GCSE Science B (Science in Context)

Foundation Tier

Science B 2F

SPECIMEN MARK SCHEME

Version 1.0

Quality of Written Communication and levels marking

In Question 7 candidates are required to produce extended written material in English, and will be assessed on the quality of their written communication as well as the standard of the scientific response.

Candidates will be required to:

- use good English
- organise information clearly
- use specialist vocabulary where appropriate.

The following general criteria should be used to assign marks to a level:

Level 1: basic

- Knowledge of basic information
- Simple understanding
- The answer is poorly organised, with almost no specialist terms and their use demonstrating a general lack of understanding of their meaning, little or no detail
- The spelling, punctuation and grammar are very weak.

Level 2: clear

- Knowledge of accurate information
- Clear understanding
- The answer has some structure and organisation, use of specialist terms has been attempted but not always accurately, some detail is given
- There is reasonable accuracy in spelling, punctuation and grammar, although there may still be some errors.

Level 3: detailed

- Knowledge of accurate information appropriately contextualised
- Detailed understanding, supported by relevant evidence and examples
- Answer is coherent and in an organised, logical sequence, containing a wide range of appropriate or relevant specialist terms used accurately.
- The answer shows almost faultless spelling, punctuation and grammar.

In order to attain a mark within a certain level, **both** the science **and** the QWC must be of a standard appropriate to that level.

COMPONENT NUMBER: GCSE Science B (Science in Context) 2F

COMPONENT NAME: My Family and Home

STATUS: Specimen Version 1.0

question	answer	extra information	mark
1(a)	light – eye smell – nose temperature – skin		1 1 1
1(b)	20–20 000 Hz		1
1(c)	sweat is released from the sweat glands in the skin more blood flows to the capillaries in the skin		1 1
1(d)	insulin pancreas		1 1
Total			**8**

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question	answer	extra information	mark
2(a)	burnt heat turbine generator		1 1 1 1
2(b)	acid rain **or** global warming	do **not** accept pollution	1
2(c)	oil / natural gas / nuclear	accept named oil derivative accept uranium	1
2(d)(i)	forests or plantations can be replanted to grow new trees		1
2(d)(ii)	some of the heat energy that could be used to heat our homes is used up in converting the water into steam		1
2(e)	solar / hydroelectric / geothermal / wind / wave / tidal		1
Total			**9**

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question	answer	extra information	mark
3(a)	nucleus		1
	cytoplasm		1
	cell membrane	accept axon	1
3(b)	nucleus		1
3(c)(i)	BB		1
	Bb bb		1
3(c)(ii)	bb		1
	because two recessive alleles are needed to be white	accept because if the dominant allele is present the animal would be black	1
Total			**8**

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question	answer	extra information	mark
4(a)(i)	0.6 **or** 60%	for correct answer 2 marks if answer is incorrect 120/200 gains **1** mark	2
4(a)(ii)	more efficient, so less energy / electricity needed less fuel burned so less CO_2 produced	accept so less energy wasted accept reference to reduced global warming or reduction in greenhouse effect ignore reference to heat	1 1
4(a)(iii)	changes in picture brightness and / or loudness of sound affect energy transfer	owtte	1
4(b)	most energy out as light **or** least energy wasted as heat		1
Total			**6**

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question	answer	extra information	mark
5(a)	same volume of water in beaker each time		1
	same volume / mass of fuel each time	accept idea of measurement of volume / mass of fuel after a fixed time **or** fixed temperature rise	1
	(for each fuel) measure start temperature **and** end temperature	accept measure rise in temperature	1
	stir water while heating		1
5(b)	Fuel **A** – 13		1
	Fuel **C** – 28		1
5(c)	Fuel **B**		1
Total			**7**

COMPONENT NUMBER: GCSE Science B (Science in Context) 2F

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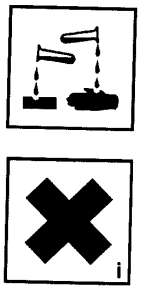
STATUS: Specimen Version 1.0

question	answer	extra information	mark
6(a)		must have both correct for the mark	1
6(b)	form of eye protection – safety specs / goggles / visor form of skin protection – gloves		1 1
6(c)(i)	(optimum pH) for stomach enzymes to work	allow acids help to break down food	1
6(c)(ii)	salt water	either order	1 1
6(d)(i)	(put probe in acid) add alkali <u>slowly</u> until meter reads 7		1 1
6(d)(ii)	hydrogen	accept H or H^+	1
Total			**9**

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question	answer	extra information	mark

7

Marks awarded for this answer will be determined by the Quality of Written Communication (QWC) as well as the standard of the scientific response. Examiners should also refer to the information on page 2.

0 marks	Level 1 (1–2 marks)	Level 2 (3–4 marks)	Level 3 (5–6 marks)
No relevant content.	There is a brief description of the experimental design to compare the sound insulating properties of the three materials. The answer would not necessarily allow the procedure to be completed successfully.	There is a description of the experimental design to compare the sound insulating properties of the three materials, including the mention of either keeping sound or distances constant, which could be followed by another person.	There is a clear, detailed description of the experimental design to compare the sound insulating properties of the three materials, including the mention of keeping both sound and distances constant, which could be easily followed by another person.

examples of the points made in the response	extra information
• use the same sound source • place sound source in a box / enclosed space / behind screen made from the insulating material • place decibel meter outside the box or other side of screen • keep the same size of box for each material or screen and same distance from box / screen to decibel meter • to make it a fair test • record how loud the sound is for each material • repeat experiment for each material and calculate average sound reading for each material • compare results to find which is the best insulating material	

Total			6

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question	answer	extra information	mark
8(a)	higher frequency so more energy		1 1
8(b)	any **three** from: • not properly informed about the dangers • radiation may prove dangerous in the long term **or** not been tested for long enough • scientists are uncertain about the damage caused by radiation • scientists need to carry out more tests • microwave radiation causes heating • children are more likely to be damaged by radiation	accept children close to the mast will get constant high-level radiation	3
8(c)	keep all masts at least 400 m from schools (gain confidence of parents by) getting experts to explain why the masts are safe		1 1
Total			**7**