



Cambridge Lower Secondary Checkpoint End of Series Report

June 2026

Contents

Introduction	3
1 Cambridge Lower Secondary Checkpoint English as a Second Language 0876	4
1.1 Cambridge Lower Secondary Checkpoint English as a Second Language 0876 – Component 01	4
1.2 Cambridge Lower Secondary Checkpoint English as a Second Language 0876 – Component 02	9
1.3 Cambridge Lower Secondary Checkpoint English as a Second Language 0876 – Component 03	12
2 Cambridge Lower Secondary Checkpoint English 0861	13
2.1 Cambridge Lower Secondary Checkpoint English 0861 – Component 01	13
2.2 Cambridge Lower Secondary Checkpoint English 0861 – Component 02	17
3 Cambridge Lower Secondary Checkpoint Mathematics 0862	21
3.1 Cambridge Lower Secondary Checkpoint Mathematics 0862 – Component 01	21
3.2 Cambridge Lower Secondary Checkpoint Mathematics 0862 – Component 02	32
4 Cambridge Lower Secondary Checkpoint Science 0893	41
4.1 Cambridge Lower Secondary Checkpoint Science 0893 – Component 01	41
4.2 Cambridge Lower Secondary Checkpoint Science 0893 – Component 02	46
5 Cambridge Lower Secondary Checkpoint Global Perspectives 1129	52
5.1 Cambridge Lower Secondary Checkpoint Global Perspectives 1129 – Component 01	52



Introduction

This document reports on learner performance for this exam series. Performances for each syllabus are reported separately.

Overall and sub-group performances can change from series to series. You can use the report to compare sub-group performances for this syllabus in this series. You should not use the information to compare performance changes over time.

For each syllabus the following information is provided:

- examiner comments on specific questions within each component of the test

We are committed to making our documents accessible in accordance with the WCAG 2.2 Standard. We are always looking to improve the accessibility of our documents.

If you find any problems or think we are not meeting accessibility requirements, contact us at info@cambridgeinternational.org with the subject heading: Digital accessibility.

If you need this document in a different format, contact us and supply your name, email address and requirements and we will respond within 15 working days.

1 Cambridge Lower Secondary Checkpoint English as a Second Language 0876

1.1 Cambridge Lower Secondary Checkpoint English as a Second Language 0876 – Component 01

Key messages

Candidates performed well on **Questions 1** (especially), **2, 3, 5, 6, 7** (especially), **8, 9, 10, 11, 13** (especially), **14, 15** (especially), **16, 18, 20, 22, 23, 25, 29, 31, 32, 35, 36, 37** and **40**.

Candidates performed less well on **Questions 4, 12, 17, 19, 21** (especially), **24, 26** (especially), **27, 28, 30, 33, 34, 38, 39, 41** and **42**.

The great majority of learners followed the instructions carefully and did well. Learners could improve their answers in the following ways:

- By ensuring that any changes of answers are made clearly, by crossing out and writing the final answer near the original one. This is preferable to writing an answer over the original in Parts 3, 4 and 5, which may make the final answer difficult to read.
- By avoiding the use of brackets to indicate erasure, instead writing a line to delete.
- By checking the context of the whole sentence in Parts 1 and 4 and not only the words either side of the gap.
- In Part 4 learners would benefit from reading the whole text after filling in the gaps to check the overall meaning.
- By checking that only one answer is given for each question.
- By ensuring that answers are given for all questions.

Comments on specific questions

Question 1

- 'border' and 'piece' were common incorrect answers.
- A high proportion of learners had the correct answer.

Question 2

- 'recognised' and 'noticed' were the most common incorrect answers.
- Most learners had the correct answer.

Question 3

- 'through' and 'in' were the most common correct answers.
- Most learners had the correct answer.

Question 4

- 'shiny' was by far the most common incorrect answer.
- Many learners had an incorrect answer.

Question 5

- 'comes' and 'falls' were the most common incorrect answers.
- Most learners had the correct answer.

Question 6

- 'show' was the most common incorrect answer.
- Most learners had the correct answer.

Question 7

- 'passes' and 'develops' were the most common incorrect answers.
- A very high proportion of learners had the correct answer.

Question 8

- 'keeps' and 'holds' were the most common incorrect answers.
- Most learners had the correct answer.

Question 9

- Option **C** was by far the most common incorrect answer.
- Most learners had the correct answer.

Question 10

- Option **A** was by far the most common incorrect answer.
- Most learners had the correct answer.

Question 11

- Option **B** was by far the most common incorrect answer.
- Most learners had the correct answer.

Question 12

- Incorrect answers were divided between Options **A** and **B**.
- Many learners had an incorrect answer.

Question 13

- Incorrect answers were divided between Options **A** and **C**.
- A very high proportion of learners had the correct answer.

Question 14

- Option **F** was by far the common incorrect answer.
- Most learners had the correct answer.

Question 15

- Incorrect answers were shared among Options **A**, **C**, **D**, **E**, **F** and **G**.
- A very high proportion of learners had the correct answer.

Question 16

- Options **A** and **E** were the most common incorrect answers.
- Most learners had the correct answer.

Question 17

- Option **C** was by far the most common incorrect answer.
- Many learners had an incorrect answer.

Question 18

- Options **C** and **G** were the most common incorrect answers.
- Most learners had the correct answer.

Question 19

- 'be', 'get' and 'have' were the most common incorrect answers.
- Many learners had an incorrect answer.

Question 20

- 'your' and 'what' were common incorrect answers.
- A high proportion of learners had the correct answer.

Question 21

- 'are', 'will' and 'was' were the most common incorrect answers; 'to' and 'is' were also often given.
- Most learners had an incorrect answer.

Question 22

- 'for' and 'to' and sometimes 'because' were the most common incorrect answers.
- Most learners had the correct answer.

Question 23

- 'about' and 'for' were the most common incorrect answers.
- Most learners had the correct answer.

Question 24

- There was a wide range of incorrect answers, the most common of which were 'been', 'to' and 'already'. 'previously', 'just' and 'recently' were also often given.
- Most learners had an incorrect answer.

