					
magnetic field strength			✓																				



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Calculate</b>	Obtain a numerical answer, showing relevant working.	<p>November 25, 4PH1 1P, Q2a</p> <div style="border: 1px solid black; padding: 10px;"><p><b>2</b> A car travels at a constant speed of 14 m/s along a road.</p><p>(a) Calculate the distance travelled by the car in a time of 30 seconds.</p><p>Use the formula</p><math display="block">\text{distance travelled} = \text{average speed} \times \text{time taken} \quad (2)</math><p>MS</p><math display="block">s = v \times t</math><math display="block">= 14 \times 30</math><math display="block">= 420</math><p style="text-align: right;">distance travelled = <u>420</u> m</p></div>	<p>This is a good example of the simplest type of calculation worth two marks.</p> <p>The marks are awarded for the substitution of the values into the equation and then the evaluation of the answer.</p> <p>There is no rearrangement required from the given formula.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Calculate</b>	Obtain a numerical answer, showing relevant working.	<p>June 25, 4WPH1 1P, Q5b</p> <p>(b) The package has a mass of 58 kg. The momentum of the package as it reaches the ground is 3700 kg m/s. Calculate the speed of the package as it reaches the ground.</p> <p style="text-align: right;">(3)</p> $p = m \times v$ $3700 = 58 \times v$ $\frac{3700}{58} = 63.79$  <p style="text-align: right;">speed = ..... 63.79 ..... m/s</p>	<p>This is a good example of a standard three mark calculation question, with a mark awarded for substitution. (line 2), rearrangement, (line 3) and then an evaluation.</p> <p>The rearrangement can be shown either in symbols/words or as correctly substituted numbers.</p> <p>It is advised that substitution into the equation should be the first step.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Calculate</b>	Obtain a numerical answer, showing relevant working.	<p>November 25, 4WPH1 1P, Q4ci</p> <div style="border: 1px solid black; padding: 10px;"><p>(c) The farm heater transfers 19MJ of energy to some water. The water has a mass of 120 kg. The water must have a temperature of 55 °C as it leaves the heater. (i) Calculate the temperature of the water before it enters the heater. Give your answer to 2 significant figures. [for water, specific heat capacity = 4200J/kg °C]</p><math display="block">19,000,000 = 120 \times 4200 \times (55 - x) \quad (5)</math><math display="block">19,000,000 = 504,000 (55 - x)</math><math display="block">\frac{19,000,000}{504,000} = 55 - x</math><math display="block">37.7 = 55 - x</math><math display="block">x = 55 - 37.7</math><math display="block">x = 17.3 \approx \boxed{17}</math><p style="text-align: right;">temperature = <u>17</u> °C</p></div>	<p>This is a good example of a calculation with four of the five marks awarded being allocated to this in the question. The working shows all steps, including, substitution (line 1), rearrangement, (line 3) and the evaluation, (final line).</p> <p>These are the three main steps in many calculations, and these are clearly shown here. In addition, the conversion of MJ to J is shown in line 1, please note that this could be done at any stage, but good practice would be to do this first as shown here. Finally, the instruction to give the answer to 2 significant figures is shown on the last line.</p> <p>This final stage in the answer is not part of the calculation as is awarded independently to the four marks for the calculation.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>																														
<p><b>Circle</b></p> <p>Circle is not a command word as such and is usually accompanied by the wording 'Draw a circle around...'. The true command is 'Draw'</p>	<p>Place a circle around a value in a table of data or a point on a graph</p>	<p>November 25, 4WPH2 1P, Q3bi</p> <p>The students repeat their investigation at five different distances. They obtain three measurements of time for each distance. The table shows their results.</p> <table border="1"> <thead> <tr> <th>Distance from wall in metres</th> <th colspan="3">Time in seconds</th> <th>Mean time in seconds</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>0.61</td> <td>0.65</td> <td>0.64</td> <td>0.63</td> </tr> <tr> <td>150</td> <td>0.96</td> <td>0.94</td> <td>0.91</td> <td>0.94</td> </tr> <tr> <td>200</td> <td>1.98</td> <td>1.24</td> <td>1.26</td> <td>1.25</td> </tr> <tr> <td>250</td> <td>1.59</td> <td>1.54</td> <td>1.55</td> <td>1.56</td> </tr> <tr> <td>300</td> <td>2.08</td> <td>1.93</td> <td>1.72</td> <td></td> </tr> </tbody> </table> <p>One of the results is anomalous.</p> <p>(i) Draw a circle around the anomalous result.</p> <p style="text-align: right;">(1)</p>	Distance from wall in metres	Time in seconds			Mean time in seconds	100	0.61	0.65	0.64	0.63	150	0.96	0.94	0.91	0.94	200	1.98	1.24	1.26	1.25	250	1.59	1.54	1.55	1.56	300	2.08	1.93	1.72		<p>There is no circle drawn around the anomaly, which is 1.98 in the table on the third row. A candidate is required to draw a circle around a point to show the anomaly.</p>
Distance from wall in metres	Time in seconds			Mean time in seconds																													
100	0.61	0.65	0.64	0.63																													
150	0.96	0.94	0.91	0.94																													
200	1.98	1.24	1.26	1.25																													
250	1.59	1.54	1.55	1.56																													
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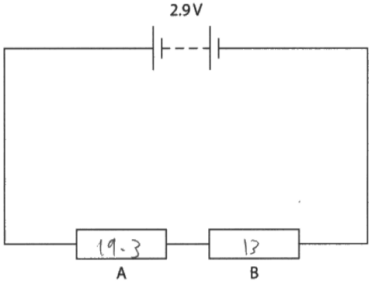


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>						
<b>Circle</b>  Circle is not a command word as such and is usually accompanied by the wording 'Draw a circle around...' The true command is 'Draw'	Place a circle around a value in a table of data or a point on a graph	June 25, 4PH1 1PR, Q10a(ii)  (ii) The table shows the student's measurements of the mass of the ring.  <table border="1"><thead><tr><th>Mass in g</th></tr></thead><tbody><tr><td>6.411</td></tr><tr><td>6.408</td></tr><tr><td>6.410</td></tr><tr><td>6.426</td></tr><tr><td>6.412</td></tr></tbody></table> One of the student's measurements is an anomaly. Draw a circle around the anomalous result in the table.  (1)	Mass in g	6.411	6.408	6.410	6.426	6.412	This is a good example where the circle has been drawn around the anomaly.
Mass in g									
6.411									
6.408									
6.410									
6.426									
6.412									



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Comment on</b>	Requires the synthesis of a number of variables from data/information to form a judgment	June 24, 4PH1 1PR, Q7biv  (iv) The student concludes that component X is a filament lamp. Comment on the student's conclusion.  (2) <i>St The student's conclusion is not correct as it is a straight line graph. The graph does not curve so component X is a resistor. It doesn't heat off at a high temperature, it stays constant.</i>	This is a good example of a 'comment' answer.  The candidate has based their answer on information provided from a graph on which they had to draw a line of best fit in a previous section of the question.  The candidate has now made a judgement based on the data and the line.



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Comment on	Requires the synthesis of a number of variables from data/information to form a judgment	<p>November 24, 4PH1 1P, Q9biv</p> <p>(iv) Diagram 2 shows the same three components connected in a different circuit.</p>  <p style="text-align: center;"><b>Diagram 2</b></p> <p>Resistor B has a resistance of 13 ohms.</p> <p>Comment on the difference between the current in the battery in Diagram 2 and the current in the battery in Diagram 1.</p> <p>Use calculations to support your answer. (4)</p> <p>current in Diagram 1 = 0.38A current in Diagram 2 = <math>\frac{V}{R} = \frac{2.9}{19.3+13} = 0.09A</math></p> <p>We can see that the current in Diagram 2 is much smaller than the current in Diagram 1. This is due to the way that the resistors are placed in Diagram 2, the resistors are placed in a series circuit so the total resistance is greater when compared to in Diagram 1 where the resistors are placed in a parallel circuit.</p>	<p>This response gains all four marks. The answer contains MP1 as 19.3 is seen in the calculation. MP2 is scored from the last two lines. The current in diagram 2 is calculated for MP3. MP4 is scored for the first line of the paragraph under the calculations.</p> <p>The candidate has used the information presented in the first diagram, (not shown in the example) and the information from the second diagram to synthesise an answer and then make a judgement regarding the difference between the current in the two circuits.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>										
<p><b>Comment on</b></p>	<p>Requires the synthesis of a number of variables from data/information to form a judgment</p>	<p>June 25, 4PH1 1P, Q6c</p> <div style="text-align: center;"> <p>(c) The students extend their investigation by calculating the power for students of different masses running up the steps.</p> <p>The graph shows their results.</p> <table border="1" style="margin: 10px auto;"> <caption>Data points from the graph</caption> <thead> <tr> <th>Mass (kg)</th> <th>Power (W)</th> </tr> </thead> <tbody> <tr> <td>55</td> <td>620</td> </tr> <tr> <td>70</td> <td>915</td> </tr> <tr> <td>80</td> <td>910</td> </tr> <tr> <td>95</td> <td>895</td> </tr> </tbody> </table> <p>The students conclude that the greater the mass of the person, the greater the power of the person when running up the steps.</p> <p>Comment on the students' conclusion.</p> <p style="text-align: right;">(4)</p> </div> <p><i>Handwritten student response:</i></p> <p>Final 3 data points do not support conclusion - lower mass students require more power</p> <p>- 69kg = 925W, 79kg = 915W, &amp; 99kg = 895W - decreasing trend</p> <p>first result does not follow trend, it's really an anomaly - should be ignored up stairs</p> <p>- first result may have been a class student, took more time to go up</p> <p>- though final 3 points show trend, the decrease in power between results is very small - unclear whether an actual trend</p> <p>- students should repeat experiment with more people to see if further results support trend - current sample size is small</p> <p>- but current results do not support student's conclusion</p> <p style="text-align: right;">(4)</p> <p style="text-align: right;">(Total for Question 6 = 12 marks)</p>	Mass (kg)	Power (W)	55	620	70	915	80	910	95	895	<p>This is a good example of a 'comment' question based on taking information from a graph, with the answer annotated to show where the four marks were awarded.</p> <p>The candidate has used the graph to fully comment on the student's conclusion.</p> <p>This is a very good example that shows the detail required from candidates to score all the marks available on this four mark question.</p>
Mass (kg)	Power (W)												
55	620												
70	915												
80	910												
95	895												

