

Science

Stage 6

Paper 1

Mark Scheme

General guidelines on marking

Many descriptive answers can be expressed in a variety of ways. Professional judgement can be used in these cases, providing it matches the marking points and further information in the mark scheme.

Answers may have words spelt incorrectly. Credit is normally given for phonetically correct answers, unless the word has a scientifically different meaning. For example, where the answer should be antennae, credit will be given for antenna but not for anthen (too close to anther).

Only the science is being assessed, so answers do not need to be grammatically correct. Significant figures will be indicated in the question or in the mark scheme.

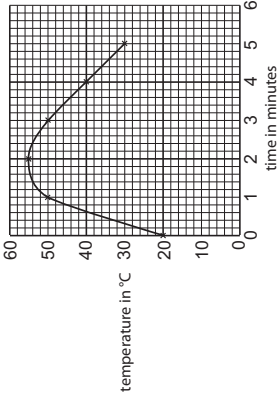
Unless specified all marking points are independent.

Annotations and abbreviations

/ or	alternate responses for the same marking point
() brackets	the words or units in brackets do not need to be stated, for example, (recycles or releases or provides) minerals = minerals scores the mark
<u>Underline</u>	exact word is required
Accept	an acceptable response
Do not accept	indicates an incorrect response that would contradict another otherwise correct alternative
Ignore	indicates an irrelevant answer that is not creditworthy. Full marks can still be achieved even with answers that are ignored
Note	provides extra information when necessary
ecf	error carried forward; marks are awarded if an incorrect response has been carried forward from earlier working, provided the subsequent working is correct
ora	or reverse argument; for example, as mass increases, volume increases could be written as mass decreases, volume decreases

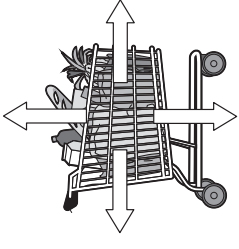
Question	Answer	Marks	Further Information
1(a)	arrow(s) from the air into the nose or into the mouth and down the windpipe and into the left lung	1	all arrows must be in the correct direction and pass through all parts Accept arrow as one long continuous arrow or separate arrows
1(b)	blood	1	
1(c)	cat and lion	1	both correct for the mark Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence

Question	Answer	Marks	Further Information
2(a)	any one from parasite fungus or fungi	1	
2(b)	(idea that) the washing removes bacteria or viruses or parasites or fungi from our hands (idea of) touching food or using the toilet or looking after someone who is sick or blowing your nose or touching an animal	2	each correct answer = 1 mark Accept (idea that) the washing kills bacteria or viruses or parasites or fungi Ignore just (idea that) washing controls the spread of diseases Accept other suitable reasons for washing hands

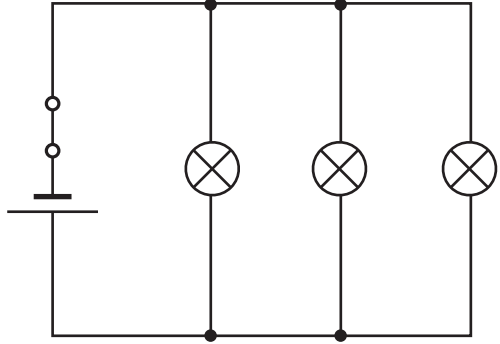
Question	Answer	Marks	Further Information
3(a)	measuring cylinder	1	Ignore just pipette or measuring scale or litre scale Do not accept beaker or measuring cup
3(b)	(idea of) to make sure the temperature is the same throughout the mixture	1	Accept to make sure all the solid has reacted Ignore to make sure the solution and the solid are completely mixed or to help the solid dissolve
3(c)	(reactant solution) blue (solid product) brown	1	both correct for the mark
3(d)	gas produced	1	Accept bubbles (seen)
3(e)		2	all three correct plots = 1 mark appropriate curve using the points (plotted) = 1 mark Note tolerance of $\pm 1/2$ a small square for plots
3(f)	0 or 1 5 decreasing 0 or no	1	all four correct for the mark