Question 25

- There was a wide range of incorrect answers, the most common of which were 'what', 'why' and 'how'.
- The correct 'whether' was occasionally attempted with misspelling (for example: 'wether', 'weather' or 'wheather').
- Many learners had a correct answer.

Question 26

- There was a very wide range of incorrect answers, the most common of which were (a) 'lot' and (a) 'lot of' and 'couple'; other common incorrect answers were 'other', 'certain', 'many', 'some' and 'bunch of'.
- Most learners had an incorrect answer.

Question 27

- Option **D** was by far the most common incorrect answer.
- Many learners had an incorrect answer.

Question 28

- Option **B** was the most common incorrect answer.
- Many learners had an incorrect answer.

Question 29

- Options **B** and **C** were the most common incorrect answers.
- Most learners had the correct answer.

Question 30

- Option **B** was the most common incorrect answer.
- Many learners had an incorrect answer.

Question 31

- Option **A** was the most common incorrect answer.
- Most learners had the correct answer.

Question 32

- Option **C** was the most common incorrect answer.
- Most learners had the correct answer.

Question 33

- Options **C** and **D** were the most common incorrect answers.
- Many learners had an incorrect answer.

Question 34

- Option **B** was by far the most common incorrect answer.
- Many learners had an incorrect answer.

Question 35

- Options **A**, **B** and **C** were common incorrect answers.
- Most learners had the correct answer.

Question 36

- Options **C** and **D** were the most common incorrect answers.
- Most learners had the correct answer.

Question 37

- Incorrect answers were shared among Options **A**, **B** and **D**.
- Most learners had the correct answer.

Question 38

- Option **D** was by far the most common incorrect answer.
- Many learners had an incorrect answer.

Question 39

- Option **C** was by far the most common incorrect answer.
- Many learners had an incorrect answer.

Question 40

- Options **A** and **D** were the most common incorrect answers.
- Most learners had the correct answer.

Question 41

- Options **B** and **C** were the most common incorrect answers.
- Many learners had an incorrect answer.



Question 42

- Option **A** was the most common incorrect answer.
- Many learners had an incorrect answer.

1 Cambridge Lower Secondary Checkpoint English as a Second Language 0876

1.2 Cambridge Lower Secondary Checkpoint English as a Second Language 0876 – Component 02

Key messages

Learners performed well on **Questions 1** (especially), **4** (especially), **6, 7, 9, 10, 12, 13, 16, 17, 19, 20** and **23**.

Learners performed less well on **Questions 2, 3, 5, 8** (especially), **11, 14** (especially), **15, 18, 21, 22, 24** and **25**.

The great majority of learners followed the instructions carefully and many did well. Learners could improve their answers in the following ways:

- By ensuring that any changes of answers are made clearly. Changes should be made by crossing out and writing the final answer near the original one. This is preferable to writing a change of answer over the original answer in Parts 3 and 5 as this may make the final answer difficult to read.
- By ensuring that letters (especially in Part 3) are clear, especially 'a', 'o' and 'u'.
- In Part 3 by predicting the type of word (for example: place, food type) needed in each gap before listening and whether it will be singular or plural.
- In Part 3 by checking spelling carefully.
- By checking that only one answer is given for each question.
- By ensuring that answers are given for all questions.

Comments on specific questions

Question 1

- There was a very high proportion of correct answers.
- Incorrect answers were divided between Options **A** and **C**.

Question 2

- Many learners had incorrect answers.
- Incorrect answers were divided between Options **A** and **C**.

Question 3

- Many learners had incorrect answers.
- Incorrect answers were divided between Options **B** and **C**.

Question 4

- There was a very high proportion of correct answers.
- Incorrect answers were divided between Options **A** and **B**.

Question 5

- Many learners had incorrect answers.
- Option **C** was the most common incorrect answer.

Question 6

- Most learners had the correct answer.
- Incorrect answers were divided between Options **A** and **B**.

Question 7

- Most learners had the correct answer.
- Incorrect answers were divided between Options **A** and **B**.

Question 8

- There was a high proportion of incorrect answers.
- Option **B** was by far the most common incorrect answer.

Question 9

- Many learners had the correct answer.
- Option **A** was by far the most common incorrect answer.

Question 10

- Most learners had the correct answer.
- Option **A** was by far the most common incorrect answer.

Question 11

- Some learners had a correct answer.
- The most common incorrect answers were various misspellings of 'college' (for example: 'collage', 'colledge', 'colege' and 'colidge'); other common incorrect answers were 'restaurant' and 'festival'.

Question 12

- Most learners had the correct answer.
- The most common incorrect answers were misspellings of 'chicken' (for example 'chiken', 'checken' 'checkin'); sometimes 'chicken curry' was given incorrectly.

Question 13

- Most learners had the correct answer.
- The most common incorrect answers were misspellings of 'honey' (for example: 'hony', 'huney', 'huny' and 'hany') and many learners did not attempt an answer.

Question 14

- Some learners gave the correct answer.
- The most common incorrect answers were: 'onions', 'peppers', 'peppers and onions', 'all ingredients', 'Italian food' and 'olive'; many learners did not attempt an answer.

Question 15

- Many learners had an incorrect answer.
- There was a wide range of misspellings of the website spelt out on the recording (for example: 'SAVYTEEM', 'SAVYTEEA', 'SAVYTWEN' and 'SAVYTTWWN', with 'W' sometimes appearing as a mishearing of 'double E').

Question 16

- Most learners had the correct answer.
- Option **C** was by far the most common incorrect answer.

Question 17

- Most learners had the correct answer.
- Option **A** was the most common incorrect answer.



Question 18

- Many learners had an incorrect answer.
- Option **B** was by far the most common incorrect answer.

Question 19

- Most learners had the correct answer.
- Incorrect answers were divided between Options **A** and **C**.

Question 20

- Most learners had the correct answer.
- Option **C** was the most common incorrect answer.

Question 21

- Many learners had an incorrect answer.
- Options **D** and **E** were the most common incorrect answers.

Question 22

- Many learners had a correct answer.
- Option **B** was by far the most common incorrect answer.

