



**General Certificate of Secondary Education
March 2012**

**Science B
(Specification 4500)**

SCB2FP

Unit 2: My Family and Home

Report on the Examination

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GCSE Science B

SCB2FP

General Comments

It was pleasing to see few blank spaces on many of these papers. However, some bizarre answers were seen to quite simple questions. It was noted that a number of candidates were unable to write legibly, making answers difficult to decipher. Failure to use black ink also makes some answers illegible. It is important to encourage candidates to write clearly and use only black ink. Responses that cannot be read cannot gain marks. It is surprising that candidates following a contextualised course should often display a lack of knowledge in the contextualised areas of the specification. Questions based on properties and uses of materials were often poorly attempted.

Question 1 (Low demand)

- (a) This question was well answered by the majority of candidates.
- (b) This question was well answered by the majority of candidates.

Question 2 (Low demand)

There was no pattern to the incorrect responses made for this question.

Question 3 (Low demand)

Most candidates gave 'quarrying' for obtaining limestone. There was some confusion over quicklime and slaked lime. The manufacture of glass seemed the least well-known part.

Question 4 (Low demand)

- (a) A number of candidates failed to gain this mark because of confusion over lower case p and upper case H. 'Universal indicator scale' was a not uncommon response.
- (b) (i) A pleasing number of candidates at this level knew that hydrochloric acid was the answer and were able to spell it correctly. 'Hydrolic acid' was not uncommon. 'Stomach acid' was the most common incorrect response, but 'alkaline' and 'battery acid' were seen!
- (b) (ii) A surprising number of candidates ignored the request for a colour and gave a number instead. It was even more surprising that blue and purple were given when the question asked about acid.
- (c) (i) A significant number of candidates did not attempt this question. A number of candidates described, rather than named, the reaction. Spelling was generally good and phonetic equivalents were accepted.

- (c) (ii) The majority of candidates recognised that the carbon dioxide gas was the disadvantage and the mark was awarded for this. A number of candidates went on to say that the disadvantage was discomfort (however expressed), but most referred to greenhouse gas. Some candidates suggested 'salt' is bad for you. This would have gained the mark if they had gone on to say that the salt would be sodium chloride.
- (d) To be awarded this mark candidates had to interpret the information given to arrive at the suggestion that sodium hydroxide is too strong or very strong to be used safely. 'harmful' and just 'alkaline' were insufficient.

Question 5 (Low demand)

- (a) Only about half of the candidates scored one mark, usually for 'nucleus'. Fewer than 10% of candidates scored both marks.
- (b) (i) Most candidates attempted this question. 'Environment' was the most suitable answer but appropriate environmental conditions, e.g. 'light', were accepted. Conditions which would have the same effect on all the plants e.g. 'temperature' were not accepted. 'Food' is not an alternative to nutrient.
- (b) (ii) About one-third of candidates were unable to attempt this question. Many who did attempt the question gave 'dominant' and 'recessive'.
- (c) (i) Very few candidates failed to score at least one mark on this question, with the majority scoring full marks. Some candidates ignored the convention, giving rR instead of Rr, but this was not penalised.
- (c) (ii) Most of the candidates were able to answer this question correctly.

Question 6 (Low demand)

- (a) (i)/(ii) These were answered correctly by about three-quarters of the candidates.
- (b) (i) Fewer than a third of candidates were able to answer this question correctly.
- (b) (ii) This question was generally well answered, with only a small minority opting for sound on the wrong side of the 80 dB limit.
- (c) (i) It was very pleasing to see that many candidates gave the complete two mark answer that 5 dB increase halves exposure time. Most of the rest of the candidates scored 1 for louder shorter.
- (c) (ii) The majority of candidates were able to answer this question correctly.

Question 7 (Low demand)

This question was not well answered, suggesting that this section of the specification would benefit from a more detailed coverage.

- (a) This question proved quite challenging and a third of candidates felt unable to attempt it. A few candidates gave 'monomer' or 'polythene', which have some logic behind them, but concrete, allele, chromosome?
- (b) (i) There were surprisingly few correct answers to this question. 'Rust' is not an acceptable alternative to 'corrode'.
- (b) (ii) This question was poorly answered. Most commonly candidates gave 'insulator' or 'poor conductor', which was insufficient without the mention of 'electricity'. A significant number of candidates think plastic is a good conductor of electricity.
- (b) (iii) Once again this question was very poorly answered. Most candidates clearly had not touched on the subject of cavity wall insulation. Common incorrect answers were to waterproof or strengthen, or conduct heat.
- (b) (iv) Only one third of candidates were able to achieve this mark, usually by giving 'strong' as the answer. A significant number were unable to attempt the question.
- (c) (i) Very few candidates knew the term 'composite'.
- (c) (ii) Few candidates gave the answer that composites combine the properties of the component materials. Many responses such as 'stronger' beg the question 'why?'
- (c) (iii) Most commonly marks were gained for 'cheap' as an advantage and the effect of water, however stated, as the disadvantage. Candidates sometimes did not make clear the advantage and disadvantage or contradicted themselves.

Question 8 ((b) Low demand / (a), (c) Standard demand)

- (a) (i) It was disappointing that many candidates failed to gain this relatively straightforward mark. Incorrect answers included 'coal', 'fractional distillation' and 'carbon dioxide.'
- (a) (ii) 'Fission' or 'fusion' was not well known.
- (b) Few candidates gave the complete answer, 'national grid'. 'Overhead power lines' was a common answer.
- (c) Most candidates scored 2 marks for the age-related and distance-related points. Any valid relationship was awarded a mark. A number of candidates described the pattern of numbers rather than the relationships. Often a candidate would make a correct response and then waste time and answer space giving the converse: eg 'the closer you live the greater the risk', and 'the further away you live the smaller the risk.'

Question 9 (Standard demand)

- (a) The lack of structure seen in many responses would suggest that these candidates either have not carried out much practical work or have not had the opportunity to practice writing up practical work in a way which would allow the experiment to be repeated. Many answers were incomplete. The first test of each response was to decide whether any results could be obtained from the described method. Many answers did not meet this criterion. The structure of descriptions was often poor. Candidates commonly demonstrated a lack of understanding of the terms 'heat' and 'temperature' and what a thermometer measures. Candidates also showed a lack of precision in their writing such as 'about 5 minutes', 'a while' and 'about 5 degrees', which would make the experiment unrepeatable.
- (b) (i) A minority of candidates scored marks on this question. Candidates who failed to show working and gave the incorrect answer could gain no marks, but a few who did fail at an intermediate stage did gain one or two marks for working shown. Common incorrect answers included giving the inefficiency number or added 0.002 to 0.024 to complete the apparent pattern.
- (b) (ii) The most common response was that the halogen bulbs are more efficient. Many candidates failed to appreciate that the efficiency values being the same does not equate to the same light output. Just saying that halogens produce more light must be qualified with a statement indicating that the wattage is the same.

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