Question	Answer	Marks	Further Information
4(a)	boiling produces bubbles in the liquid water boils at 100 °C	2	each correct answer = 1 mark Note three boxes ticked with two correct = 1 mark but four or five boxes ticked = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence
4(b)	process evaporation melting boiling reverse of the process freezing condensation <pre> graph TD evaporation --> freezing melting --> freezing boiling --> condensation condensation --> boiling </pre>	1	all three lines correct for the mark

Question	Answer	Marks	Further Information														
5(a)	the rate at which heat is conducted/transferred or how fast heat is conducted/transferred	1	Accept the ability to transfer heat or how good a material is at transferring heat														
5(b)	<table><tr><th>material</th><th>(thermal conductivity in units)</th></tr><tr><td>(air)</td><td>0.024</td></tr><tr><td>(aluminium)</td><td>240</td></tr><tr><td>(copper)</td><td>380</td></tr><tr><td>(gold)</td><td>320</td></tr><tr><td>(iron)</td><td>50</td></tr><tr><td>(water)</td><td>0.6</td></tr></table>	material	(thermal conductivity in units)	(air)	0.024	(aluminium)	240	(copper)	380	(gold)	320	(iron)	50	(water)	0.6	1	heading and all numbers correct for the mark Do not accept units written in the body of the table
material	(thermal conductivity in units)																
(air)	0.024																
(aluminium)	240																
(copper)	380																
(gold)	320																
(iron)	50																
(water)	0.6																
5(c)	(idea that) metals have higher numbers (than non-metals)	1	Accept examples, e.g. copper has the highest number														

Question	Answer	Marks	Further Information
6(a)	normal force friction  applied force gravity	2	all four correct = 2 marks one, two or three correct = 1 mark
6(b)	(idea that) moves with the same pace or moves at the same rate or does not get faster or does not get slower or the motion stays the same	1	Accept moves at the same speed Do not accept the trolley does not move
6(c)	any one from forces cannot be seen shows the direction of forces	1	

Question	Answer	Marks	Further Information
7(a)	100 N	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
7(b)	The mass of the camera on Earth is measured in kg. The weight of the camera is greater on Earth than on the Moon.	2	each correct answer = 1 mark Note three boxes ticked with two correct = 1 mark but four or five boxes ticked = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence

Question	Answer	Marks	Further Information								
8(a)	<table><tr><th>symbol</th><th>name</th></tr><tr><td></td><td>buzzer</td></tr><tr><td></td><td>open switch</td></tr><tr><td></td><td>battery (of cells) or two cells</td></tr></table>	symbol	name		buzzer		open switch		battery (of cells) or two cells	1	all three correct for the mark Do not accept closed switch or just 'switch'
symbol	name										
	buzzer										
	open switch										
	battery (of cells) or two cells										
8(b)		2	three lamps and one cell and one closed switch = 1 mark correct arrangement in a parallel circuit so the switch controls all three lamps = 1 mark Accept diagram without junction of conductors Note two of the lamps may be in the same parallel circuit but the third lamp must be in a different parallel circuit								

Question	Answer	Marks	Further Information
9(a)	(idea that) the different substances in the soil will be mixed together or there will be no clear layers or the substances have not settled into layers yet	1	Accept references to gravel beginning to settle at the bottom
9(b)	organic content	1	Accept humus
9(c)	24 (cm ³)	1	
9(d)	any two from reduce the amount of clay add more gravel improve the drainage add compost or organic content	2	each correct answer = 1 mark Accept any reasonable suggestion to improve the soil

Question	Answer	Marks	Further Information
10(a)	(planet A) Saturn (planet B) Uranus (planet C) Neptune	1	all three correct for the mark
10(b)	Moon	1	Accept (natural) satellite or (named artificial) satellite
10(c)	(Not drawn to scale) (idea that) the planets are not the correct size (when compared to each other) or (idea that) the planets are not the correct distance (from each other) (not in a straight line) (idea that) the planets are orbiting the Sun	2	each correct answer = 1 mark
Question	Answer	Marks	Further Information
11	(girls only) hips widen (boys only) voice gets lower (both girls and boys) hair grows under arms height increases pimples on face	2	all five correct = 2 marks two, three or four correct = 1 mark Note if any feature is written in more than one part of the table then that feature is incorrect, e.g. voice gets lower written in boys only and in both boys and girls is incorrect