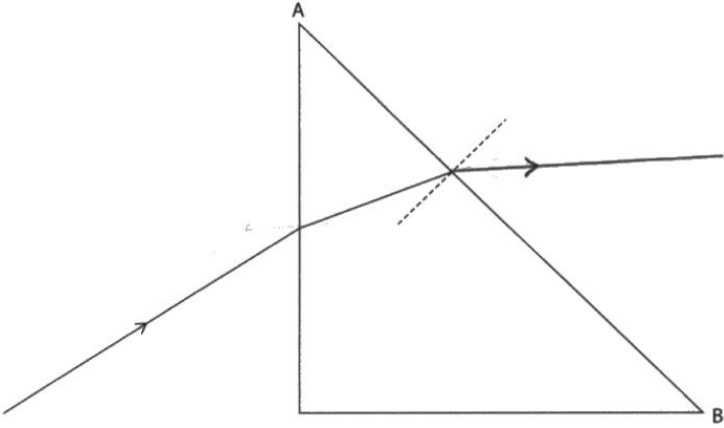


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Compare</b></p> <p><b>(note that this is similar to Discuss or Comment)</b></p>	<p>Identify the main factors relating to two or more items/situations or aspects of a subject that is extended to explain the similarities, differences, advantages and disadvantages.</p>	<p>Legacy</p> <p>(c) The diagram shows another image of the same scene.</p> <div style="text-align: center;"> </div> <p>The image was made during the day using ultraviolet rays from the Sun. Brighter colours in this image indicate larger amounts of ultraviolet radiation. The grey line is added to show the position of the polar bear.</p> <p>(i) Compare the absorption and reflection of ultraviolet rays by the objects shown in the image.</p> <p style="text-align: right;">(2)</p> <p><i>The snow does not absorb uv but the sky absorbs uv. The bear's fur absorbs uv but the bear's eyes does not absorb uv.</i></p>	<p>The candidate has made two points where one situation is compared with another for the same condition, i.e. one absorbs UV but the other does not.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>																				
<b>Complete</b>	Requires completion of a table/diagram	<p>June 24, 4PH1 1P, Q4a</p> <p><b>4</b> This question is about the evolution of a star.</p> <p>(a) A main sequence star is created in a collapsing region of a nebula.</p> <p>The table gives different energy stores for the gases in the collapsing nebula, from when the nebula starts to collapse to just before the main sequence star is created.</p> <p>Complete the table by placing ticks (✓) to show whether each energy store increases, decreases or stays the same.</p> <div style="text-align: right;">(4)</div> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Energy store</th> <th>Increases</th> <th>Decreases</th> <th>Stays the same</th> </tr> </thead> <tbody> <tr> <td>chemical</td> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td>gravitational potential</td> <td style="text-align: center;">✓</td> <td></td> <td></td> </tr> <tr> <td>nuclear</td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>thermal</td> <td style="text-align: center;">✓</td> <td></td> <td></td> </tr> </tbody> </table>	Energy store	Increases	Decreases	Stays the same	chemical			✓	gravitational potential	✓			nuclear		✓		thermal	✓			<p>This is a good example of a tick box type completion of a table.</p> <p>Candidates are expected to place ticks in the correct boxes. On occasion, this kind of question may have a command such as 'add'.</p>
Energy store	Increases	Decreases	Stays the same																				
chemical			✓																				
gravitational potential	✓																						
nuclear		✓																					
thermal	✓																						



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Complete</b></p>	<p>Requires completion of a table/diagram</p>	<p>November 24, 4PH1 1P, Q6cii</p> <p>(c) The diagram shows a ray of light entering a prism made of the same material as the rectangular block used in the student's investigation.</p>  <p>(i) Use a protractor to determine the angle of incidence at the point where the ray of light is incident on side AB of the prism. (1)</p> <p>angle of incidence = <u>25</u> degrees</p> <p>(ii) Complete the path of the ray of light. (2)</p>	<p>This is a good example of a drawing version of the 'complete' command word.</p> <p>For Q6cii, the candidate has to continue the path of the ray of light and to gain both marks needs to show the correct direction out of the block and the correct bending direction.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>								
<b>Complete</b>	Requires completion of a table/diagram	<p>June 23, 4PH1 1P, Q1c</p> <p>(c) A teacher demonstrates how the activity of a radioactive sample changes with time.</p> <p>(i) The box gives the names of different pieces of equipment.</p> <table border="1"><tr><td>ruler</td><td>stopwatch</td><td>balance</td><td>newton meter</td></tr><tr><td>protractor</td><td>GM tube</td><td>voltmeter</td><td>ammeter</td></tr></table> <p>Complete the sentences using words from the box.</p> <p>(2)</p> <p>The teacher measures time with a <u>stopwatch</u>.</p> <p>The teacher measures the count rate with a <u>GM tube</u> and a counter.</p>	ruler	stopwatch	balance	newton meter	protractor	GM tube	voltmeter	ammeter	<p>This is a good example of the use of the 'complete' command, in a sentence completion question.</p> <p>Candidates have to select appropriate words from the box to complete the sentences.</p>
ruler	stopwatch	balance	newton meter								
protractor	GM tube	voltmeter	ammeter								

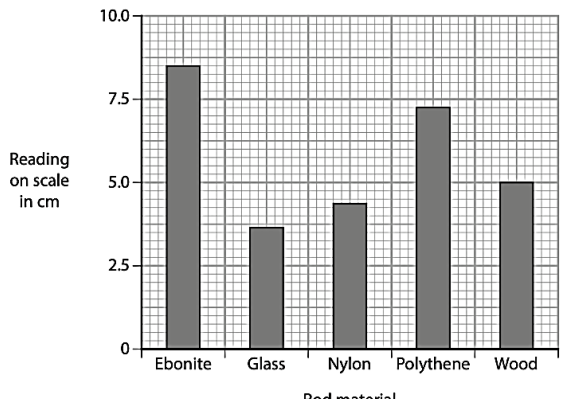


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Complete</b>	Requires completion of a table/diagram	<p>November 24, 4PH1 2P, Q1c</p> <p>(c) Complete the nuclear equation for an alpha decay.</p> ${}_{95}^{241}\text{Am} \rightarrow {}_{\boxed{93}}^{237}\text{Np} + \begin{matrix} \boxed{4} \\ \boxed{2} \end{matrix} \alpha$ <p><math>95 - 2 = 93</math></p>	<p>(3)</p> <p>In this example, the use of the command 'complete', candidates must place the correct numbers in the boxes.</p> <p>One mark is allocated to each number.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>						
<b>Deduce</b>	Draw/reach conclusion(s) from the information provided	<p>November 23, 4PH1 1P, Q6b</p> <p>(b) The table shows data for the ball after it has travelled for two different times.</p> <table border="1"><thead><tr><th>Time in s</th><th>Distance in m</th></tr></thead><tbody><tr><td>5.0</td><td>15</td></tr><tr><td>10.0</td><td>60</td></tr></tbody></table> <p>A student suggests that these results obey the relationship:</p> $\frac{\text{distance}}{\text{time}^2} = \text{constant}$ <p>Use data from the table to deduce whether the results support this suggestion. (3)</p> $\frac{15}{5.0^2} = 0.6 \quad \frac{60}{10.0^2} = 0.6$ <p>Yes, they do. The constant is 0.6. Student should take more results <del>to</del> / collect more <sup>data</sup> to ensure his <del>results</del> suggestion is correct.</p>	Time in s	Distance in m	5.0	15	10.0	60	<p>This is a good example of the use of the command 'deduce'.</p> <p>The candidate has used the information provided to decide if a conclusion given to them is correct.</p> <p>In this case, the candidate has evaluated the values of the constant from the data in the table and then compared the values to reach the conclusion.</p>
Time in s	Distance in m								
5.0	15								
10.0	60								



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>												
Deduce	Draw/reach conclusion(s) from the information provided	<p>June 25, 4PH1 2P, Q5eii</p> <p>(e) The bar chart shows the results of the student's investigation.</p>  <table border="1"><caption>Data from the bar chart</caption><thead><tr><th>Rod material</th><th>Reading on scale in cm</th></tr></thead><tbody><tr><td>Ebonite</td><td>8.5</td></tr><tr><td>Glass</td><td>3.5</td></tr><tr><td>Nylon</td><td>4.5</td></tr><tr><td>Polythene</td><td>7.0</td></tr><tr><td>Wood</td><td>5.0</td></tr></tbody></table> <p>(ii) Deduce what can be concluded about the charge on each of the rods used in the investigation.</p> <p>Use information from the bar chart to help your answer.</p> <p>(3)</p> <p>rods such as Ebonite and polythene are negatively charged as the positively charged ball is attracted to them, glass and Nylon rods are both positively charged as the ball is repelled by them, wood is neutrally charged as the ball does not move.</p>	Rod material	Reading on scale in cm	Ebonite	8.5	Glass	3.5	Nylon	4.5	Polythene	7.0	Wood	5.0	The candidate has used the bar chart to reach a conclusion as to the charges on each of the rods correctly.
Rod material	Reading on scale in cm														
Ebonite	8.5														
Glass	3.5														
Nylon	4.5														
Polythene	7.0														
Wood	5.0														




<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Define</b>	Recalling the meaning of a term from the specification	June 24, 4PH1 2P Q5b  (b) Define the term <b>absolute magnitude</b> .  How bright a star is from a set distance. Same distance as Earth is from the Sun. (2)	The definition is based on recall from the specification of the luminosity, (brightness was accepted as this question was early on in the paper), of a star at a set distance.  The second sentence was ignored.

