



Examiner's Report Principal Examiner Feedback

June 2023

PLSC Science

International Achievement Test – iPrimary Year
6 (JSC11/01)

General comments

Candidates clearly worked hard on this paper to demonstrate their level of scientific knowledge and understanding. Candidates usually answered all questions, showing good time management skills for the duration of the exam. Work was presented neatly, mainly keeping their answers within the space provided. If candidates do cross out work it is useful if they indicate on which page they have written their new answer.

Teachers had carefully prepared candidates for the exam, although some aspects of the specification, such as plant reproduction, may require a little more revision with candidates. High achieving candidates showed a good understanding of scientific terminology needed to be able to access some of the more challenging questions, and to provide complete answers, while this a continuing area for improvement for P1 and P2 level candidates.

Most candidates answered multiple-choice, short answer questions and longer answer questions well. Candidates still need to be encouraged to read questions carefully, particularly the lower achieving students, and to provide a more detail in questions worth 2 marks. Candidates should try to avoid restating parts of the question stem in their answers.

Candidates achieving P3 demonstrated ability across the specification, as well as in Section B. They provided detailed answers for questions of 2 marks, could link ideas and analyse data presented effectively. They were also able to draw conclusions, and this capability is developing well in those of P2 standard. Those borderline candidates aspiring to P3 could focus on ensuring their understanding of fair testing, reliability and accuracy in investigations is developed further.

Comments on individual questions

Section A

Multiple choice questions are marked by computer, so it is not possible to make significant comment on how candidates achieved in these sections, except to point out which questions candidates found more challenging, which were: 3, 4, 10ai, 15,17, 24 and 26. Candidates found 15 and 17 the hardest.

Question 10aii

Generally students had a good understanding of these concepts. The majority of P2 and P3 candidates scored both marks, with many P1 candidates able to achieve 1 mark, often for gravity/ weight. A few of the P1 candidates named them the wrong way around. Most students used the correct terminology, although some used upthrust and, very occasionally, friction. Some lost marks as they simply said up force and down force.

Question 11

Almost all students answered this correctly. A very small number of candidates had the organisms in reverse order, demonstrating a lack of understanding of the meaning of the arrows. Only those who did not achieve a grade wrote them in random order. A small number of candidates did provide a bit more than the name of the organism, by including the rest of the descriptive words from the information provided.

Question 12

The majority of P2 and P3 candidates achieved this mark, with many P1 candidates also understanding this. While most candidates achieved the first point, errors were to write precipitating, precipitating or freezing for the second response.

Question 19

Candidates found this a more challenging question, with many candidates achieving only 1 mark, and generally the P3 candidates gaining both. A and B were more likely to be correctly linked than C. A few candidates did not follow the instructions and drew multiple lines from 1 box.

Question 20

(a) Candidates found this a difficult question. They need to ensure they read the question carefully and understand what is being asked, as by far the most common

answer given was light being required for germination. Here is a case where the counterintuitive nature of science required candidates to think carefully about germination as a process rather than plant growth in general. A noticeable minority stated 'water' which was given in the stem, showing that exam skills need development.

(b) Candidates completed this part much better, with students opting in equal numbers for water, minerals or anchoring the plant.

Question 21

This was a more challenging question for candidates with only strong P3 candidates achieving both marks generally. Many candidates did score 1 mark, with ideas about increased grip or increased friction. Some candidates suggested the function of the spikes was to decrease friction.

Question 22

(a) Many candidates were able to score at least 1 mark, often for bright or colourful petals, with scent or nectar also given frequently. Many candidates incorrectly mentioned large petals, showing they had interpreted the diagram but did not demonstrate further knowledge.

(b) Candidates found this more challenging, with many giving a feature of a wind pollinated plant instead.

Question 27

Approximately 50% of candidates answered correctly, with many not reading the question carefully and instead naming the two organs shown in the diagram, or naming the organ system. Relatively few named it as the thorax, with many giving chest, which was accepted, or ribs / ribcage, which were insufficient for the mark. Inside the ribs was given on this occasion, but candidates are expected to know this region of the body as the thorax.

Question 28

Most P2 and P3 candidates scored here, along with many P1's, although weaker candidates often only placed one tick.

Question 29

Candidates scored better on part b) than a) but found both quite difficult. Few were able to describe 'style' for (a) with common incorrect answers being stigma, pollen tube or filament.