Question 23

- Most learners had the correct answer.
- Options **G** and **H** were the most common incorrect answers.

Question 24

- There was a high proportion of incorrect answers.
- Options **C**, **D**, **F** and **H** were the most common incorrect answers.

Question 25

- Many learners had an incorrect answer.
- Options **E**, **F** and **H** were the most common incorrect answers.

1 Cambridge Lower Secondary Checkpoint English as a Second Language 0876

1.3 Cambridge Lower Secondary Checkpoint English as a Second Language 0876 – Component 03

Key messages

What learners did well

- Many learners performed well on **Questions 1** and **2**.
- Many learners addressed all three content points appropriately in **Question 1**.
- Many learners produced a narrative which linked effectively to the prompt sentence in **Question 2**.

What learners needed to improve

- In Part 1, learners need to find different ways to apologise without relying on the wording in the question.
- In Part 1, learners need to refer to the rubric to establish time and context.
- In Part 2, learners need to accurately produce a narrative with a logical beginning, middle and end which follows the prompt naturally and sensibly.

Comments on specific questions

Section A

Question 1

Comprehensive responses

- Many learners showed correct use of functional responses to fully inform the reader.

Limited responses

- Some learners did not address the third content point fully.
- Some learners confused the time of the event, probably because the rubric was not followed.
- Some learners need to focus on using punctuation to organise their writing.

Question 2

Comprehensive responses

- Many learners produced narratives which showed clear progression from the prompt with the ideas being connected and coherent throughout.
- Cohesion was achieved with the appropriate use of linking devices.

Limited responses

- Some learners need to consider a logical structure and clearer signposting, using a range of cohesive devices and linking words.
- Some learners need to focus on using punctuation to organise their work.
- Some learners would benefit from researching accurate spelling.
- Some learners need to keep to the required storyline.

2 Cambridge Lower Secondary Checkpoint English 0861

2.1 Cambridge Lower Secondary Checkpoint English 0861 – Component 01

Key messages

What learners did well

- There were few no responses.
- Vocabulary was usually appropriate and sometimes well used, such as ‘dissipate’, ‘ultimate’, ‘stunningly’, ‘elegant’, ‘exquisite’, ‘prized’, ‘possession’, ‘sparks’, ‘emotion’.
- The standard of writing in **Section B** was very good.
- Fewer responses became narrative, with many successfully maintaining style and voice throughout.
- More learners made use of the opportunity to plan, often successfully.

What learners needed to improve

- Incorrect usage of prepositions, such as sit in a desk, enter to, in the other hand, in the tv, made by wood.
- Frequent errors were comma splicing, incorrect articles, misspelling of homophones, especially your/you’re, using and with etc.
- Tenses need to be consistent.
- Sequencing/paragraphing was generally competent, though the mechanical use of such connectives as however, nevertheless, furthermore were not always used with precision.
- Words were often confused: practice/practise; compliment/complement; summarily/summary; whole/hole; quite/quiet; peek/peak.
- Learners would benefit from remembering that ‘full’ is the only word in the English language that ends in ‘full’.

Comments on specific questions

Section A

Question 1

(a) Comprehensive responses

- The correct answer ‘spanned’ was chosen by most learners.

Limited responses

- A few learners wrote ‘travel’ which was incorrect.

(b) Comprehensive responses

- Most learners recognised ‘nomadic’ as the correct answer.

Limited responses

- Some learners gave incorrect answers which included: ‘menders’, ‘Slovakia’, ‘nowadays’, ‘pots’, ‘mention’ and ‘utilitarian’.

(c) Comprehensive responses

- Few learners were able to fully understand the demands of the question asked.

Limited responses

- Many learners did not appear to understand the requirements of the question. Learners sometimes simply copied the sentence or offered ‘remarkable skills’.

Question 2

Comprehensive responses

- Many learners recognised that this was a question about structure. The most common correct answer was 'by listing'. Other correct answers were, 'giving examples', 'naming', 'explaining' or 'by using the word, 'undoubtedly'.

Limited responses

- Many responses were content-based or consisted largely of a quotation taken from line 9 in the text.

Question 3

(a) Comprehensive responses

- Most learners were able to select the correct answer 'housed'.

Limited responses

- Some learners gave incorrect alternative answers which included: 'preserve', 'gathered' and 'holds'.

(b) Comprehensive responses

- Most learners selected the correct answer.

Limited responses

- Some learners gave the incorrect answer.

Question 4

(a) Comprehensive responses

- Most learners were able to give the correct answer.

Limited responses

- Some learners gave incorrect answers such as 'leader', 'headquarters', 'centre' and 'anchor'.

(b) Comprehensive responses

- Most learners selected the correct answer.

Limited responses

- Some learners gave the incorrect answer or ticked more than one box.

Question 5

(a) Comprehensive responses

- Most learners recognised a 'mousetrap' was the item most needed.

Limited responses

- Some learners opted for various types of wire products/nets.

Question 6

Comprehensive responses

- Many learners answered gave the correct answer to 'that' (line 29) and to 'These' (line 37).

Limited responses

- Some incorrect answers to 'this' (line 33) included 'tinkers craft' (the most incorrect answer), 'simple wires', 'giving them objects to use as a service', 'wire nets', 'giving wire to villagers'.

Question 7

Comprehensive responses

- Many learners were able to give clear and accurate responses.

Limited responses

- Some learners based their responses on aspects such as travel across Austria-Hungary, carrying a toolbox, travelling in pairs, limiting what was carried, the cold conditions, or the value of the work undertaken, rather than on the expected focus of the question.

Question 8

Comprehensive responses

- Most learners were able to justify whether the tinkers were 'special', drawing on appropriate quotations and their interpretation of the term 'special'.

Limited responses

- Some learners would have benefitted from greater attention to the distinction between quotations and explanations, as responses sometimes repeated the quotation (verbatim) or drew evidence from outside the specified lines 46–55.

Question 9

Comprehensive responses

- Many learners did well. They demonstrated a clear understanding of the quotation, identifying key points such as the humour conveyed through 'Jurovaty laughs' and the suggestion of a future for tinkering through the involvement of the next generation ('My son says that once you start working with wire it's impossible to stop.').