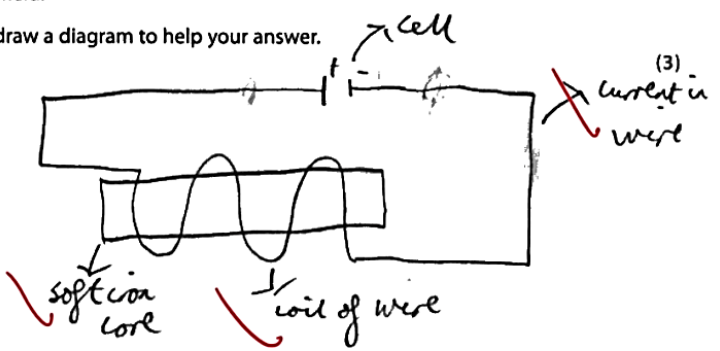


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Describe</b>	To give an account of something  Statement in the response need to be developed, as they are often linked but do not need to include a justification or reason	November 25, 4WPH1 1P, Q5a  (a) Describe a method the student could use for this investigation. You should include <ul style="list-style-type: none"><li>• extra equipment needed</li><li>• ways to make sure the results are accurate</li><li>• variables that should be controlled</li></ul> <p style="text-align: right;">(6)</p> <p>Pour hot water of same temperature initially to beakers with different thickness of wool. Beaker should be made of same material, and same volume of water for each beaker. Measure initial temperature of all beakers using a thermometer with perpendicular viewing at eye level, repeat and average thermometer readings for higher accuracy. Start <del>stop</del> a timer for <del>5</del> minutes, after timer ends measure final temperature using thermometer, wool which shows least temperature change is the best at conserving thermal energy, avoid parallax error, whole experiment is to be repeated and averaged, be sure to use measuring cylinder at eye level to measure same volume of water.</p>	This is a good answer that scores five of the six available marks. As it is a 'describe' no reasons are required; what is expected is a series of instructions that make up the method that covers the points in the stem of the question.  The mark scheme is divided up into sections, measuring instruments, (3 marks max), technique (1 mark max) and control variables (2 marks max).  In this response, the full mark is scored for measuring instruments and for the control variables. There is no mention of a suitable technique such as stirring, so therefore five marks scored.  If a candidate gives additional measuring instruments or control variables, these cannot score as the maximum number has been reached in each category.

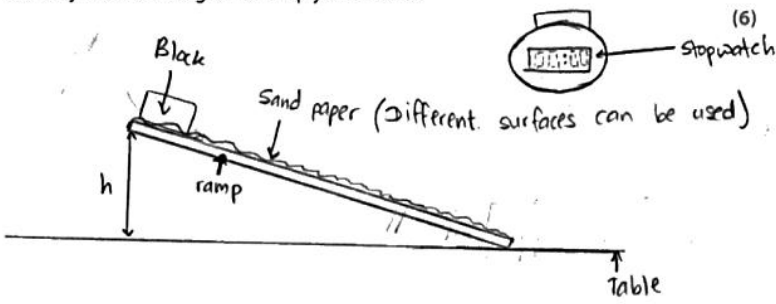


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Describe</b></p>	<p>To give an account of something</p> <p>Statement in the response needs to be developed, as they are often linked but do not need to include a justification or reason</p>	<p>June 25, 4PH1 2P, Q3a</p> <p>3 The photograph shows a camper van with a solar panel on its roof. The solar panel is made from lots of solar cells connected together.</p>  <p>(Source: © kostasgr/Shutterstock)</p> <p>The solar panel is connected to a battery. The solar panel receives energy from the Sun to charge the battery.</p> <p>(a) Describe how energy is transferred from the Sun's energy store to the battery's energy store.</p> <p><i>Think</i></p> <p>Energy is released from the sun in the form of infrared radiation.</p> <p>The rays of energy pass through the atmosphere and are absorbed by the solar cells inside a solar panel.</p> <p>The solar cells convert the infrared radiation into chemical energy which is stored inside the battery.</p> <p>(3)</p>	<p>This answer scored all three marks; it describes three of the points made in the mark scheme for this question.</p> <p>The steps are linked which is what is expected in a 'describe' question.</p> <p>The answer contains MP3 in line 2, MP2 in line 1 and MP5 on the last line.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Describe</b>	To give an account of something. Statement in the response needs to be developed, as they are often linked but do not need to include a justification or reason	<p>June 24, 4PH1 2P, Q6a</p> <p>This question is about electromagnets.</p> <p>(a) Describe the construction of a simple electromagnet that is producing a magnetic field.</p> <p>You may draw a diagram to help your answer.</p>  <p>The student should use use a coil of wire, &amp; connect it into a circuit such that there is current in the circuit etc. They should then place a core, or coil, made of a soft magnetic material, such as iron, into the middle of the coil.</p>	<p>This three mark 'describe' annotated answer has been fully answered in the diagram.</p> <p>There is no requirement to justify why these components are used in a describe response.</p>

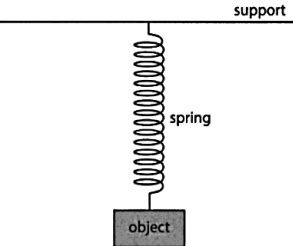
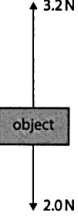


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Design</b>	Plan or invent a procedure from existing principles /ideas	<p>June 19, 4PH1 1PR</p> <p><b>7</b> A student investigates how the surface material of a ramp affects the average speed of a block sliding down the ramp.</p> <p>(a) Design a suitable method for the student's investigation.</p> <p>Your answer should include</p> <ul style="list-style-type: none"><li>• the measuring equipment needed</li><li>• details of the independent, dependent and control variables</li><li>• how the average speed will be determined</li></ul> <p>You may include a diagram to help your answer.</p> 	<p>There is less of a lead into questions which ask candidates to design an experiment.</p> <p>The candidate is expected to work from their knowledge with rather less scaffolding compared to a 'describe' question.</p> <p><b>(continues on next page)</b></p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Design	Plan or invent a procedure from existing principles /ideas	<p>Take a block, <del>the</del> it should be of same material each time. The height 'h' should be constant throughout the experiment. <sup>these are the controls.</sup> The independent variable is the surface material of a ramp. The dependant variable is the <sup>average</sup> speed of the block sliding down the ramp. Measure the length <sup>using measuring tape</sup> of the ramp and record it. For change the surface by either using a smooth surface or placing sand paper. For every different surface the time taken to reach the end should be recorded using a stopwatch. Start the stopwatch <del>and</del> when the block starts sliding down ramp and stop it when the block reaches the end of the ramp. The average speed can be found using the equation ;</p> $\text{average speed} = \frac{\text{distance}}{\text{time taken}}$ <p>Substitute values in the equation and find the average speed on different surfaces of the ramp.</p>	<p>In this example, the candidate has scored all six marks.</p> <p>Marks were allocated to the three sections indicated in the question stem, measuring equipment, (2 max), variables, (3 max) and the determining of average speed, (1 max). In this way, a complete answer that covered all aspects of the design could be credited.</p> <p>A labelled diagram was a good way of indicating the measuring equipment to be used.</p>

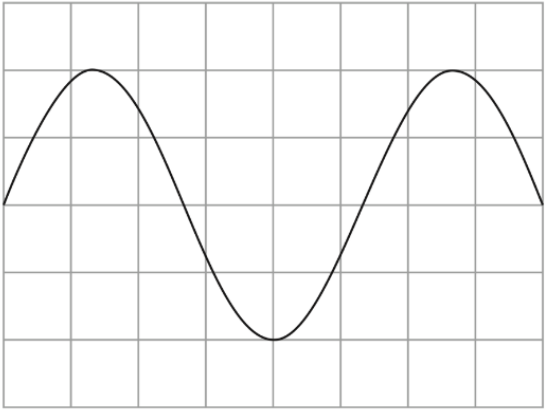


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Design	Plan or invent a procedure from existing principles /ideas	<p>June 24, 4PH1 1P, Q5bi</p> <p>(b) Diagram 1 shows an object suspended from a support using a metal spring. The object is initially at rest.</p>  <p style="text-align: center;"><b>Diagram 1</b></p> <p>(i) The object is pulled down and then released. Diagram 2 shows the forces acting on the object at the instant it is released.</p>  <p style="text-align: center;"><b>Diagram 2</b></p> <p>Determine the magnitude and direction of the resultant force acting on the object. (2)</p> <p style="text-align: center;"><math>3.2 - 2 = 1.2</math> magnitude of resultant force = <u>1.2</u> N</p> <p style="text-align: center;">direction of resultant force = <u>upwards</u></p>	<p>This is a good example of the command used in a simple form.</p> <p>The candidate must use information from the force diagram to reach a quantitative answer.</p>




<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>												
<p><b>Determine</b></p>	<p>The answer must have an element that is quantitative from the stimulus provided or must show how the answer can be reached quantitatively. To gain maximum marks, there must be a quantitative element to the answer</p>	<p>June 24, 4PH1 1P, Q11c</p> <p>(c) A student owns three electronic devices. Each electronic device stores a different amount of charge.</p> <p>The table gives some information about the charge stored by the electronic devices and how often they need to be recharged.</p> <table border="1"> <thead> <tr> <th>Electronic device</th> <th>Charge stored in Ah</th> <th>Frequency of recharging</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>2.4</td> <td>once every day</td> </tr> <tr> <td>B</td> <td>4.2</td> <td>once during the week</td> </tr> <tr> <td>C</td> <td>6.8</td> <td>once during the week</td> </tr> </tbody> </table> <p>The power bank stores a maximum charge of 26.8Ah.</p> <p>The student needs to take these three electronic devices on a school trip for one week.</p> <p>Determine whether the maximum charge of the power bank is enough to recharge the batteries of the three electronic devices during the school trip. (4)</p> <p>MP1 <math>(2.4 \times 7) + 4.2 + 6.8 = 27.8</math></p> <p>MP2 <math>27.8 &gt; 26.8</math> So no if they need to recharge that more than the power bank will not last the whole week, they could reduce their screen time or only charge the devices B/C not way if they want using it as much?</p> <p>MP3</p> <p>MP4</p> <p>MP5 (Total for Question 11 = 11 marks)</p> <p>(4)</p>	Electronic device	Charge stored in Ah	Frequency of recharging	A	2.4	once every day	B	4.2	once during the week	C	6.8	once during the week	<p>This is a good example of a more complex and hence more demanding use of the command word.</p> <p>The candidate has to use information from the table to make a quantitative calculation and without the first line (MP1) full marks cannot be scored.</p> <p>A comparison is then made as well as a further explanation based on the data and the calculation.</p> <p>The mark scheme for this four mark question had six available marking points.</p>
Electronic device	Charge stored in Ah	Frequency of recharging													
A	2.4	once every day													
B	4.2	once during the week													
C	6.8	once during the week													

