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# Examiner's Report Principal Examiner Feedback

## Summer 2018

PLSC Science

International Achievement Test – Primary

(JSC01/01)

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## General comments

This was the seventh examination for the Year 6 Achievement Test in science, which again welcomed some new centres and their students, along with many returning centres.

It is once again evident that centres prepare students thoroughly and carefully for this examination and the overall performance of the cohort reflects this. Most students demonstrated a sound knowledge of science, many with considerable depth and breadth of knowledge and understanding, and were able to use appropriate scientific vocabulary with accuracy. Very few questions were left unanswered, showing that students worked hard to maintain high standards of achievement.

Returning centres have again responded to the feedback reports and acted on the advice given. Students' responses are generally concise and factual.

Many students scored well on the first section of multiple choice questions, with the second and third sections having a few more challenging questions, which some of the high achieving students are still confident with. Very occasionally students failed to cross out their first answer when they changed their choice, but this is becoming less frequent. It was rare to see a question with no attempt at an answer, with the exception of question 32 which a few students did not attempt.

Students continue to find longer constructed response questions and section B more challenging. Students could be encouraged to take the time to read the question carefully, underlining key words to help them find information in the introduction to the question that may help them to answer the question. Some students who score very high marks in section A do not sustain this high performance in section B.

To help them to answer effectively in the Section B questions, students need to be able to identify variables that are kept the same in an investigation, and to look for cause and effect to help write a conclusion. For example, students need to be able to identify the variable that is being changed and the variable that is being measured to then be able to write a conclusion in the form 'the more / less / bigger / smaller (variable being changed or controlled) the faster / slower / bigger / smaller (the variable being measured).

Students achieving P3 were usually able to demonstrate a consistently high standard across all parts of the paper, although even here, some students were not as capable in Section B as Section A. Those borderline students aspiring to P3 grades could focus further attention on Section B, ensuring they are familiar with all equipment and developing a sound understanding of variables in investigations. In constructed response questions, students with more limited written English skills should focus on making short factual statements containing scientific nouns.

## Comments on individual questions

### Section A

#### Questions 1 - 8

Most students who received an award were able to answer five or six of the first eight questions. Questions 6 and 7 caused most difficulty, with a significant number giving the answer C, raindrops, for question 6, and B, dry soil with lots of air spaces, for question 7.

#### Question 9(a)

Most students were able to state that each item could cause a burn as a potential injury, while a small number of students tried to give a different hazard for each item. Students could be encouraged to look for the number of marks for each question, and, as one was required here, limit themselves to the one answer required.

#### Question 9(b)

Many students could recognise the change as burning, although some just stated heating, which was not sufficient. Although a large number of students could correctly complete the table, some did not make the link between irreversible changes and the formation of new materials. Some students clearly knew which changes were reversible, but could not state whether new materials were formed or not.

#### Questions 10 - 18

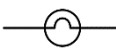
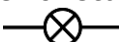
The second section of multiple choice questions were more challenging for students, with most students confident with questions 11, 12 and 17. The most common incorrect answer for question 11 was A, but few suggested B or D. Question 10 proved quite challenging for many students, with the most common incorrect answers being A, adaptation or D, variation. Question 13 required students to consider the drawing a little, with students often putting C as their answer, getting them the wrong way around, which a little more time considering the question may have resolved for them.

#### Question 19

This proved quite challenging for students to achieve full marks on. Some students did not like to draw two lines going to one box on the right, and so only drew three lines. The most common correct answers were for shaving foam and water.

#### Question 20(a)

Many students were able to complete the circuit accurately, using the correct symbols for bulbs, switch and wires.

A small number of students used the incorrect symbol for a bulb of:   
rather than: 

### Question 20(b)

Most students could give at least one way to make the bulb brighter, usually adding another cell, or removing one bulb. The most able students were able to suggest changes to the length or thickness of the wire, which had to be comparative to achieve the mark.

