

# Examiners' Report/ Principal Examiner Feedback

June 2011

360Science

GCSE Science  
Multiple Choice Paper C1b (5008)

GCSE Chemistry  
Multiple Choice Paper C1b (5036)

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## 5008 Science/ 5036 Chemistry (C1b) Examiners' Report

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### Foundation Tier

The first three questions of this Foundation tier paper were generally well answered. Candidates showed some understanding that hydrocarbons contain just carbon and hydrogen, with 60% getting this correct. Problems associated with the incomplete combustion of a hydrocarbon were well understood with 81% of candidates recognising that an unchecked boiler could produce a toxic gas. Candidates found the section on alternative fuels more challenging, with just 23% of candidates realising that the only product of burning hydrogen is water, 25% believing the product to be carbon dioxide, and 35% believing that both carbon dioxide and water was produced.

Questions on Kevlar, and its properties linked to uses, were well understood.

The third section on the topic of food was poorly understood; only 19% of candidates understood that the removal of water preserves food, with 45% of candidates believing that the removal of carbon dioxide would do this job. In question 11, 29% of candidates incorrectly answered that adding oxygen to a sealed packet of peanuts would help preserve them, with just 37% giving the correct answer of nitrogen.

Questions 13 to 16 on alcohol and its effects were well answered.

Question 17 was poorly answered, with 18% of candidates understanding that an advantage of using hydrogen as a fuel is that it is a raw material that is readily available. Questions 18 and 19 on sustainability and recycling were well answered.

The final section of the foundation paper on the Earth was poorly answered. Just 35% of candidates understood that the gas that makes up 79% of our atmosphere is nitrogen, with 46% thinking that the correct answer was oxygen. In question 22, just 35% of candidates could recall that the process used to obtain oxygen from liquid air was fractional distillation.

Candidates' knowledge of how the atmosphere has changed since the formation of the Earth was poor, with 24% of candidates understanding the amount of oxygen has increased and that the amount of carbon dioxide has decreased.

### Higher Tier

Candidates generally answered questions 17 to 24 well; however questions 17 and 23 proved more of a challenge, with just 18% of candidates understanding that (in question 17) an advantage of using hydrogen as a

fuel is that it is a raw material that is readily available. In question 23, 24% of candidates understood that the amount of oxygen has increased and that the amount of carbon dioxide has decreased in the Earth's atmosphere since it was formed.

Candidates showed a good understanding of the term hydrophilic with 74% giving the correct definition. However, candidates still have trouble understanding nanotechnology with 57% of candidates believing that nanoparticles are smaller than individual atoms.

The second section on crude oil seemed to prove more of a challenge for candidates with only 36% realising that the gaseous fraction from crude oil could be used as a fuel for some cars. The incomplete combustion of fuels was better understood.

The section on salt was poorly answered, with 38% of candidates believing that sodium chloride and pure water can be obtained from seawater using filtration. 47% of candidates correctly identified sodium chloride as a substance used to flavour food but then did not go on and show an understanding that sodium hydroxide could not be used to absorb alkaline gases, thereby getting the answer incorrect. The formula of sodium hydroxide was not well recognised with only 25% of candidates selecting the correct answer NaOH.

In the final section of this paper, candidates had difficulty understanding the role of yeast during the process of fermentation, with 65% of candidates believing that after a time the yeast would be used up, however most candidates did realise that the ideal temperature for the process was not 70 °C. The balanced equation for the reaction was fairly well answered with 43% of candidates selecting the correct response.

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