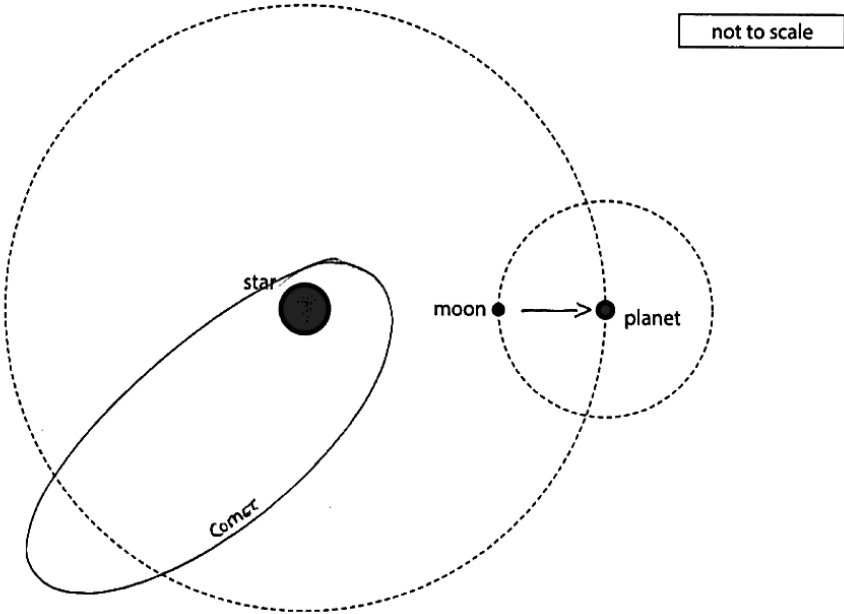


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Determine</b></p>	<p>The answer must have an element that is quantitative from the stimulus provided or must show how the answer can be reached quantitatively</p> <p>To gain maximum marks, there must be a quantitative element to the answer</p>	<p>November 23, 4PH1 2P, Q7bi</p> <p>7 The diagram shows the screen of an oscilloscope when a sound wave is detected, and the oscilloscope settings.</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">       oscilloscope settings:        y direction: 1 square = 5.0V        x direction: 1 square = 0.0020s     </div> <p>(b) (i) Use the trace on the oscilloscope to determine the time period of the detected sound wave. <span style="float: right;">(2)</span></p> <p style="margin-left: 100px;"> <math display="block">= 0.0020 \times 5.3</math> <math display="block">= 0.0106</math> </p> <p style="text-align: right;">time period = <u>0.011</u> s</p>	<p>This example used a trace from an oscilloscope screen as the source for the data to be processed.</p> <p>Candidates had to identify the number of squares in the 'x' direction that was equivalent to the time period of the wave and then use the conversion factor (found in the box to the right of the trace), to then convert this to a time in seconds.</p> <p>This was a question candidates found difficulty with as it did require some level of accuracy in identifying the number of squares constituting the time period. This candidate answer was within the margins of tolerance allowed in the mark scheme.</p>

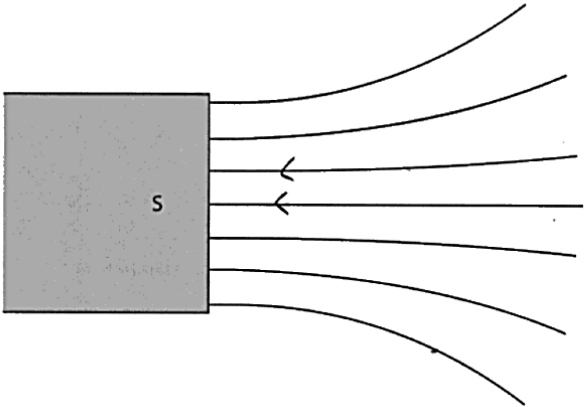


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Discuss</b>	<p>Identify the issue/situation/problem/argument that is being assessed within the questions</p> <p>Explore all aspects of an issue/situation/problem/argument</p> <p>Investigate the issue/situation etc. by reasoning or argument</p>	<p>2011, 4PH1 2P, Q4a</p> <p>4 The photograph shows a solar power farm.</p>  <p>© Alessandro Pierpaoli/Shutterstock</p> <p>(a) Discuss the advantages and disadvantages of using solar power rather than fossil fuels to generate electricity. (4)</p> <p>A) <del>is</del> Solar power are renewable but fossil fuel are unrenewable. Solar power does not produce carbon dioxide and so it does not contribute to global warming, whereas fossil fuels produces contributes to global warming. Solar power does not produce electricity when there is no sunlight but fossil fuels can produce electricity all the time. Solar power produces less electricity compared to fossil fuel. Solar power also takes up lots of space.</p>	<p>The candidate in this example scores all four marks.</p> <p>The candidate has compared the advantages and disadvantages, so all aspects of the issue have been discussed, using points from the mark scheme.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Draw</b></p>	<p>Produce a diagram using a ruler or freehand</p>	<p>November 24, 4PH1 1P, Q1a</p> <p>1 Diagram 1 shows a planet orbiting a star, and a moon orbiting a planet.</p>  <p style="text-align: center;"><b>Diagram 1</b></p> <p>(a) On Diagram 1, draw the orbit of a comet around the star. (2)</p>	<p>The candidate has drawn a freehand elliptical orbit of a comet around a star, with the star near enough to the elliptical focus to score both marks.</p>

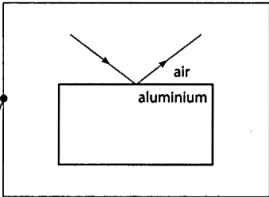
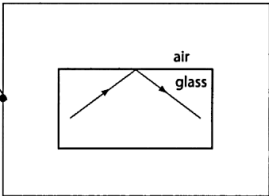
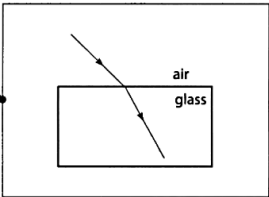
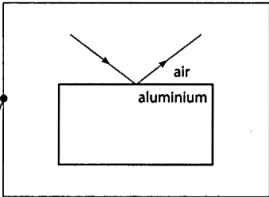
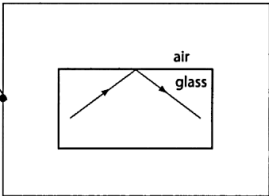
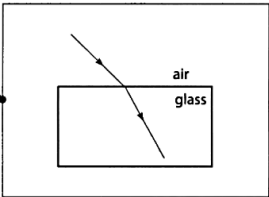
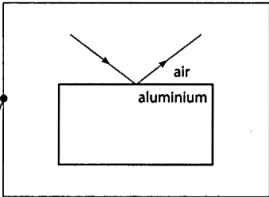
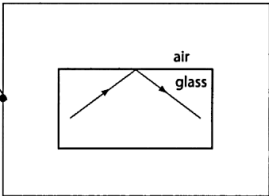
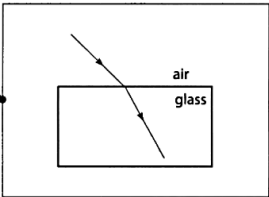


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Draw</b>	Produce a diagram using a ruler or freehand	<p>June 24, 4PH1 1P, Q6a</p> <p><b>6</b> Diagram 1 shows the magnetic field lines near the south pole of a bar magnet.</p>  <p><b>Diagram 1</b></p> <p>(a) Draw two arrows on the field lines in diagram 1 to show the direction of the magnetic field lines. (1)</p>	<p>The candidate has followed the command and drawn two arrows pointing in the right direction on field lines.</p> <p>The command can be applied to situations as simple as in this example.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Draw</b>	Produce a diagram using a ruler or freehand	<p>June 2024, 4PH1 1PR, Q7bi</p> <p>(b) The graph shows the results of the investigation.</p> <p>(i) Draw a line of best fit on the graph.</p> <p>(1)</p>	<p>The 'draw' command here is used for a line of best fit on a graph. The tolerances that are allowed are identified in the mark scheme to ensure consistency of marking.</p> <p>A ruler must be used for drawing line of best fit or joining points on a graph.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>				
<p><b>Draw</b></p>	<p>Produce a diagram using a ruler or freehand</p>	<p>2006, 4PH1 1P, Q1a</p> <p>1 This question is about <u>wave behaviour</u>.</p> <p>(a) The boxes give <u>three types</u> of wave behaviour and the diagrams give three examples of wave behaviour.</p> <p>Draw one straight line from each wave behaviour to the example that best shows that behaviour.</p> <p style="text-align: right;">(3)</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; width: 50%;">Wave behaviour</th> <th style="text-align: left; width: 50%;">Example</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">total internal reflection</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">refraction</div> <div style="border: 1px solid black; padding: 5px;">reflection</div> </td> <td style="vertical-align: top;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  </div> <div style="border: 1px solid black; padding: 5px;">  </div> </td> </tr> </tbody> </table>	Wave behaviour	Example	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">total internal reflection</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">refraction</div> <div style="border: 1px solid black; padding: 5px;">reflection</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  </div> <div style="border: 1px solid black; padding: 5px;">  </div>	<p>The 'draw' command here is being used for linking wave behaviour to the correct examples.</p> <p>The instruction is to draw one straight line from a box on the left-hand side to the corresponding correct example.</p>
Wave behaviour	Example						
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">total internal reflection</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">refraction</div> <div style="border: 1px solid black; padding: 5px;">reflection</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  </div> <div style="border: 1px solid black; padding: 5px;">  </div>						