Limited responses

- Some learners gave less precise responses using general terms like 'irony', 'suspense', 'dramatic' and 'cliffhanger'.

Question 10

Comprehensive responses

- Many learners did well.

Limited responses

- Some learners did not understand the instructions and put the paragraph numbers in the boxes.

Question 11 Writing Task

Describe a favourite object in your home which is designed beautifully and is also very useful.

There were a few short responses. The majority wrote at the appropriate length.

This was reasonably well answered by most and extremely well answered by a few. It might have been expected that more would write about their phone. This must not have been considered in terms of being 'an object in your home.'

There were many responses which described a bed, a sofa, a desk, a table, various cooking utensils, even a 'pull tab'. Some object selections were not always the most suitable, with a small number of responses assigning an elevated or symbolic status to otherwise everyday functional items. Some learners appeared uncertain about what to write about, due to the openness of the choice. Some learners introduced the ideas of 'usefulness' 'beauty' and 'other people's opinions regarding the type of object'; some did not.

There was a huge variety in what 'favourite objects' learners chose for their descriptions, ranging from TVs, footballs, guitars, knives, Alexa, couches/beds (most common choice) to kitchen tools, family treasures, handbags, air buds and PS5s.

While some learners used connectives effectively, others appeared to use them because they had been told to. Words such as: 'however', 'furthermore', 'nevertheless' and 'moreover' were often used without clearly contributing to the coherence or flow of the response. 'But', for example, qualifies or contradicts what has just been written. At times 'but' was used when 'and' was appropriate.

Commas were either omitted or overused. Some learners used commas where full stops would have been more appropriate, with the subsequent word often correctly capitalised. The use of apostrophes in



contractions would benefit from greater consistency. Some of them were placed before an 's' where the word ended in the latter s'.

Some spelling errors were the common 'there', 'their' and the grammatical error 'they're.'

'Which' sometimes appeared as 'wich'. 'Whether', 'wether' and 'weather' were sometimes confused, as were 'off' and 'of'.

2 Cambridge Lower Secondary Checkpoint English 0861

2.2 Cambridge Lower Secondary Checkpoint English 0861 – Component 02

Key messages

What learners did well

- There was an almost universal attempt at all questions across the cohort.
- Care taken in formulating and expressing responses.
- Clear understanding of, and response to, Writing task.
- Presenting an interesting and varied range of responses to the Writing task.

What learners needed to improve

- Differentiate between questions seeking answers about structure from questions about content.
- Ensure all required boxes are ticked for multi-option answers.
- Punctuation of extended writing, especially punctuation of speech.

Comments on specific questions

Section A – Reading

Question 1

(a) Comprehensive responses

- The correct answer was given by almost all learners.

Limited responses

- A very few learners gave an incorrect answer.

(b) Comprehensive responses

- Most learners gave correct answers identifying a blessing or a curse.
- Many learners understood, and were able to give, two correct and contrasting answers.

Limited responses

- Some learners gave extended quotations or identified incorrect examples.

Question 2

(a) Comprehensive responses

- Some learners correctly identified that this question was about the quality of voice.

Limited responses

- Many learners offered a response relating to expression of emotions or feelings.

(b) Comprehensive responses

- Many learners offered one of the two correct responses.

Limited response

- A few learners offered answers relating to 'truth' or 'dare'.

Question 3

(a) Comprehensive responses

- Many learners responded correctly with 'being bound', 'being dangerous/risky/difficult', 'making it personal'.

Limited responses

- Some learners offered irrelevant answers through mis-understanding the question.

(b) Comprehensive responses

- Most learners correctly used 1 of the 3 correct answers.
- Many learners correctly used 2.

Limited responses

- A few learners offered responses that were not related to the question.

Question 4

(a) Comprehensive responses

- Most learners gave answers relating to size.
- Some learners also gave answers relating to triangular shapes or pointed features.

Limited responses

- A few learners identified incorrect characteristics.

(b) Comprehensive responses

- Some learners were able to identify a correct answer, the most common being 'repetition'.

Limited responses

- Some learners were unable to offer a correct answer.

(c) Comprehensive responses

- Many learners correctly offered answers relating to Bailey's thoughts, or about convincing himself things were not scary.

Limited responses

- Some learners offered confused and/or incorrect responses through misunderstanding the question.

Question 5

Comprehensive responses

- Many learners responded correctly.

Limited responses

- Some learners responded with irrelevant answers.

Question 6

(a) Comprehensive responses

- Very few learners ticked the correct box.

Limited responses

- Many learners did not identify the correct answer.

(b) Comprehensive responses

- Some learners ticked the correct answer box.

Limited responses

- Some learners ticked the incorrect answer box.

Question 7

(a) Comprehensive responses

- Most learners were able to answer this question correctly.

Limited responses

- Some learners offered answers relating to irrelevant information.

Question 8

(a) Comprehensive responses

- Many learners offered correct responses relating to tension/suspense or Bailey's thoughts.

Limited responses

- Some learners identified reasons.

(b) Comprehensive responses

- Some learners were able to correctly answer with 'change of pace'.

Limited responses

- Many learners were unable to offer a correct answer.

(c) Comprehensive responses

- Many learners correctly ticked 1 box.
- Some learners correctly ticked 2 boxes.

Limited responses

- Other than those learners who ticked incorrect box(es), some learners selected only one option instead of two.

Question 9

Comprehensive responses

- Many learners selected the correct quotation.

Limited responses

- A few learners selected an incorrect quotation or did not follow the instruction to identify a three-words quotation.

Question 10

Comprehensive responses

- A few learners chose appropriate quotations and supported them with suitable explanations.
- Some learners selected one quotation with an appropriate explanation.

Limited responses

- Some learners chose two suitable quotations, with appropriate explanations not provided to support their choices.
- Some learners repeated, or gave very similar, explanations for a second quotation.
- Many candidates were unable to offer correct responses.

Section B – Writing

Question 11

Wc

Comprehensive responses

- Some learners produced content that was imaginative, coherent, interesting and/or humorous and proceeded to a satisfying conclusion.
- Many learners produced content that was coherent and well thought through.

