Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

October 2023

Pearson Edexcel International Primary Curriculum In Science (JSC11)
Paper 01 Year 6 Achievement Test

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General Comments

Candidates clearly worked hard to complete the paper, with a low level of omitted questions, demonstrating their level of scientific knowledge and understanding. Candidates demonstrated good time management skills and 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 evidently prepared candidates well for the exam, although some aspects of the specification, such as the need for seed dispersal, may require a little more revision. 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.

P1 candidates in particular need further guidance on understanding how to complete some of the questions, such as using lines to join two items together such as in question 20a, or how to draw ray lines to show how light travels from a light source to an object then to the eye. This level of candidate could be encouraged to provide 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: 1, 3, 5, 9, 10, 16, 24 and 25. Candidates found 3 and 24 and 25 the hardest.

Question 11

a i and ii The majority of candidates recognized the producer in the food web, with slightly fewer correctly naming a predator of the limpet.

b Candidates found this a more difficult question, with P3 candidates most likely to score one or two marks, and a few P2 candidates achieving one mark. Answers such as 'to break down dead animals and plants' was the most popular correct answer. There were variations on the second mark point from releasing nutrients to making compost. There were a lot of incorrect answers involving the food chain shown, demonstrating some confusion as to the role of decomposers. The other correct answers involved decay, rotting and breaking down things to small particles, so M2 was missed.

Question 12

The majority of candidates who achieved a grade gave a correct answer of either add another cell or remove the bulb.

Question 20

(a) Candidates found this a difficult question. Around 60% achieved one mark, and less than 10% achieved both marks. The most common error was linking grass to non-flowering plants, which was a surprise as they learn about insect and wind pollinated flowers. A small number of candidates only drew two lines, one to non-flowering plants and one to flowering plants.

(b) This question candidates also found difficult. Many candidates made vague statements such as 'so they can grow into new plants' or 'to get more vegetables', while a few recognized there needed to be more space, nutrients or water and the proximity to the parent plant was problematic. Confusion as to the purpose of distribution of seeds in flowering plants was apparent. There were several answers referring to wind or animal distribution or pollination, or the need to distribute the seed was to allow germination or to grow but without reference to a different place, so species doesn't become extinct.

Question 21

An almost 50:50 split between those achieving one mark and those achieving two marks, showing a good understanding of the difference between reversible and irreversible changes. Burning a wax candle being given as a reversible change was the most common error.

Question 22

This was generally answered well, with around 60% of candidates achieving both marks. There were some with the arrows in the wrong direction, some with several lines coming from the light bulb, some of these were correctly drawn, but some were random lines, with no connection to the book, and a few with lines to the eyes then the book.

Question 26

(b) Another difficult question for candidates. Some candidates understood that air resistance needed to be reduced with fewer giving a way of achieving this through some form of streamlining of the person or helmet, or oiling of the chain. There were several mentions of oiling bike wheels or changing tyre treads, and some suggested increasing friction. More consistent understanding and use of the word streamlined in relation to air resistance is required.

Question 27

Most candidates understood there was movement of water into the plant. Some clearly understood the route of water through the stem to the leaves. There were references to flower instead of leaves and water into roots instead of stem. Some simply referred to being in blue water or nutrients/blue colour being taken in, or the plant 'drinking' the blue water.

Question 28

Most P2 and P3 candidates scored here, along with many P1's, although weaker candidates sometimes just circled numbers in the table, and did not understand what they needed to do to answer the question.

Question 29

Generally answered well, with around 50% of candidates achieving both marks. This demonstrated the candidates understood the presence of trees affected either the amount of sunlight or rainfall the plants received, or that they would need to share nutrients or space with the trees, and that this would affect crop size. There were some answers mentioning fertilizer or fewer seeds planted.

Question 30

This question was difficult for many candidates. Some candidates understood this was a series circuit, and some went further than the requirements of the specification by talking about needing a parallel circuit to get the desired results. Some understood the switch would make both the motor and bulb work or not work together, while other candidates stated it wouldn't work as there was only switch in the circuit.

Question 31

Generally P3 candidates achieved this mark, along with some P2 candidates. Weaker candidates stated it had mixed to form a solution, or that it was dissolving to form a solution, rather than understanding that because bubbles were formed, a new substance was produced.

Question 32

This was generally answered well, with most candidates achieving one or two marks. Most candidates understood the crystals dissolve faster in hotter water or a warmer room, or if they are crushed or stirred faster or more. A few candidates made reference to increasing the volume of water used to dissolve the crystals. Incorrect answers included less volume, stirring without any qualification or stating the same thing in two ways, e.g. add hot water and put it in a warm room.

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 could focus on knowing different types of measuring device and what they are used to measure.

Question 33

(a) Around 50% of candidates achieved this mark, Some named the measuring cylinder, ruler or measuring tape.

(b) Most answers referred to keeping the volume the same while others referred to the size, mass or shape of the ball, position of the ball at the start and end or starting the timing when the ball was dropped. A number of candidates stated repeat the test, which improves reliability. There were some answers referring to the size of the measuring cylinder, decreasing the volume of liquid or using different liquids.

(c) Around 50% of candidates achieved this mark. The most common error was to tick 'use different size measuring cylinders,' and a small number of candidates ticked more than one box.

(d) Most P3 and some P2 candidates achieved this mark, with the most common error being candidates stating 'no' for 'Does the temperature f the liquid affect how fast the ball sinks'.
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Question 34

(a) The candidates found this a difficult question, with P3's and a few P2's achieving this mark. Many candidates considered the temperature as a variable that was controlled, rather than being changed by the investigator.

(b) Many candidates scored this mark, but a significant number did not mention anything about temperature in their answer.

(c) Many candidates stated that ruler B was the best to use, but only around 33% could give a clear reason why, by mentioning decimals or improved accuracy of the reading. Weaker candidates made vague comments such as 'you can read between the numbers' , or 'to measure the exact height'. A small number of candidates did not state the ruler they selected, so did not score any marks.

Question 35

(a) Only P3 candidates were likely to score on this question, Some candidates made a statement about solubility increasing with temperature, so may have considered the wrong line, others stated a mass.

(b) i) Most answered this correctly.

ii) Most curves were drawn correctly, but some did not include all the points or were drawn as point-to-point or with rulers. There were some bar graphs drawn too. Clear instructions on how to draw graphs is needed.

iii) A lot of students answered this part correctly, though answers ranged from 10 to 120 g and some answers being given as C° rather than °C.

(c) This was a difficult question for most candidates to secure a mark, and only the most able P3 candidates were able to score. Some managed a mark by comparing results for each solid and a few by referring to the solubility increase with temperature. There were references to Solid C and confused answers to do with the graph, temperatures or the number of grams.

Summary section

Based on their performance on this paper, students should:

- develop a greater understanding of the reasons for seed dispersal as well as the methods of dispersal
- develop their understanding of the role of decomposers in food webs
- develop their understanding of streamlining reducing the effect of air or water resistance
- continue to develop the skill of plotting graph points and drawing lines of best fit
- 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

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