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Estimate	Find an approximate value, number or quantity from a diagram	<p>June 24, 4PH1 1PR, Q8aiv</p> <p>(iii) The cross (x) on the graph shows the initial number of atoms in a sample of iodine-131.</p> <p>Draw three more crosses (x) on the graph to show how the number of atoms of iodine-131 in the sample changes during three half-lives.</p> <p>[iodine-131 half-life = 8 days]</p> <div style="text-align: right;">(3)</div> <p>(iv) Use a curve of best fit on the graph to estimate the time taken for the number of atoms in the sample to decrease to 5000.</p> <div style="text-align: right;">(2)</div> <p><math>16000 \times \left(\frac{1}{2}\right)^x = 5000</math></p> <p>time taken = <u>13.7</u> days</p>	<p>The candidate must draw in a curve that they have to draw themselves from points plotted in part (iii) using 'draw' as the command.</p> <p>In part (iv) the candidate estimates the time taken for the number of atoms to decrease to 5000. This is done by using the graph to determine the positions of where the crosses should be, (the candidate has shown the halving on the y scale), and then from the y value at 5000 find the number of days.</p> <p>The line is sufficiently good for the candidate to estimate a value within the tolerances given in the mark scheme for part (iv).</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Evaluate</b>	<p>Review information (e.g. data, methods) then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information</p> <p>Come to a supported judgement of a subject's quality and relate it to its context</p>	<p>November 23, 4PH1 2P, Q6c</p> <p>(c) The engine is designed to accelerate a spacecraft while the spacecraft is travelling through space.</p> <p>The spacecraft carries a mass of 0.75 kg of xenon ions for the engine.</p> <p>When the engine is used, <math>9.9 \times 10^{-8}</math> kg of xenon ions leave the engine each second.</p> <p>A student suggests that this small spacecraft engine would not be useful because the acceleration it produces is very small.</p> <p>Evaluate the student's suggestion. (2)</p> <p><math>0.75 \div (9.9 \times 10^{-8}) = 7.6 \times 10^6 \text{ s (2 s.f.)}</math></p> <p>acceleration = change in velocity / time taken, as the time taken is long, acceleration will be small, so the student's suggestion is right.</p>	<p>The question gives information regarding the mass of fuel in the vehicle and the number of ions released when the engine is used.</p> <p>This allows for a calculation to be made regarding the time taken for the fuel to run out.</p> <p>The candidate has done this and then made a judgement using the data to evaluate the student's suggestion.</p> <p>This scores both marks. The candidate has come to a supported judgement and related it to its context as this command word requires.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>																											
<b>Evaluate</b>	<p>Review information (e.g. data, methods) then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information</p> <p>Come to a supported judgement of a subject's quality and relate it to its context</p>	<p>2006, 4HP1 1PR, Q11b</p> <p>11 The graph shows how the thinking distance and braking distance of a car vary with its initial speed.</p> <table border="1"><caption>Data points from the graph</caption><thead><tr><th>Initial speed (m/s)</th><th>Thinking distance (m)</th><th>Braking distance (m)</th></tr></thead><tbody><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>5</td><td>3</td><td>2</td></tr><tr><td>10</td><td>6</td><td>8</td></tr><tr><td>15</td><td>9</td><td>18</td></tr><tr><td>20</td><td>12</td><td>32</td></tr><tr><td>25</td><td>15</td><td>50</td></tr><tr><td>30</td><td>18</td><td>72</td></tr><tr><td>35</td><td>21</td><td>98</td></tr></tbody></table> <p><b>Continues on the next page</b></p>	Initial speed (m/s)	Thinking distance (m)	Braking distance (m)	0	0	0	5	3	2	10	6	8	15	9	18	20	12	32	25	15	50	30	18	72	35	21	98	
Initial speed (m/s)	Thinking distance (m)	Braking distance (m)																												
0	0	0																												
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<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Evaluate</b></p>	<p>Review information (e.g. data, methods) then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information.</p> <p>Come to a supported judgement of a subject's quality and relate it to its context.</p>	<p>(b) Evaluate how the thinking distance and the braking distance vary for different values of initial speed.</p> <p>Refer to information from the graph in your answer. (5)</p> <p>the thinking distance increase uniformly as the initial speed increase.  It increase the distance <sup>for</sup> about 2m along with the increase in initial speed for 5 m/s. For each more 5m/s 's initial speed, it need 2m more for thinking. So for different values of initial speed, thinking <del>the</del> <sup>distance</sup> increase the distance at a constant rate.  the braking distance, however, is quite different.  the bigger the initial speed is, the more <del>the</del> distance would be taken by braking. for initial speed from 0m/s to 5m/s. It only have a 3.5m increasing in distance while for 30m/s to 35m/s. It need a 20m enlargement. So for different <sup>increasing</sup> values of initial speed, braking distance increase at a increasing rate.</p>	<p>The candidate has used data from the graph, including referring to values from the graph to come to an evaluation of how the thinking and braking distances vary at different speeds.</p> <p>This is not a full answer as there is no link to proportionality ideas in MP4 &amp; 5 of the mark scheme.</p> <p>It is a very good attempt at a difficult question with a demanding command word.</p>

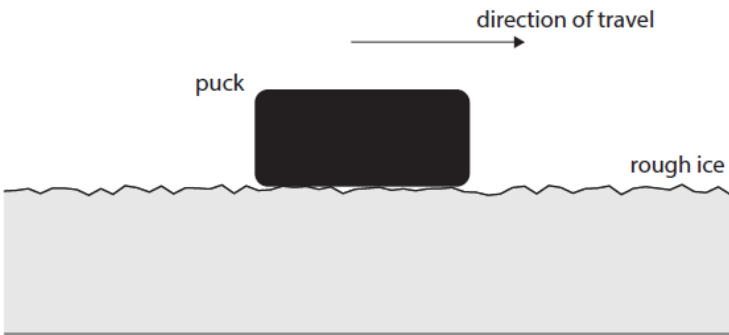


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>												
<b>Evaluate</b>	<p>Review information (e.g. data, methods) then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information</p> <p>Come to a supported judgement of a subject's quality and relate it to its context</p>	<p>June 25, 4PH1 2P, Q6bii</p> <p>(ii) The graph shows the student's results.</p> <table border="1"><caption>Data points from the graph</caption><thead><tr><th>Distance in cm</th><th>Mean count</th></tr></thead><tbody><tr><td>5</td><td>13500</td></tr><tr><td>12</td><td>3500</td></tr><tr><td>18</td><td>1500</td></tr><tr><td>24</td><td>800</td></tr><tr><td>30</td><td>500</td></tr></tbody></table> <p><b>(continues on the next page)</b></p>	Distance in cm	Mean count	5	13500	12	3500	18	1500	24	800	30	500	<p>The candidate has scored three marks here by using the graph to evaluate the constant at two points and then making the comparison and drawing a conclusion based on this.</p>
Distance in cm	Mean count														
5	13500														
12	3500														
18	1500														
24	800														
30	500														

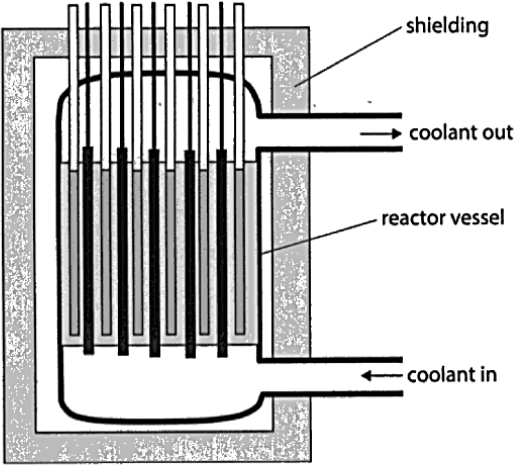


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Evaluate</b></p>	<p>Review information (e.g. data, methods) then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information</p> <p>Come to a supported judgement of a subject's quality and relate it to its context</p>	<p>The student claims that the data obeys the formula</p> $\text{count} \times \text{distance}^2 = \text{constant}$ <p>Evaluate the student's claim. (3)</p> $11,000 \times 6.5^2 = 464,750$ <hr/> $2,200 \times 15^2 = 495,000$ <hr/> <p><math>495,000 \neq 464,750</math> The student's claim is false, they are not equal. (Total for Question 6 = 5 marks)</p>	<p>The evaluation of the numerical data together with the comparison and conclusion are the evaluation.</p> <p>It should be noted that a response that was without numerical data from the graph would not score any marks regardless of what detail was provided in this example.</p>

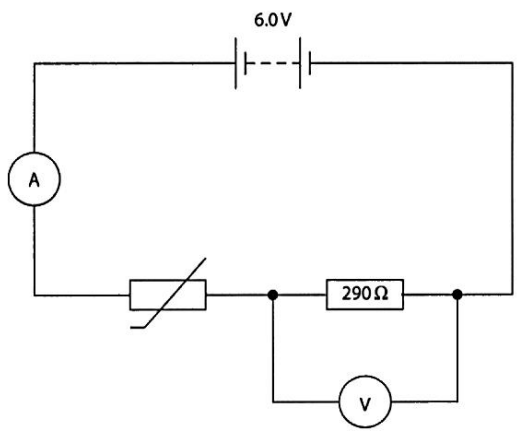


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Explain</b></p>	<p>An explanation requires a justification/ exemplification of a point</p> <p>The answer must contain some element of reasoning/ justification - this can include mathematical explanations</p>	<p>June 25, 4PH1 1P, Q1bii</p> <p>(b) Diagram 2 shows a puck travelling across some rough ice.</p> <div style="text-align: center;">  <p>Diagram 2</p> </div> <p>The rough ice exerts a frictional force on the puck.</p> <p>(ii) Explain how the force of friction changes the velocity of the puck. (2)</p> <p><i>Friction acts as a resistant force <sup>opposite</sup> to the direction of travel of the puck, decreasing its velocity.</i></p>	<p>Explain questions require candidates to give a justification or exemplification of a point, not simply describe the situation, therefore it would be likely that a candidate uses words like 'therefore', 'so', 'because' in the response to provide that justification.</p> <p>In this example, which is one of the least complex and not of great demand, the candidate must indicate that the puck slows down <b>because</b> there is an opposing force to score both marks.</p>

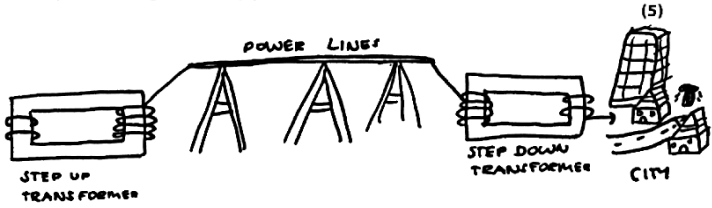


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Explain</b></p>	<p>An explanation requires a justification/ exemplification of a point</p> <p>The answer must contain some element of reasoning/justification</p> <p>This can include mathematical explanations</p>	<p>June 25, 4PH1 1P, Q4diii</p> <p>(iii) The diagram shows some parts of a nuclear reactor.</p>  <p>Explain the role of shielding in a nuclear reactor. (3)</p> <p><i>Protect workers and others around the nuclear reactor by absorbing the ionising radiation, and not letting it pass out of the reactor where it may harm a human.</i></p>	<p>This three mark 'explain' example gains all the marks.</p> <p>The first line indicates that the radiation is absorbed by the shielding which is the second marking point, so not letting it pass out of the reactor which is marking point 3 and marking point 1 is scored on the last few words.</p> <p>In this case, the points are reasons as to how the shielding is blocking the radiation.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Explain</b>	An explanation requires a justification/ exemplification of a point  The answer must contain some element of reasoning/justification  This can include mathematical explanations	<p>June 25, 4PH1 1P, Q3ai</p> <p>3 A student builds this electric circuit to measure the temperature of a room.</p>  <p>(a) At 20°C, the voltage across the thermistor is 3.9V. (i) Explain why the reading on the voltmeter is 2.1V. (2)</p> <p>The total voltage is 6.0V. Since the components are in a <del>parallel series</del> <sup>series circuit</sup>, the voltage is split between the two but not necessarily equally. So since the thermistor's across voltage is 3.9V then <math>6 - 3.9 = 2.1V</math> for the voltage across resistor.</p>	In this example, to score the full mark candidates have to give a numerical justification to the fact that the components are in series.



