

Examiners' Report/
Principal Examiner Feedback

Summer 2014

Edexcel International Lower
Secondary Curriculum Science
LSC01 Paper 01

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General comments

This was the third examination for the Year 9 Achievement Test in Science. It was pleasing to see another increase in the number of candidates. Many of them were very well prepared and the paper gave them the opportunity to show their knowledge and understanding.

There were very few scripts with blank spaces indicating the accessibility of most of the questions but also showing that the paper was able to be completed in the time available. However, it was strange to see that sometimes no answers were given to multiple-choice questions. Even if they are not sure it is always worth giving an answer! Another point to bring to the attention of candidates is that in free response questions they should not repeat the question – there are no marks given for this and it takes up valuable time.

There was a good spread of marks indicating that the paper differentiated between candidates of varying abilities. Some candidates scored very highly indeed with full marks, particularly in the first two sets of ten multiple choice sections, quite often seen. Section B which contained free response questions designed to test practical and experimental skills proved the more difficult than Section A.

Comments on individual questions

Section A

Question 1

Most candidates knew that nicotine is addictive.

Question 2

A significant minority thought that all metals are magnetic.

Question 3

This question and other questions on forces in the paper caused difficulty for many.

Question 4

Most correctly chose the digestive system.

Question 5

Granite was a popular incorrect answer.

Question 6

This was another question on forces which caused problems. D was a popular incorrect answer. Possibly it was chosen as it was pointing to the log and the question contained the phrase "on the log".

Question 7

The role of magnesium ions was not known by many with all answers seen on a regular basis with C (keep insects away) being particularly common.

Question 8

Most candidates knew the meaning of the word "malleable".

Question 9

Many candidates chose answer D (400kg).

Question 10

Most appreciated that there is always a producer at the start of a food chain.

Question 11

The word "function" was not seemingly understood by some candidates as they just named different bones. However, most scored at least two marks with protection and movement being the most common correct answers.

Question 12

Most candidates gained full marks for the methods of separating different mixtures.

Question 13

This was poorly answered. Many candidates gave vague answers about the environment, pollution, or cost. The mark which was most often awarded was for correctly referring to the flammable or potentially explosive nature of hydrogen.

Question 14

This was usually well answered, particularly part (b) but in (a) "upthrust" was quite a common incorrect response.

Questions 15-24

These multiple choice questions were meant to be more demanding than the first set and this proved to be the case.

Question 15

Many chose A or B instead of the correct answer C.

Question 16

The likely pH of an alkali was well known.

Question 17

Many thought the Earth is kept in orbit by the gravitational attraction of the Moon instead of the Sun.

Question 18

Whilst the correct answer was given by the majority, many others suggested that biological control is not used in organic farming.

Question 19

Most appreciated that sugar solution is a mixture although many chose the best distractor of a compound.

Question 20

Another question involving forces which proved difficult with all four answers being regularly seen.

Question 21

Many correctly selected eye colour but other options were chosen by many.

Question 22

The two igneous rocks were identified by many but some thought marble was igneous.

Question 23

Surprisingly few got this correct with sound being the most common incorrect answer.

Question 24

Many thought sex cells are called alleles.

Question 25

The majority of candidates knew the type of reproduction was asexual but few were able to obtain two marks for the features.

Question 26

Most were able to put the metals in the correct order of reactivity although some totally reversed the order and were given one mark. The word equation proved difficult to many and some even tried to write a formulae equation.

Question 27

Many were able to describe an artificial satellite as "man-made" but fewer gave the idea of orbiting. Almost everyone identified a correct use of an artificial satellite.

Questions 28-37

As expected these Multiple Choice questions proved to be the most difficult set on the paper.

Question 28

Knowledge of selective breeding proved very variable with all answers being seen.

Question 29

Most gave the correct answer of rusting.

Question 30

This Sankey diagram question was correctly answered by most of the best candidates.

Question 31

This question probably proved to be the most difficult in the section.

Question 32

It was surprising that not more chose the correct formula for sodium chloride with SoCl being surprisingly popular.

Question 33

Many did choose the correct option of C but a lot chose D or B.

Question 34

This proved much more difficult than expected with many thinking that the elements selected were all metals. The other more expected incorrect answer of a group was also chosen by many.

Question 35

This was a very difficult question with all four options almost equally popular.

Question 36

The correct answer of hydrogen was the most common answer but many thought carbon dioxide is produced when a metal reacts with a dilute acid.

Question 37

This question about refraction and reflection was correctly answered by strong candidates but others offered all the other options.

Question 38

This question required candidates to use a graph to describe the effect of increasing the intensity of light on the rate of photosynthesis. Many could describe the initial increase in rate but very few correctly described what was happening when the graph became horizontal. Many simply did not attempt to and of those that did, most incorrectly said the horizontal part of the curve meant the intensity of light was constant when it was still increasing; it was the rate of photosynthesis which was constant.

Question 39

This is a difficult topic at this level and the majority could not complete the Punnett square correctly and so could not answer part (b).

Question 40

Both part (a) and particularly (b) were poorly answered. Many mentioned carbon dioxide but also included other products as being responsible or failed to mention that a gas was being given off.

Question 41

Few could accurately pinpoint the position of the pivot and there were force arrows in many varied positions. The calculation also proved difficult although strong candidates answered correctly.

Section B

As usual this section contained questions which were mainly practically based. They proved to be hard for many candidates to score highly on, perhaps suggesting that candidates need more direct practical experience.

Question 42

Many candidates did achieve high marks for this question. They were able to plot graphs accurately and draw lines of best fit. The last part proved most difficult as it required lines of best fit to be extrapolated far enough to be able to accurately read a prediction off the graph. However there were a lot of candidates who did not use a linear scale or who joined all the points rather than draw a line of best fit. Some plotted the length of the spring instead of the change in length but they were allowed to gain the majority of the marks.

Question 43

Safety precautions given in part (a) were often the same marking point, focusing upon safety clothing. In (b), probably due to the nature of the inverse relationship, very few candidates were able to link the increase in surface size to a lesser time taken. Many suggested it was a linear relationship, thinking that because lumps were bigger, they had a bigger surface area. In (c) it was surprising how many thought that a more dilute acid would make the reaction faster.

Question 44

Many parts of this question proved beyond the capability of a lot of candidates. Hardly any candidates gave a correct answer to (a). Most thought it was to increase the accuracy rather than reliability. Part (b) proved more accessible and in (c) many candidates usually identified at least one factor to be kept constant for a fair test. In (d) it was disappointing that so many could not identify independent and dependent variables. Very few correct responses were seen to part (e).

Summary Section

Based on their performance on this paper, candidates should:

- be given more opportunities to improve their practical experience;
- spend time discussing with teachers "How science works";
- learn how to apply scientific knowledge to explain results and ensure they are familiar with scientific terminology;
- be clear what the word "function" means in a question;
- improve their understanding of the terms dependent and independent variables.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

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