### Questions 21 - 29

The third section of multiple choice questions was similar to the previous section, with most students who achieved an award able to answer at least 3 or 4. For question 24 the most common incorrect answer was A, excretion, and question 28 a common error was A, repeat the investigation.

### Question 29

P1 students found this question tricky, often drawing multiple rays coming from the sun, with nothing drawn to the eye. P2 students could frequently achieved one of the marks, often for the arrows in the correct place as they did not draw their lines touching the sun, book and eye, but sometimes too far away to be able to credit the mark.

### Question 30(a)

Most students were able to state the term habitat.

### Question 30(b)

Many students were able to complete this, although a significant number did literally draw the food chain, and did not name each organism below their drawings. A small number of students drew the arrows in the wrong direction.

### Question 30(c)

This was a difficult question for students, requiring both the feature and how it helped the snowshoe hare for each mark. A significant number of students could describe why the animal had a feature, but did not give enough detail on the feature. E.g. it has fur to keep it warm, rather than stating it has long or thick fur to keep it warm. Students may need further support on the approach to 'explain' type questions.

## Section B

Section B clearly discriminated between students who were familiar with a variety of practical activities and those who were less familiar with them. Some students would achieve very well on Section A, showing excellent scientific knowledge, but then were not able to transfer that knowledge to apply it in Section B. Whilst students' skills in this area have improved, they need to develop greater versatility in applying the general principles of variables, fair testing and safety to unknown situations.

### Question 31

In part 31(a) most students could state which rule helps prevent chemicals getting into someone's eye, but in part 31(a)(ii), while many achieved one mark, many found identifying the second rule more challenging.

In part 31(b) many found it difficult to achieve full marks, with the most common errors being identifying the ammeter as a weighing scales, and mixing up the test tube and measuring cylinder.

### Question 32

Many P1 students found this question very difficult, possibly due to lack of familiarity with this practical.

In part 32(a) Many of the more able students were able to make suggestions here, but P1 level students found it challenging to make any suggestions.

Part 32(b)(i) Many students were able to make the correct choice, some did circle all of Enzo's results, or Enzo's name, or the number 2 in the 'number of paper clips' column rather than the single result asked for.

Part 32(b)(ii) was a challenging question as they were required to interpret the table for the conclusion, so they had to look for general trends in the data, which is a high level thinking skill. Some students referred back to Enzo's results being incorrect, or that he needed to do his test again rather than looking at the overall trends in the results.

Part 32(c)(i) Many students could state the spinner would fall faster, or land sooner but some said it would drop straight down, which was not quite enough for the mark. Student responses also needed to be comparative, so responses such as 'it fell fast' were insufficient.

Part 32(c)(ii) was a very discriminating question, requiring a thoughtful response, as only the most able scientists were able to make an appropriate suggestion, usually drop from a higher place or to make the spinner larger.

### Question 33

The majority of students made a good attempt at the graph, with the majority of students achieving at least 2 marks. These were usually the marks for labelling the x-axis with the names of the whales and the bars for 10m and 14m. Some students found drawing both of the other difficult, while some could draw the bar for 23m accurately, but struggled with achieving 29.5m. Many students did not attempt to label the y-axis with length of the whale at all, while others who did forgot to add the

units required. Whilst many students did use a ruler to draw the graph carefully and accurately, some chose not to, which made the accuracy of their plotting weaker, and they may not have achieved equal width bars.

## Summary section

Based on their performance on this paper, students should:

- have further opportunity to undertake a variety of practical work, using simple equipment, and learning to apply the principles of variables, fair testing and safety precautions.
- continue to develop their understanding and identification of anomalous results in any investigation and set of results, and to understand why several readings are taken
- develop their understanding of series and parallel circuits and how components work independently of each other in a parallel circuit
- use a ruler for drawing bar charts or histograms
- understand how to answer 'explain' questions effectively, stating the observation and why it occurs.
- write in black ink, not blue, pencil, or coloured gel pens.