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Explain</b></p>	<p>An explanation requires a justification/ exemplification of a point</p> <p>The answer must contain some element of reasoning/justification</p> <p>This can include mathematical explanations</p>	<p>June 25, 4PH1 2P, Q7b</p> <p>(b) Explain how transformers are used in the efficient, large-scale transmission of electrical energy. You may draw a diagram to help your answer.</p>  <p>turns on the step up transformer has more coils on the secondary coil which increases the voltage and subsequently decreases the current. This makes the energy transfer more efficient as high current in the wires would cause an extremely high temperature which not only would be dangerous but also energy would be lost as heat to the surroundings. When it reaches a step down transformer near the city the number of turns on the coil is lower on the secondary coil, this decreases the voltage and increases the current so the electrical energy can be used efficiently in towns and cities.</p>	<p>This is an example of a longer response 'explain'.</p> <p>The diagram helps the explanation, and candidates should be encouraged to add a diagram that is labelled as this on its own can yield some marks.</p> <p>This candidate has scored five marks by identifying the various parts of the system, (step up transformer, transmission lines and step-down transformer), and then given a justification as to the purpose of each part.</p> <p>This is more than a description, (which is all many candidates can produce), which is what an explanation should be.</p>

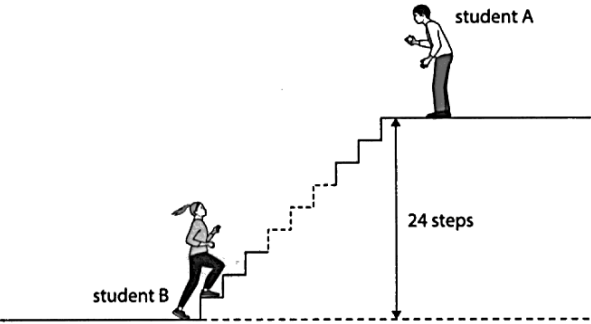


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Give/State/ Name</b>	All of these command words are synonyms  They are generally all requiring recall of one or more pieces of information	<p>June 25, 4PH1 1P, Q4a</p> <p><b>4</b> This question is about the process of controlled nuclear fission in a nuclear reactor.</p> <p>(a) In a nuclear reactor, uranium-235 nuclei are split to produce daughter nuclei and neutrons.</p> <p>State what else is released in nuclear fission that makes the process useful in a nuclear reactor. (1)</p> <p><i>kinetic energy is released</i></p> <p>June 25, 4PH1 1P, Q9b</p> <p>(b) Give two safety precautions to minimise the risk of harm to the teacher from the radiation emitted by the protactinium generator. (2)</p> <p>1 <i>increased distance between the teacher and the protactinium generator</i></p> <p>2 <i>The teacher should limit the time of exposure as much as possible.</i></p>	<p>The command word 'state' usually requires one or two words to be written. It requires no description or explanation and is usually recall of information from the specification.</p> <p>The candidate has given two precautions that should be taken. No further comment is needed as to why this is necessary.</p>

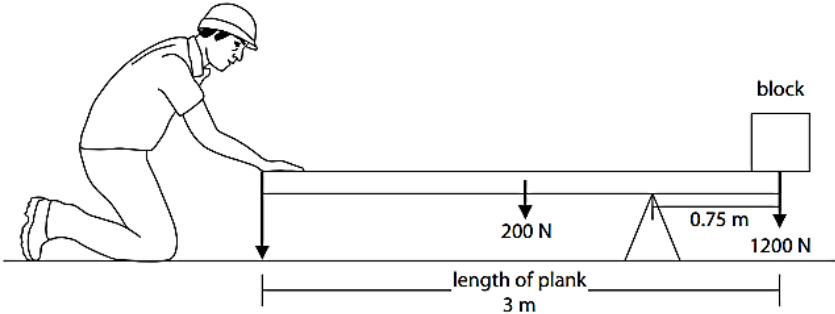


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Give/State/Name</b>	All of these command words are synonyms  They are generally all requiring recall of one or more pieces of information	June 25, 4PH1 2P, Q5a  (a) The ball is made of a material that is a good electrical conductor.  Name a material that is a good electrical conductor. (1)  <u>Metal</u>	This is an example of the use of 'name' as the command word. All that is required is an example of an electrical conductor. This is recall of information from the specification.

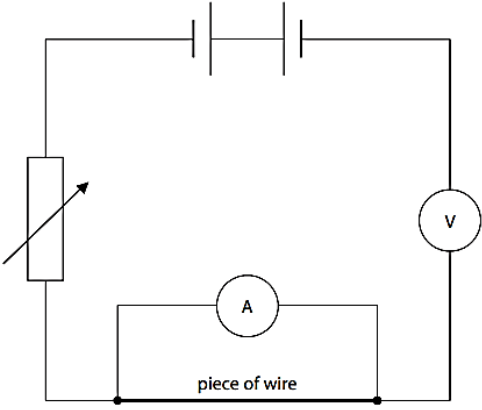


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Give a reason/reasons</b></p>	<p>When a statement has been made and the requirement is only to give the reason(s) why</p>	<p>June 25, 4PH1 1P, Q6a</p> <p>6 Two students do an experiment to determine their power when running up a set of steps.</p> <p>The diagram shows how they set up their experiment. Not all of the steps are shown in the diagram.</p>  <p>This is the students' method.</p> <ul style="list-style-type: none"> <li>• student A stands with a stopwatch at the top of the steps</li> <li>• student A starts timing on the stopwatch and shouts "go" at the same time</li> <li>• student B begins to run up the steps when she hears student A shout</li> <li>• student A stops timing when student B reaches the top of the steps</li> </ul> <p>The students repeat their method two more times.</p> <p>(a) Give a reason why the times recorded may not be accurate. (1)</p> <p>..... human reaction time (when person B hears person A          ..... it could take them a few seconds to respond) .....</p>	<p>This is a good example of a 'give a reason' question. The candidates must say why the time may not be accurate, which this candidate has done.</p>

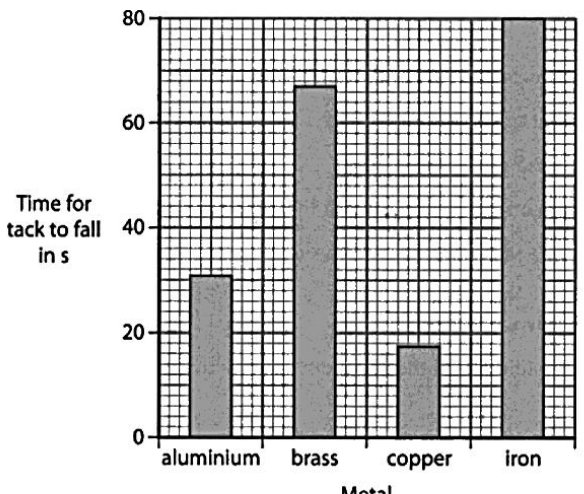


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>								
<b>Identify</b>	Usually requires some key information to be selected from a given stimulus/resource	<p><b>Legacy</b></p> <p>A man uses a uniform plank to lift a block.</p> <p>He holds the plank horizontal.</p>  <p>The arrows on the diagram represent three forces on the plank.</p> <p>(a) Complete the table to <b>identify</b> the missing force.</p> <p>(1)</p> <table border="1"> <thead> <tr> <th>Force</th> <th>Name of force</th> </tr> </thead> <tbody> <tr> <td>F</td> <td>force of man pushing down on the plank</td> </tr> <tr> <td>1200 N</td> <td>weight of block</td> </tr> <tr> <td>200 N</td> <td>weight of the plank</td> </tr> </tbody> </table>	Force	Name of force	F	force of man pushing down on the plank	1200 N	weight of block	200 N	weight of the plank	This is a combination of complete a table requiring students to identify the name of the force in the given stimulus, which is the diagram representing three forces on the plank.
Force	Name of force										
F	force of man pushing down on the plank										
1200 N	weight of block										
200 N	weight of the plank										

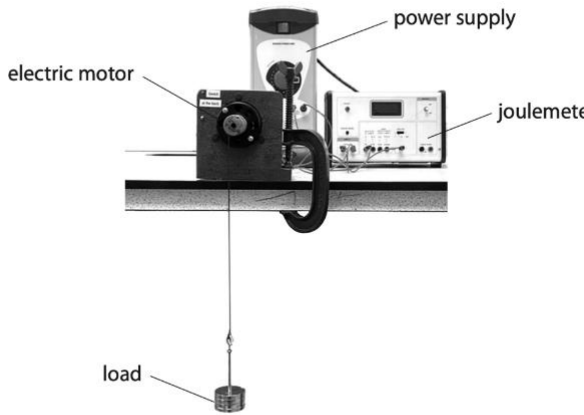


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Identify</b>	Usually requires some key information to be selected from a given stimulus/resource	<p>Legacy</p> <p>2 A student plans to measure the resistance of a piece of wire. He sets up this circuit and finds that it does not work.</p>  <p>(a) Identify the three errors in the student's circuit. (3)</p> <p>1. Cells are connected with the wrong polarity</p> <p>2. Ammeter is connected in parallel instead of series</p> <p>3. The circuit does not have a switch</p>	This question requires candidates to select three errors shown in the circuit diagram and name them.



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Justify	Give evidence to support (either the statement given in the questions or an earlier answer)	<p>November 23, 4PH1 1P, Q5ci</p> <p>(c) The bar chart shows the results of the student's investigation.</p>  <p>(i) Justify the use of a bar chart in this investigation. (1)</p> <p>The type of metal is a categorical data type, and the time for the tack to fall is continuous.</p>	This response identifies that a bar chart is suitable as the data is categoric, which is an appropriate way of displaying data in this case.