In b) many stated seeds, which is a weaker answer than ovule or ova. This aspect of plant reproduction not well understood. Common incorrect answers were ovary, eggs, pollen or fruit.

Question 30

Most candidates were able to state these correctly.

Question 31

Around 60% of candidates achieved both marks for a) with most candidates able to score at least one mark, by correctly identifying the temperature of Earth, although some did not know the temperature of Earth. The most common error was to confuse the temperatures of Mars and Venus.

Part b) tested the students' ability of using standard measures, place value and estimation, and some candidates did not include million in their answer, which was required to give a suitable value for the number. Some misunderstood the question as they gave answers such as -600 which suggests they were thinking about temperature.

Question 32

Candidates found this a more challenging question, with few gaining 2 marks. A significant number said the animal ate the seed, with some saying it stuck in the fur and then the animal ate it later, or carried it in their mouths before spitting it out. The majority of P3 and P2 candidates scored 1 mark.

Section B

In section B candidates demonstrated their knowledge and skills developed in undertaking practical scientific studies and applied some of the scientific principles of fair testing, reliability and accuracy to new situations, or to practical's they may have undertaken in the classroom.

P1 candidates continue to find this a very challenging section, as they have difficulty in applying a theoretical concept to a new situation. These candidates performed better this year on these questions, particularly on questions 33a, 33b, 34ai, 34bi, 35a.

Question 33

- (a) Most candidates scored at least 1 mark, with **A** being the most likely to be correct. Some lost a mark for writing W in a box or leaving a box blank.
- (b) Most candidates recognised the significance of a fair test, but many candidates also stated accuracy or reliability, which negated their initial idea. Candidates often continue to carry this lack of understanding forward throughout their scientific education.
- (c) Candidates found this a challenging question, with P2 and P3 candidates often achieving 1 mark. Some again would add accuracy, so losing the mark. Some candidates stated 'to get the correct result' which is not the same as checking the results.

Question 34

- (a) The majority of candidates scored a mark for i), although a few misunderstood the question as they described how to measure the height or gave random answers such as ball. Few were able to explain how to ensure results were obtained systematically and carefully, which requires a precise answer from part of the method given.
- (b) The majority of candidates scored the i) mark, although a few left it blank and very wobbly lines cost some the mark, so candidates need to be encouraged to use a ruler for drawing graphs. A few drew the bar at 25 rather than 26. Over 40% of candidates scored both marks in ii), being able to adequately express themselves in terms of comparatives, and cause and effect. Most P2 and P3 candidates scored either 1 or 2 marks, with P1's struggling to express themselves adequately, often making basic statements such as 'it bounced high in the sun'.

Question 35

- (a) Only the very weakest candidates did not score this mark.
- (b) Stronger P3 candidates were able to express themselves in a variety of ways, with some recognising the pattern was the same in all dishes, so calculated the total numbers in the wet areas and the dry areas and compared them, with some impressively even working out a ratio for wet: dry areas, or commenting on each dish separately. Many other candidates would just reuse words from the stem and say 'the woodlice preferred the wet side' or 'woodlice were found in the wet side' or 'all woodlice preferred the wet side', which were not what the results showed. Candidates

need to be encouraged to look at each line of data and decide if that row agrees with the conclusion. Both P2 and P1 found it difficult to score, with some P2's achieving one mark.

(c) Candidates need to be careful not to just state the usual lab precautions such as goggles and gloves, but to think a little more about the situation given. Some candidates gave answers referring to the wellbeing of the woodlice, such as release them in damp place or put back where they were found, which were worthwhile to see that candidates were careful with the test organisms, but unfortunately did not answer the question.

(d) This question threw candidates, with few willing to tick all three 'yes' boxes.

Summary section

Based on their performance on this paper, students should:

- develop a greater understanding of the differences between germination and growth of plants and their differing requirements
- develop their understanding of plant reproduction including the structures involved and their roles
- continue to develop the skill of graphical interpretation of information
- continue to develop their skills in interpreting data to express a valid conclusion
- continue to develop their understanding and the meaning of the terms fair test, accuracy and reliability and be able to apply these to different investigations
- ensure candidates read questions carefully before answering them to follow the instructions given
- P1 standard candidates would benefit from further support during their practical work to understand how concepts can transfer to new investigations