Limited responses

- Some learners produced simply structured content that told an unimaginative and straightforward story.
- Some learners produced content that was linear, progressed slowly, and made limited progress.
- A few learners addressed the task, with little progress or structure evident in their responses.

Wv

Comprehensive responses

- Some learners used language and vocabulary that was informative, imaginative and well-chosen to convey mood, place and character.
- Many learners produced used language and vocabulary that was appropriate to the content, and which was readily understandable.

Limited responses

- Some learners used a simple and repetitive range of language, and a vocabulary that was incorrectly applied to the content.

Ws

Comprehensive responses

- Some learners structured their work with correct use of paragraphing, focusing each on a different and continually evolving element of the text, creating a logical progression through the piece.
- Many learners applied the principle of paragraphing.
- Most learners structured their content in a sequential and logical manner.

Limited responses

- Some learners wrote in large blocks of text that did not indicate actual paragraphing.
- A few learners produced content that was insufficiently long to demonstrate clear sections or sequencing.

Wg

Comprehensive responses

- Some learners demonstrated correct use of tense, and appropriate tense change.
- Some learners adopted the use of simple, compound and complex sentences appropriately.
- Some learners applied punctuation accurately throughout, including that of direct speech.

Limited responses

- Many learners did not manage consistency of tense.
- Some learners did not apply punctuation correctly when writing direct speech.
- Some learners did not apply commas correctly in lists, separation of clauses, in direct speech.
- Some learners did not use capital letters at the start of a sentence or for proper nouns.

Ws

Comprehensive responses

- Most learners produced work where the spelling of common words was accurate throughout.
- Some learners demonstrated accuracy across a wide range of spelling.

Limited responses

- Some learners used incorrect concatenations such *a lot* for a lot or *alright* for all right.
- Some learners used words like *anyways* or *gonna* outside of direct speech.
- A few learners demonstrated various spellings of the same word(s) throughout their piece.

3 Cambridge Lower Secondary Checkpoint Mathematics 0862

3.1 Cambridge Lower Secondary Checkpoint Mathematics 0862 – Component 01

Key messages

What learners did well

- Many learners could make a correct start to most questions, with many fully correct solutions particularly at the start of the paper.
- When a graph or drawing on a grid was required, most learners used pencil.
- Working was generally shown where necessary, with many learners presenting their work clearly.
- Learners were generally successful in questions that required the direct application of mathematical techniques and standard procedures.
- Learners performed routine calculations and algebraic manipulations well.
- Many learners demonstrated a good understanding of the mathematical concepts.
- Many learners demonstrated a good understanding of the following topics:
 - Choosing the correct unit of measurement for long distances.
 - Substitution involving indices.
 - Estimating powers and roots.
 - Interpreting compound bar charts and stem-and-leaf diagrams.
 - Finding the scale factor of an enlargement by comparing perimeters.
 - Drawing the graph of a quadratic function.

What learners needed to improve

- Learners should show all stages of their working and work down the page in a logical order.
- If a learner changes their mind about a method, they should make it clear which method they wish to be considered by clearly crossing out their previous work.
- Similarly, if a learner changes their mind about numbers or signs in an answer, errors should be crossed out and replaced rather than being written over.
- Learners should ensure figure formation of 1's and 7's, 4's and 9's are clearly distinguishable.
- Many learners demonstrated a need for further practice of the following topics:
 - Forming and simplifying expressions involving brackets.
 - Interpreting the equation of a graph (see **Question 18** and **Question 24**).
 - Writing a formula taking mixed units into account.
 - Bounds to 2dp where the second decimal place digit is 0.
 - Using a curve rather than straight lines to draw a quadratic graph.
 - Ratio where the difference in shares is required.
 - Interpreting and finding bearings.
 - Finding the number of sides of a polygon from the interior angle.
- Learners should read the question requirements carefully. For example, in **Question 3** many did not follow the instruction to use a value of 3 for π or in **Question 22** many did not follow the instruction to give a whole number answer.
- Learners should consider whether their answer is realistic for the question. For example:
 - Probabilities should be between 0 and 1.
 - The number of sides of a polygon will be a whole number.
 - The number of passengers on a bus will not be greater than 300.

Comments on specific questions (amend question numbers as necessary)

Question 1

Comprehensive responses

- Most learners gave the correct response of 'kilometre'.

Limited responses

- A small number of learners gave one of the other units of length, with 'millimetre' being the most common incorrect response.

Question 2

Comprehensive responses

- Most learners evaluated 2^4 as 16 and divided by 2 to give the correct value of 8.
- A few used rules of indices and wrote $2^3 = 8$.

Limited responses

- Some learners evaluated 2^4 as $2 \times 4 = 8$ and then divided by 2 to give 4.
- Some learners evaluated 2^4 correctly as 16 and gave this as the final answer without dividing by 2.
- Some learners did not complete the calculation, leaving their answers as $\frac{16}{2}$, $\frac{8}{1}$ or 2^3 , where an integer was required.

Question 3

Comprehensive responses

- Many learners were able to apply the formula for the area of a circle and achieve the correct answer of 75 using the given value of $\pi = 3$.

Limited responses

- Several learners used the value of π as 3.14 or $\frac{22}{7}$ instead of 3.
- A small number used the circumference formula.
- Some found $(3 \times 5)^2$ instead of 3×5^2 .
- A common incorrect answer was to give the diameter, 15.
- A small number of learners used the formula $\pi^2 \times r$ instead of $\pi \times r^2$.
- 30 was a common incorrect answer, arising from thinking 5^2 was 10 instead of 25.

Question 4

Comprehensive responses

- Many learners gave the correct answer of $\sqrt{w}$.

Limited responses

- A few learners, who knew the answer involved powers, squared w instead of finding the square root, giving w^2 as their answer. This was the most common incorrect response.
- $w-2$ was also a very common incorrect answer.
- Some learners divided by 2 giving an answer of $\frac{w}{2}$.
- Other learners included h in their answer, for example, $\frac{w}{h}$ or wh .
- A small number of learners gave $w \div w$ as their answer.