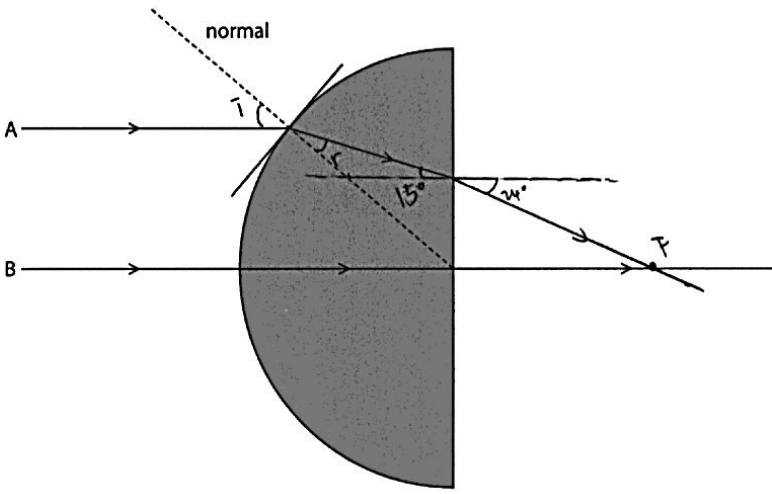


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Justify	Give evidence to support (either the statement given in the questions or an earlier answer)	<p>June 23, 4PH1 1PR, Q3cii</p> <p>3 A model electric motor is used to lift a load through a vertical height.</p>  <p>(a) The load has a mass of 400 g and gains 3.2J of energy in its gravitational store when lifted.</p> <p><b><u>(continues on the next page)</u></b></p>	



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Justify</b>	Give evidence to support (either the statement given in the questions or an earlier answer)	<p>(c) A joulemeter measures the amount of energy transferred electrically to the motor as the motor lifts the load.</p> <p>The joulemeter displays a reading of 11.0J when the load has gained 3.2J of energy in its gravitational store.</p> <p>(ii) Justify why 7.8J of energy must be dissipated into the thermal store of the surroundings as the load is lifted. (2)</p> <p><i>The motor transfers energy from its chemical store into kinetic energy but some is lost as heat energy because of friction. the total energy is 11J but <math>11 - 3.2 = 7.8</math></i></p>	In this response, which is related to information given in part 3a of the question, the candidate is given information that can be used to justify a statement and base it on the need for energy to be conserved.

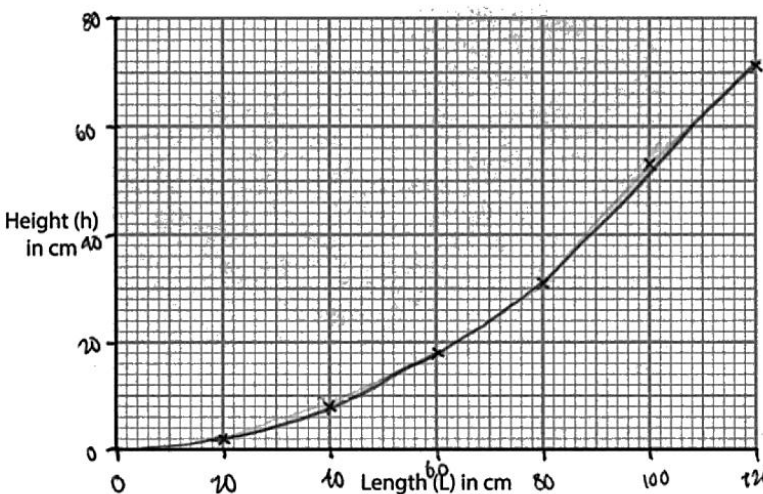


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Measure</b></p>	<p>Not a command word in the taxonomy, but used occasionally for angle measurements on ray diagrams</p>	<p>June 24, 4PH1 1PR, Q6ai</p> <p><b>6</b> The diagram shows two rays of green light entering a semicircular glass block.</p>  <p>(a) (i) Measure the angle of incidence and the angle of refraction for ray A as it enters the glass block. (2)</p> <p>angle of incidence = <del>30</del> 40 degrees</p> <p>angle of refraction = 24 degrees</p>	<p>This is not a command word from the specification taxonomy list; however, at times it is necessary to ask candidates to measure a value, for example an angle as is the case in this question.</p> <p>The mark scheme gives a small tolerance on the values.</p> <p>Both measurements are within the tolerances in the mark scheme.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>														
<b>Plot</b>	<p>Produce a graph by marking points accurately on a grid from data that is provided and then draw a line of best fit through these points</p> <p>A suitable scale and appropriately labelled axes must be included if these are not provided in the question</p>	<p>June 24, 4PH1 1P, Q10cii</p> <p>(c) The table shows the results of the investigation.</p> <table border="1"><thead><tr><th>Length (L) in cm</th><th>Height (h) in cm</th></tr></thead><tbody><tr><td>20</td><td>2</td></tr><tr><td>40</td><td>8</td></tr><tr><td>60</td><td>18</td></tr><tr><td>80</td><td></td></tr><tr><td>100</td><td>53</td></tr><tr><td>120</td><td>71</td></tr></tbody></table> <p><b><u>(continues on the next page)</u></b></p>	Length (L) in cm	Height (h) in cm	20	2	40	8	60	18	80		100	53	120	71	
Length (L) in cm	Height (h) in cm																
20	2																
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<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Plot</b></p>	<p>Produce a graph by marking points accurately on a grid from data that is provided and then draw a line of best fit through these points</p> <p>A suitable scale and appropriately labelled axes must be included if these are not provided in the question</p>	<p>(ii) Plot a graph of the student's results. (2)</p> <p>(iii) Draw the curve of best fit. (1)</p> 	<p>This is a good example of the plot command; the candidate has plotted all the points correctly after choosing a suitable linear scale using more than 50% of the graph paper.</p> <p>The plot command may be followed by another command to draw a curve of best fit; this has already been covered under the command 'draw'.</p>

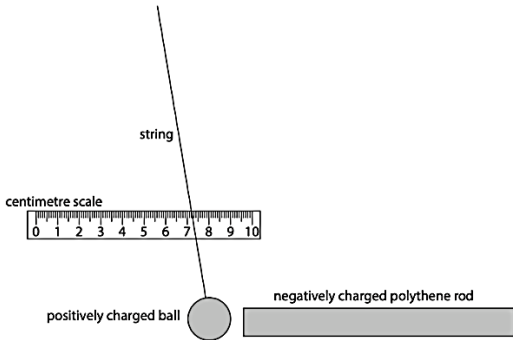


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>																
<b>Plot</b>	<p>Produce a graph by marking points accurately on a grid from data that is provided and then draw a line of best fit through these points</p> <p>A suitable scale and appropriately labelled axes must be included if these are not provided in the question</p>	<p>June 2025, 4PH1 1P, Q10ci</p> <p>(c) The student investigates how the balance reading varies as they change the current in the metal rod.</p> <p>The table shows the student's results.</p> <table border="1"><thead><tr><th>Current in A</th><th>Balance reading in g</th></tr></thead><tbody><tr><td>0.00</td><td>194.95</td></tr><tr><td>0.50</td><td>194.80</td></tr><tr><td>1.00</td><td>194.65</td></tr><tr><td>1.50</td><td>194.50</td></tr><tr><td>2.00</td><td>194.35</td></tr><tr><td>2.50</td><td>194.20</td></tr><tr><td>3.00</td><td>194.05</td></tr></tbody></table> <p>(i) Plot the student's results on the grid.</p> <p><b><u>(continues on the next page)</u></b></p>	Current in A	Balance reading in g	0.00	194.95	0.50	194.80	1.00	194.65	1.50	194.50	2.00	194.35	2.50	194.20	3.00	194.05	<p>(1)</p>
Current in A	Balance reading in g																		
0.00	194.95																		
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2.50	194.20																		
3.00	194.05																		

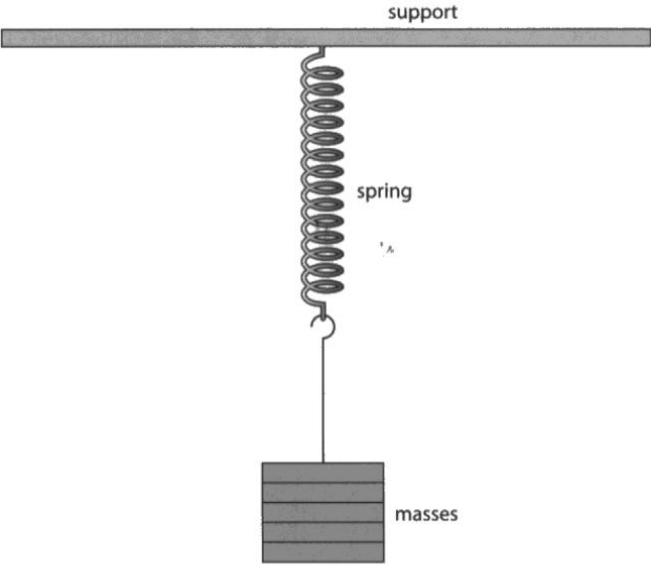


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>																
<p><b>Plot</b></p>	<p>Produce a graph by marking points accurately on a grid from data that is provided and then draw a line of best fit through these points</p> <p>A suitable scale and appropriately labelled axes must be included if these are not provided in the question</p>	<table border="1"> <caption>Data points from the graph</caption> <thead> <tr> <th>Current in A</th> <th>Balance reading in g</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>194.90</td></tr> <tr><td>0.50</td><td>194.80</td></tr> <tr><td>1.00</td><td>194.65</td></tr> <tr><td>1.50</td><td>194.50</td></tr> <tr><td>2.00</td><td>194.35</td></tr> <tr><td>2.50</td><td>194.20</td></tr> <tr><td>3.00</td><td>194.05</td></tr> </tbody> </table>	Current in A	Balance reading in g	0.00	194.90	0.50	194.80	1.00	194.65	1.50	194.50	2.00	194.35	2.50	194.20	3.00	194.05	<p>There is only one mark allocated to plotting in this example, as the scale has already been added to the graph. Plotting is correct, so scores the single mark.</p> <p>Part (ii) asked for a line of best fit, which is dealt with by the command 'draw' (this gained that mark).</p> <p>The additional line from left to right is the response to part (iii) and is partially correct.</p>
Current in A	Balance reading in g																		
0.00	194.90																		
0.50	194.80																		
1.00	194.65																		
1.50	194.50																		
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3.00	194.05																		



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Predict</b>	Give an expected result	<p>June 25, 4PH1 2P, Q5ciii</p> <p>The student brings a negatively charged polythene rod near to the right side of the ball. The ball moves, as shown in diagram 3.</p>  <p><b>Diagram 3</b></p> <p>(i) Explain how the movement of the ball shows that the charge on the polythene rod is negative. (2)</p> <p>..... ..... .....</p> <p>(ii) In diagram 3, the string lines up with the 7.2 cm mark on the scale. The student moves the polythene rod slightly further away from the ball. Predict a possible reading on the scale. (1)</p> <p>reading = ..... cm</p>	<p>This example has no answer on the answer line; however it is a good example of the use of the command 'predict'.</p> <p>The candidate must use the information provided to predict a reading on the scale behind the string.</p> <p>The mark scheme allowed a range for this answer.</p>

