

# Principal Examiner Report

Summer 2012

Primary and Lower Secondary  
Curriculum (PLSC)  
Year 9 Science Achievement Test  
(LSC01) Paper 01

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## **General Comments**

This was the first time the examination had been offered and so understandably the entry was quite small but considerable growth is expected in the future. There was a wide range of abilities shown by the candidates and it was pleasing to see that most questions seemed accessible to the majority with very few blank spaces found. There was little evidence of a time problem being an issue.

## **Section A**

The paper started with ten multiple choice questions having a biological content.

The first few proved to be a nice introduction to the paper with question 1 involving recognising a nerve cell being answered correctly by almost all candidates and many also scored in questions 2-4.

Question 5 concerning the menstrual cycle proved more difficult as did several of the following questions.

Question 8 about micro-organisms regularly produced all possible answers. It was a little surprising in question 9 to see how many thought a lizard can survive without water but the majority recognised that in question 10, light energy changed into chemical energy during photosynthesis.

Question 11 which asked for parts of the cell that carry out given functions was well answered by good candidates but significant numbers incorrectly gave cell wall instead of cell membrane in (b) and could not identify cytoplasm in (d).

Question 12 about particle theory was well answered with many scoring full marks.

In question 13, the common answers to (a) were "eaten by/consumed by" which may be acceptable at a lower level but answers involving the idea of energy transfer were needed here. Part (b) was well answered but in (c) large numbers missed the 4th food chain which ended with the hawk but most successfully produced a labelled pyramid in (d).

The next ten questions were of the multiple choice type on chemistry.

Question 14 was surprisingly poorly answered with many believing a sugar crystal contains only one type of atom. The fact that in a chemical reaction mass is never created or lost was well known although a good number thought there was always a colour change. Questions 16, 19 and 20 involved understanding the terms atoms, molecules and elements and it was evident that there was a good deal of confusion amongst many about the meaning of the terms.

Question 17 proved challenging but the other question involving pH, in question 22, proved very straightforward. It was rather surprising to find that in question 23, so many thought the best way to treat an acidic lake was to add sodium hydroxide pellets.

Question 24 proved extremely challenging with a variety of suggestions, some more scientifically plausible than others, being made.

Question 25 was much more accessible and most scored at least two marks.

Question 26 Part (a), required the candidates to plot the solubility and temperature data. Most chose a suitable scale and plotted the points correctly but it seemed that some were unfamiliar with the idea of a line of best fit. Only the best candidates proved capable of successfully tackling (b) with the units often also being incorrect.

The next ten questions were multiple choice questions on physics.

Candidates obviously found this section difficult with only the better candidates scoring well. The more accessible questions included questions 27 and 29 involving electric currents and circuits but in others there seemed to be no clear pattern in responses given by candidates.

Question 37(a) was well answered by many but only better candidates successfully calculated the pressure in (b).

Question 38 involving knowledge of the colours of the spectrum was well known by able candidates and most were able to gain some credit by knowing most of the colours although many mixed up the order and many included purple. Less able candidates included black and/or white.

## Section B

This section covered three practically based questions, one each on biology, chemistry and physics.

Question 39 was an investigative type question on the germination of seeds. It proved to be the most accessible of the three questions in the section. Many scored three or four of the first five marks in parts (a) to (c) although it was surprising that significant numbers could not correctly read the upside down thermometers in part (c). Part (d) proved to be a good discriminator with only able candidates being able to give a correct conclusion backed up by a suitable reason.

Question 40 which covered a practical method of preparing the salt magnesium sulfate was generally very poorly answered. It appeared that many candidates were totally unfamiliar with the idea and had no laboratory experience in preparing salts. The answers given were often vague and were not directly related to the reaction between magnesium and sulphuric acid referred to in the question. The lack of direct practical experience was particularly evident in answers to parts (b) and (c) with seemingly random guesses being made by too many.

Question 41 proved more beneficial to candidates although a surprising number suggested room temperature as  $95^{\circ}\text{C}$ ! In (b) many correctly worked out that more heat was lost through the surface and followed this with a decent explanation. In (c) there were many good answers involving lids and insulation but some incorrectly suggested changing the shape or material of the mug itself.

## Summary

Based on their performance on this paper, candidates should:

- spend time and use the Sample Assessment Materials (SAMS) on the qualification website to practice in preparation for the exams;
- ensure that they only leave **one** choice of answer marked with a cross for the multiple choice questions;
- consider the wording of the question stem, particularly questions with more than 1 mark, to guide the construction of their answer;
- be discouraged from copying out statements in the stem of the question as part of their answer because merely repeating the question will not gain credit.

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