Question 5

Comprehensive responses

- Many learners worked well with the subtractions required in this question and worked with fractions throughout.
- Many learners used the technique of rewriting 1 as $\frac{9}{9}$ or $\frac{8}{8}$ to do each subtraction.
- Some learners wrote BIDMAS, or equivalent, showing an understanding that the most efficient method was to do the subtractions in the brackets first.
- Some learners expanded the brackets with an intermediate step of $1 - \frac{5}{8} - \frac{5}{9} - \frac{25}{72}$.

Limited responses

- Many learners successfully performed one of the subtractions for the first step.
- Following a correct multiplication, some learners left their fraction unsimplified, leading to answers such as $\frac{12}{72}$, $\frac{6}{36}$, $\frac{3}{18}$, $\frac{2}{12}$.
- Some learners made errors when cancelling common factors before or after multiplying.
- Some learners added the fractions in the brackets leading to $\frac{14}{9} \times \frac{13}{8}$.
- Some learners subtracted 1 from the numerator and denominator of each fraction giving $\frac{4}{8} \times \frac{4}{7}$.
- A few learners gave an answer of 6 following $\frac{1}{6}$ seen in their calculations.
- Learners who attempted to make the denominators the same before multiplying had large numbers to deal with and sometimes made arithmetic errors.
- Some learners were not fluent with how to multiply fractions.
- $2\frac{25}{72}$ came from adding the whole numbers and multiplying the given fractions.
- A few learners converted to decimals which made the calculation challenging. Converting back to fractions as required by the question was mostly not attempted.

Question 6

Comprehensive responses

- In this multiple-choice question, some learners correctly identified that both combinations of transformations resulted in congruency.

Limited responses

- A common incorrect response was 'only one'.
- Some learners gave more than one answer to this question.

Question 7

Comprehensive responses

- Some learners recognised that $\frac{5}{9}$ is equivalent to 0.5 recurring and correctly chose only this conversion.
- Many were able to recognise the correct conversion without the need for any working.
- Some converted each of the decimals to fractions first.

Limited responses

- The most common other response was a ring around $\frac{1}{3} = 0.3$.
- A few learners drew a ring around $\frac{4}{9} = 4.9$.
- Many learners drew a ring around more than one conversion, often including the correct one.

Question 8

(a) Comprehensive responses

- A few learners stated that the bearing had been taken in the wrong direction with reference to it should be clockwise, not anticlockwise.
- Some gave the correct bearing of 318.
- Some were able to say that the size of the bearing should be greater than 180.

Limited responses

- Some learners did identify that the angle should have been measured clockwise, then also calculated the bearing of B from C incorrectly.
- A common error was $180 - 42 = 138$.
- Some gave insufficient explanation such as the bearing needed to be bigger than 42 which did not completely explain they knew which angle was required.
- Many thought 042° was the bearing of C from B .
- Many stated that the angle might have been measured incorrectly.
- A few learners measured the angle 42 using a protractor and said the angle was incorrect.
- Some thought the mistake was to include the 0 and said the answer should be 42.
- Some learners stated that bearings should be a distance, not an angle.
- Quite a few learners did not attempt this question.

(b)

Comprehensive responses

- Some learners were able to state the bearing of town C from town A and used the scale correctly to state a distance between town A and town C between 55 to 59 km.
- Many learners correctly measured the distance on the map and successfully applied the scale factor to determine the real-life distance.

Limited responses

- Learners were more successful in finding the distance between A and C than calculating the bearing of A from C .
- Some did not use the scale to convert from centimetres to metres and gave their measured length as the answer.
- Some used the scale given on the whole cm and not the decimal part with 5.7 measured then 50.7 as the answer.
- Others rounded their length to 6 and gave 60 as the distance.
- A common response for the bearing was to give one of the angles given such as 25° , 100° or 80° .
- A few learners attempted to find the bearing of A from C .

Question 9

Comprehensive responses

- Most learners were able to give the correct estimation to each calculation.
- Some learners showed their calculations on the page.

Limited responses

- One of the most common incorrect answers was to think $(-6.12)^2 = 12$.
- Some learners did not use clear lines or changed their minds, resulting in unclear responses.
- Others used numbers or letters to indicate their selection by matching them on either side.
- Some learners did not match all three calculations to an estimate.

Question 10

Comprehensive responses

- Learners often formed the correct expression and demonstrated an understanding of the order of operations required.
- Learners correctly used brackets to show that the operation involving $(n + 5)$ should be completed before applying the square root.
- Some learners gave the correct expansion $n^2 + 10n + 25$.

Limited responses

- The most common incorrect response was to omit brackets from their expression giving the answer $n + 5^2$.
- Some learners applied the square root to the expression $(n + 5)$.
- A few learners squared only the n giving the incorrect expression $n^2 + 5$.
- A few learners formed an equation such as $n = (n + 5)^2$ and $n + 5 = n^2$ rather than an expression.
- Some learners began with the correct expression $(n + 5)^2$ then expanded it incorrectly to $n^2 + 25$.

Question 11

Comprehensive responses

- Many learners recognised that the new costs of coats A and B were \$66 and \$66.50, respectively, correctly giving 'not correct' and then 'correct' as the two answers.

Limited responses

- The most common incorrect answer was for 'not correct' to be given for both answers.
- Also often seen were the two answers reversed with some learners showing working indicating they had reversed the meaning of the words 'increase' and 'decrease'.
- Common working seen was to subtract 5 or 0.05 from 70 instead of reducing 70 by 5% or to add 10 or 0.1 to 60 instead of increasing 60 by 10%.
- Often incorrect answers followed no attempt at writing down any working despite the question leaving space for working underneath the tick boxes and before the mark.

Question 12

Comprehensive responses

- Many learners interpreted the compound bar chart accurately and correctly identified each of the four statements as true or false.
- More success was gained by those who wrote the values for each of the bars on the diagram.

Limited responses

- Many learners identified three of the four statements correctly, most often incorrectly thinking that it was false that 13 children said they liked to meet friends.
- Some learners used crosses in the false boxes, instead of ticks, which sometimes led to ambiguity if this was not consistent.
- Some learners changed their minds several times, leading to unclear answers.