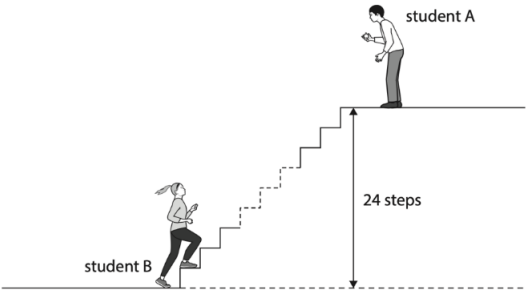


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Predict	Give an expected result	<p>June 23, 4PH12 1PR, Q8a(ii)</p> <p>8 Diagram 1 shows a set of masses attached to a spring, which is suspended from a support.</p>  <p>Diagram 1</p> <p><b><u>(continues on the next page)</u></b></p>	



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
Predict	Give an expected result	<p>(a) After the masses are added, the length of the spring is 14.6 cm. The student measures the extension of the spring as 11.5 cm.</p> <p>(i) Calculate the original length of the spring.</p> <p>original length = <del>extension</del> length when masses are added - extension</p> <p><math>14.6 - 11.5 = 3.1</math> cm</p> <p>original length = 3.1 cm</p> <p>(ii) The student removes the masses and notices that the spring does <b>not</b> show elastic behaviour.</p> <p>Predict a value for the new length of the spring after the masses have been removed.</p> <p><math>14.6 - 3.1 = 11.5</math></p> <p>new length of spring = 11.5 cm</p>	<p>In this example, the candidate has used information from the diagram together with their answer to 8 (a) (i) (that uses 'calculate' as the command word), to predict in (ii) a value for the new length of the spring.</p> <p>The candidate must give an expected result based on the information provided.</p>

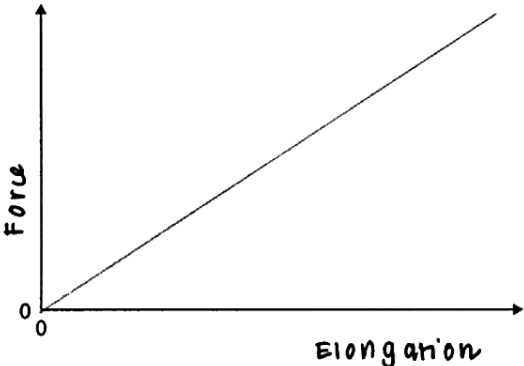


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Show that</b></p>	<p>Verify the statement given in the equation</p>	<p>June 23, 4PH1 1P, Q6bi</p> <p>6 Two students do an experiment to determine their power when running up a set of steps.</p> <p>The diagram shows how they set up their experiment. Not all of the steps are shown in the diagram.</p>  <p>This is the students' method.</p> <ul style="list-style-type: none"> <li>• student A stands with a stopwatch at the top of the steps</li> <li>• student A starts timing on the stopwatch and shouts "go" at the same time</li> <li>• student B begins to run up the steps when she hears student A shout</li> <li>• student A stops timing when student B reaches the top of the steps</li> </ul> <p>The students repeat their method two more times.</p> <p>(b) There are 24 steps in total and each step has a height of 19 cm.</p> <p>(i) Student B has a mass of 67 kg.</p> <p>Show that student B gains about 3000 J of energy in her gravitational store when she runs up the set of steps.</p> $GPE = mgh = 67 \times 10 \times 4.56 = 3055.25 \quad (3)$ $3055.25 \approx 3000$	<p>At first sight this answer looks like a 'calculate'; however, there is a major difference between a show that and a calculate.</p> <p>In a show that, the answer is of secondary importance to the working to get to the answer.</p> <p>The candidate must show how the numbers are used to arrive at an answer, which must be given to at least one more significant figure to the value given in the question.</p> <p>In this case, the answer obtained from using the numbers is 3055.25J, which as it states in this response is approximately 3000J, so the candidate has correctly shown that the values do give approximately 3000J.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Show that</b></p>	<p>Verify the statement given in the equation</p>	<p>June 24, 4PH1 2PR, Q5c</p> <p>5 The diagram shows the collision between two balls, A and B. The masses and velocities of both balls are shown before and after the collision. Ball B is stationary before the collision.</p> <div style="text-align: center;"> <p>Before collision                      After collision</p> </div> <p>(c) Show that the velocity, <math>v</math>, of ball B after the collision is about 0.6 m/s.</p> $p = m \times v \quad \text{momentum before collision} = \text{momentum after collision}^{(4)}$ $0.0882 = 0.265 \times v - 3.5 \times 0.018 \quad \therefore p = 0.0882 \text{ kg m/s}$ $\cancel{0.265} v = 0.1512$ $v = 0.5706 \text{ m/s}$ $0.5706 \approx 0.6 \text{ m/s}$ <p><math>\therefore</math> It is about 0.6 m/s</p>	<p>This good example of a four mark 'show that', gives an answer which is to more significant figures than the value quoted in the question. The working is shown and shows how the value was found.</p> <p>The conservation of momentum equation was used and the values correctly substituted into the equation.</p> <p>The mark scheme makes clear that an answer of 0.6(m/s) is to be ignored.</p> <p>It is the method to get to 0.57(m/s) that matters.</p>

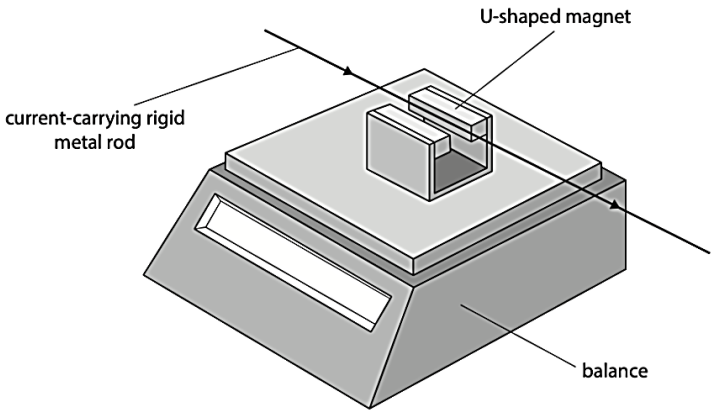


<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Sketch</b>	<p>Produce a freehand drawing.</p> <p>For a graph, this would need a line and labelled axes with important features indicated</p> <p>The axes are not scaled.</p>	<p>June 24, 4PH1 1P, Q5a</p> <p><b>5 (a) A metal spring obeys Hooke's law.</b></p> <p><b>Sketch a graph to show that the spring obeys Hooke's law as it is stretched.</b></p> <p><b>You should label both axes with appropriate physical quantities.</b></p> <p>(3)</p> 	<p>In this fully correct three mark answer, the candidate has followed all the instructions and labelled the graph axes and then correctly completing the sketch.</p> <p>The command word definition for this type of question is fully met by the question.</p> <p>NB., 'elongation' was allowed as an alternative to 'extension' in the mark scheme.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>										
<b>Sketch</b>	<p>Produce a freehand drawing.</p> <p>For a graph, this would need a line and labelled axes with important features indicated</p> <p>The axes are not scaled.</p>	<p>June 23, 4PH1 2P, Q2biii</p> <p>(b) The chocolate is heated at a constant rate until the temperature reaches 45°C. The chocolate has a melting point of 32°C and a boiling point of 55°C.</p> <p>(iii) Use the axes to sketch a graph of how the temperature of the chocolate changes with time when it is heated from 5°C to 45°C.</p> <p>(3)</p> <table border="1"><caption>Data points from the graph</caption><thead><tr><th>Time</th><th>Temperature (°C)</th></tr></thead><tbody><tr><td>0</td><td>5</td></tr><tr><td>10</td><td>32</td></tr><tr><td>15</td><td>32</td></tr><tr><td>20</td><td>45</td></tr></tbody></table>	Time	Temperature (°C)	0	5	10	32	15	32	20	45	<p>In this good response, which scored three marks, the candidate does not have to label the axes, but they do need to use the y-axis scale to show what happens to the chocolate as the temperature rises.</p> <p>In particular, the horizontal part of the graph needs to be at 32 Celsius.</p>
Time	Temperature (°C)												
0	5												
10	32												
15	32												
20	45												



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<p><b>Suggest</b></p>	<p>Use your knowledge to propose a solution to a problem in a novel context</p>	<p>June 25, 4PH1 1P, Q10a</p> <p><b>10</b> A student investigates the magnetic force on a current-carrying metal rod.</p> <p>The student places a U-shaped magnet on a sensitive balance.</p> <p>They connect a rigid metal rod to a low-voltage power supply, and then fix the rod in place so that it passes between the poles of the magnet.</p> <p>The diagram shows part of the student's apparatus.</p>  <p>When there is a current in the metal rod, the rod experiences a force due to the magnetic field of the magnet.</p> <p>The reading on the balance changes because the magnet experiences a force that is the same magnitude as the force on the rod, but in the opposite direction.</p> <p><b>(continues on the next page)</b></p>	



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Suggest</b>	Use your knowledge to propose a solution to a problem in a novel context	<p>(a) The student can increase the current in the metal rod up to a maximum of 5.0 A.</p> <p>Suggest why the student should only have the power supply switched on for short periods of time.</p> <p style="text-align: right;">(2)</p> <p><i>This is because the power supply could get too hot which can cause either a fire or someone to get burned.</i></p>	<p>This is a good example of a two mark suggest (AO2) question.</p> <p>The candidate must use their knowledge and understanding to deal with a context out of the specification, in which there may be multiple answers.</p> <p>In this case, the candidate has understood that the current will produce a heating effect and that the power supply can get too hot and could cause someone to be burnt.</p> <p>The comment about a fire being caused was ignored. There is no direct specification point relating to this point, but the use of ideas from the specification are used to come to reason why the power supply is used for a short time.</p>



<u>Command word</u>	<u>Definition</u>	<u>Example</u>	<u>Examiner's comments</u>
<b>Suggest</b>	Use your knowledge to propose a solution to a problem in a novel context	November 23, 4PH1 1P, Q9bii  (ii) At night the power station does not need to generate as much electricity. Suggest how the output of this generator could be reduced. (1)  <u>use weaker magnets</u>	This is an example of a one mark suggest response.  The candidate has used their knowledge and understanding to give a suggestion as to how the output of a generator could be reduced.  This is not directly in the specification; however, the answer is arrived at using material that is part of the specification.

