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Science B SCB2FP

(Specification 4500)

Unit 2: My home

Report on the Examination

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GCSE Science B

SCB2FP

General Comments

Most questions on this paper were attempted, though some with a lot more success than others. Illegible writing is a problem and the use of 'text speak' is not appropriate. A number of students did not have with them, or use, a calculator and students are strongly advised to show all working out in calculation questions. There is strong evidence to suggest that students do not understand Sankey diagrams as well as the mathematical aspects of Unit 2.

Question 1 (Low demand)

(a) Most students were able to correctly identify the corrosive label, however very few identified the irritant label correctly. This was quite surprising considering the other two labels displayed a flame of some sort.

(b) This was answered well with many students referring to a form of safety goggles and protective clothing for the two marks. Some alternative and none credit worthy responses referred to less significant safety precautions including tying hair back and tucking away chairs; such precautions are not relevant.

Question 2 (Low demand)

(a) (i) About three quarters of students were able to gain the one mark on this question.

(a) (ii) Over half of the students were able to gain the one mark on this question.

(a) (iii) Surprisingly only 42% of students answered this correctly, with the majority of incorrect answers being 'decreases'.

(b) This question was answered poorly, considering that the question is directly taken from the specification; 15% of students didn't even attempt the question. A range of incorrect responses were given, some of which were not in fact types of electromagnetic radiation.

(c) Many different responses were seen but most students were able to give an answer that linked gamma radiation to being dangerous to the body.

Question 3 (Low demand)

(a) More than half the students were able to correctly answer this question, however a common incorrect answer stated that aluminium windows are too 'hard' to paint.

(b) A good majority of students were able to answer this question correctly.

(c) Only 50% of students correctly answered this question and the range of incorrect responses spanned across all of the words provided in the box. The answers strongly suggest that students do not understand the meaning of the term 'ductile'.

(d) Just over half the students gained this mark but, as with 3(c) there is strong evidence to suggest that the students do not understand the term 'malleable' considering the range of incorrect answers given.

Question 4 (Low demand)

(a) Most students attempted this question but only a third were able to gain both marks. Most students were able to correctly identify the unit for 'energy' but frequently students incorrectly linked 'power' with 'volts'.

(b) Fewer than half of the students could answer this question correctly and a common incorrect answer was '1 joule per hour'.

(c) This question was attempted well by students, although only 3% were able to achieve the two marks. Most students were able to calculate the power for one mark but it was working out the units that proved to be a struggle for the majority of students. Surprisingly 11% of students didn't attempt the question even though the equation was given on the Equation Sheet.

Question 5 (Low demand)

(a) This was a simple recall question straight from the specification but it was poorly answered, particularly when around 15% of students didn't attempt the question. Incorrect answers given were varied and demonstrated a lack of knowledge.

(b) (i) Again, over 10% of students didn't attempt this question, however out of those who did, the majority of students were able to gain one mark. The one mark was commonly for the basic trend, but no student considered the data in more depth to look at the difference between one fuel and the next.

(b) (ii) This was very poorly answered and only a few students gained the full two marks. Commonly students used the 40% incorrectly in their calculation and therefore did not gain a mark. On this question there was good evidence of student working out which was of benefit to the examiner.

(b) (iii) This was a very poorly answered question with the majority of the students either not attempting the question or providing an incorrect answer. Many incorrect responses were irrelevant and suggested that students did not understand the forms of energy.

(c) (i) It appears that many students did not understand how to use the Sankey diagram; about three quarters of the answers given were incorrect and achieved 0 marks. In addition, there was little evidence of working out and so it was difficult for the examiner to award one mark for identifying '3'.

(c) (ii) This question had the highest percentage of students not attempting it at over 30% and the majority of students who did attempt the question did not achieve any marks. The poor achievement in this question is a combination of students not being able to use the Sankey diagram successfully and calculate correctly. Again, many students did not show working out for their calculation.

(d) (i) Most students were able to describe the pattern increasing but this was insufficient for one mark as they did not describe the entire graph. Where students quoted the 'speed in miles per hour', many did so incorrectly and hadn't carefully read from the graph. As with the higher tier candidates, mpg was confused with fuel used.

(d) (ii) This was answered a lot better than 5bi. Most responses showed some idea that the fuel consumption was greater at higher speeds and quite a few responses also looked at the environmental effects. Many students had the misconception that at higher speeds there would be more accidents, however the third marking point was for the accidents being more severe which no student achieved.

Question 6 (Low demand)

(a) This was a poorly answered question with only one third of students correctly answering the question. A surprising third of students didn't attempt the question, and those who did showed evidence of having the correct idea but just using the incorrect terminology for example giving an answer of 'neutral'.

(b) No student gained all three marks, however most students were able to gain at least one mark. There didn't appear to be a pattern in the responses given and it appeared quite random, suggesting that students did not use their knowledge and common sense to answer the question.

(c) Most students were able to answer this question correctly.

Question 7 (Low demand)

(a) This was another example of a simple recall question where students just didn't know the answer and therefore only about 15% gained the one mark. A lot of students had a reasonable idea with suggesting 'variety' but it was a case again of not using the correct terminology.

(b) Very few students could provide two correct responses. Most students were able to correctly state that the 'sex/gender' should be kept the same, however commonly students suggested that students should be in the same class, however they did not consider that within the same class there would be a small difference in ages.

(c) As with 7 (a), a large number of students could not correctly answer this question which is recall of knowledge straight from the specification. The answers with this question however were random and there were no obvious common incorrect responses.

(d) (i) As with most Punnett square questions, the majority of students achieved both marks; the only real problem arose because of students writing illegibly.

(d) (ii) This question was again well answered but it was surprising that 10% of students didn't attempt the question.

Question 8 (Standard demand)

(a) (i) Most students were able to achieve one mark on this question. The main areas where students lost marks were in the comparison of the cost (said it was cheap, not cheaper). Also, many candidates were writing about the conductivity of steel which is irrelevant for this question.

(a) (ii) Around 40% of students were able to achieve two marks on this question and only a third gained no marks. Some incorrect answers did not give a full comparison; aluminium was said to be 'light', not 'lighter' for example.

(b) (i) Around three quarters of students did not gain a mark on this question and it is thought that the context of a ceramic hanger on a pylon confused students. Many incorrect answers suggested that the hanger conducted electricity.

(b) (ii) Again, this question was poorly answered and incorrect responses were again commonly linked to the conductivity of electricity.

(c) Over half the students were able to achieve one mark for this question, most commonly for counting 11 discs. Many students did show their full working out, which enabled the examiner to award one mark for this point. A good third of the students gained all three marks.

(d) A surprising number of students did not attempt this question, or gain one mark. Common incorrect answers included 'step up' which could not be ignored for the mark.

Question 9 (Standard demand)

Candidates demonstrated a whole range of ability in this question with the majority of students gaining 1-3 marks. The 'quality of written communication' was ok with decent sentence structures and spelling. The main issues came from students misunderstanding the question and many talked about both the response to hot and cold conditions. Students also gave very P.E. based answers in terms of warming down exercises and the athlete building up the stamina. When the correct idea was discussed, students used incorrect terminology such as capillaries and veins dilating. Very few students were able to explain how sweating regulates the athletes body temperature or even that the sweat evaporates off your skin.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results statistics page of the AQA Website.

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