Question 13

Comprehensive responses

- A small number of learners recognised the need to find the difference in the parts of the ratio in order to find the value of one share as the multiplier.
- Once learners had recognised that they were working with the difference between the value of the ratio parts, many went on to reach a correct solution to the problem.

Limited responses

- The most common misconception was to assign the 210 to a specific part of the ratio or to its total parts and then to find a multiplier, for example by calculating $210 \div 2$, $210 \div 5$ or $210 \div 7$.
- Some learners used 210 as the multiplier to find an answer such as $210 \times 2 = 420$.
- Where learners recognised they were working with the difference in the ratio parts, some gave the answer 70 (the value of one share) or the answer 350 (the distance Samira drives.)

Question 14

Comprehensive responses

- Many learners answered this question correctly, giving 13 as the value of k , showing that they recognised that an enlargement by a scale factor of 20 multiplies all linear measurements by 20, including the perimeter.
- Many learners showed $\frac{260}{20}$ or $(20)k = 260$ in their working space.
- Many learners correctly simplified the calculation by cancelling the zeros in the numerator and denominator.
- A number of learners checked their answer by multiplying 13 by 20 to verify their solution.

Limited responses

- A common incorrect answer was 130 following correct working, which should have led to an answer of 13.
- Some learners multiplied 260 by 20 instead of dividing by 20.
- Some learners used the scale factor as an additive change rather than a multiplicative change when relating the two perimeters. This led to an answer of 240.

Question 15

Comprehensive responses

- Many learners began by calculating -1.2×5 to reach $\frac{-6}{-0.4}$ sometimes also reaching 15 as their answer.
- Some learners converted the decimals to whole numbers changing the original calculation to $\frac{-12 \times 5}{-4}$ then reaching $\frac{60}{4}$, easily followed by 15.
- A less common approach involved simplifying $\frac{1.2}{0.4}$ to $\frac{3}{1}$ before calculating $\frac{3 \times 5}{1}$.
- Many learners completed a correct first step of $\pm 1.2 \times 5 = \pm 6$.
- A few learners completed a correct first step of $\pm 1.2 \div -0.4 = \pm 3$
- A small number of learners completed the calculations using more than one method indicating a check of their working.
- The negative signs were cancelled at different stages of the calculation. Including at the start, after reaching $\frac{-6}{-0.4}$, or at the end.

Limited responses

- Many learners reached $\frac{-6}{-0.4}$ and attempted the division by moving the decimal place, resulting in place value errors such as 1.5, 0.15 or 150.
- Some learners did not attempt the division leaving their final answer as $-\frac{6}{-0.4}$, sometimes simplified to $\frac{3}{2}$.
- Some learners incorrectly dealt with the negative signs, giving an answer of -15 .
- A common error after reaching $\frac{6}{0.4}$ was multiplying 6 by 4 to give an answer with figures 24.

Question 16

(a) Comprehensive responses

- A large proportion of learners were able to transfer the raw data into a correctly ordered back-to-back stem and leaf diagram.
- Some learners also correctly presented the key.

Limited responses

- Some learners wrote the correct digits on the left of the diagram without correctly ordering them.
- Some learners wrote 2-digit numbers in the boxes on the diagram without understanding the role of the stem.
- In the key, $2|3|8$ was frequently interpreted as 23 and 38 instead of 32 and 38.
- The key was also often left blank.
- Sometimes words were used to complete the sentences in the key, for example 'The number of'.

- Sometimes the key included values in the hundreds such as 328 or 238, not realising that these were unrealistic values for the number of passengers on a bus.

(b) Comprehensive responses

- Fully correct answers of 48 for the median and 16 for the range were sometimes seen.

Limited responses

- Learners were more likely to get the range correct than the median.
- Commonly seen incorrect median values were the fourth value, 47 or the fifth value, 49.
- Some learners gave the two middle values, 47 and 49 as the median, without finding the value halfway between these two values.
- Learners showed a clearer understanding of the range although $54 - 8 = 48$ was sometimes seen.
- Some learners gave 54 (the mode) as one of their answers.
- A small number of learners gave one-digit answers for one or both of their answers.

Question 17

(a) Comprehensive responses

- Many learners recognised that branches on a probability tree sum to 1.
- Most learners were able to subtract decimal values from 1 to find each value.
- Many recognised that the branches for dice D were in the same order of even and odd.

Limited responses

- Some learners reversed the values 0.45 and 0.55 on the lower branches of dice D.
- A few learners repeated the probability of 0.6 instead of 0.4 for odd on dice C.
- Some learners used the other given probability of 0.45 for the odd branch for dice C.
- A common error was to have the last three branches for Dice D as 0.55, 0.55, 0.45.
- A few used the 0.6 and 0.45 given to calculate the probability for Dice D being odd as 0.15.

(b) Comprehensive responses

- Some learners found the probability of spinning an even number from each spinner and found the product of these probabilities $\frac{2}{5} \times \frac{4}{9} = \frac{8}{45}$.
- Some learners used the possibility diagram given to understand that there are 45 outcomes.
- Some learners used the possibility diagram to put a ring around the outcomes which would both give an even number.

Limited responses

- Learners found one correct probability for one spinner and knew to multiply two fractions.
- Many learners gave the answer $\frac{8}{14}$, understanding that there are 8 favourable outcomes.
- Many learners gave an answer that was a fraction with a denominator of 45, understanding that there are 45 possible outcomes.
- Some gave the answer 8, the number of favourable outcomes, without writing it as a probability.
- Some learners added the probabilities for each spinner rather than multiplying.
- Many learners thought they had to simplify the incorrect fraction of $\frac{6}{14}$ given in the question to $\frac{3}{7}$.

Question 18

Comprehensive responses

- A few learners correctly identified the equation $y = 0.5x + 3$ by accurately interpreting the graph.
- Some learners demonstrated a clear understanding of the gradient as change in y -coordinates divided by change in x -coordinates or drew a triangle on their graph and wrote 'rise/run' in their working.
- Many were able to identify 3 as the y -intercept.

Limited responses

- $y = 2x + 3$ was a common incorrect response often because a learner found change in x -coordinates divided by change in y -coordinates.
- Some correctly reached $m = \frac{2}{4}$ or $\frac{4}{8}$ from a correct gradient calculation then evaluated it as 2.
- Some learners identified suitable points on the line and could not continue the process to determine the gradient.
- Learners sometimes found that their rise/run calculation had two negative values, when this occurred a gradient of -0.5 was often found.
- Another common incorrect response was $y = 8x + 3$ perhaps the 8 resulted from the line stopping at (8, 7).
- Some learners interpreted the y -intercept as the gradient and wrote equations of the form $y = 3x + k$.
- Incorrect answers often involved missing the 'x' from the equation, resulting in an answer $y = 0.5 + 3$ or giving an answer of $y = 0.5m + 3$.
- A high number of learners offered no response to this question.

Question 19

Comprehensive responses

- Some learners arrived at the correct answer, with efficient use of formulae for interior or exterior angles.
- The most successful method was to calculate the exterior angle then divide 360° by this answer to give the number of sides.
- A few learners used the equation $\frac{180(n-2)}{n} = 150$ to successfully calculate the number of sides either by solving this algebraically or solving by trial and improvement.

Limited responses

- Many learners who did not get the correct answer used an incorrect or incomplete formula for the interior angle of a polygon.
- It was common to see equations similar to $\frac{180(n-2)}{n} = 150$ with incorrect or missing parts to it, with $(n-2) \times 180 = 150$ being the most common incorrect formula seen.
- Some learners, who attempted a solution using the exterior angle evaluated $150/30$ rather than $360/30$, resulting in the common incorrect answer of 5.
- Others divided 180 by 30 to reach another common incorrect answer of 6.
- Many learners got no further than $180 - 150$, giving an answer of 30.
- A few learners attempted trial and improvement methods, which usually did not arrive at the correct answer.
- Those learners who used the correct equation, $\frac{180(n-2)}{n} = 150$ often made algebraic or numerical mistakes when attempting to solve it.
- Few learners did not consider whether their answer was appropriate for the question. Although the number of sides has to be a positive integer, answers included negative numbers and decimals.
- There was often little or no working shown for this question.
- Many learners offered no response to this question.

Question 20

Comprehensive responses

- Many learners gave the correct answer and their working indicated they had moved the digits 4 places to the right giving a decimal answer below 1.

Limited responses

- Some learners did not recognise the significance of the negative index dealing with it as though it were +4, resulting in answers in the thousands or higher.
- Some responses attempted to turn 10^{-4} into a decimal and then multiply the result by 12.3.
- A small number thought $10^{-4} = -40$.

Question 21

Comprehensive responses

- Few learners were able to select the two correct functions that were a representation of the information given in the question.
- Few learners recognised the need to convert all numbers into dollars or cents.

Limited responses

- The most common incorrect answer was the selection of the incorrect response with the mixed monetary values, which mirrored the numerals used in the question.
- Of those who did realise that the units needed to be the same learners commonly chose just one of the correct options given to them instead of both.
- If only one correct function was chosen, it was usually $7.75 = 0.25n + 0.40w$ rather than $775 = 25n + 40w$.

Question 22

Comprehensive responses

- This question was answered successfully by many learners.
- Many learners showed squaring of the boundary values 3 and 4 to give 9 and 16 and then were able to select an appropriate whole number from 10, 11, 12, 13, 14 or 15.

Limited responses

- Some learners missed the instruction in the question that a whole number was required.
- Many thought they needed to give the midpoint of 9 and 16, resulting in a common incorrect answer of $\sqrt{12.5}$.
- Some learners selected the boundary values of 9 or 16.
- Many gave a value smaller than 10 or greater than 15.
- Some learners wrongly interpreted the statement as requiring whole numbers less than 4 and selected values such as 1, 2 and 3.

Question 23

Comprehensive responses

- Many learners correctly reflected shape P in line $y = 1$ to obtain shape Q, ensuring that each vertex was the same perpendicular distance from the mirror line.
- Many learners accurately identified the coordinates of the reflected vertices before carrying out the translation.
- Counting squares was commonly seen on the grid to support correct reflection and translation.

Limited responses

- The most common incorrect response was due to a reflection of shape P in an incorrect line, often the y-axis, x-axis or $x = 1$.
- Many learners correctly translated their incorrect shape Q.
- Some learners did not label their incorrect new shapes as Q and R, which meant it was not possible to decide if the translation had been completed correctly.
- Some learners first translated shape P to form shape Q, followed by a correct translation to make shape R.

- Several learners translated their shape Q by $\begin{pmatrix} -3 \\ 1 \end{pmatrix}$.
- Some learners applied the translation before carrying out the reflection and obtained an incorrect final position for shape R.
- Some learners rotated the shape rather than reflecting it, which showed that they needed to understand transformation vocabulary more accurately.
- Responses with omitted shape Q and showed only shape R were mostly incorrect. A small number of responses showing only shape R were correct.
- Some learners needed greater accuracy when plotting the vertices of the final shape.
- Many learners drew shapes that were not congruent to the original shape and sometimes not a quadrilateral, triangles were often seen.
- Many learners offered no response to this question.

Question 24

Comprehensive responses

- A few learners successfully completed the question without evidence of working.
- There was evidence of the substitution of $x = -2$ in the equation of the line to verify the first statement and some showed substitution of $x = -5$ to verify the third statement.
- Some learners rearranged the given equation to give $y = -5x + 1$ to make the comparison easier with the equation of the line in the second statement.
- For the last statement some learners showed calculations for two consecutive values of x to work out the decrease in y .
- Some learners wrote x and y above the coordinates to remind them which was which.

Limited responses

- It was rare to see working shown for incorrect answers.
- It was very common for a learner to tick true for the third box.
- Some learners showed $x = -2$ substituted into $-5x$ to reach -10 instead of $+10$.
- Some learners correctly ticked one or two statements only.
- It was common to see all of the answers incorrectly ticked with no working shown.

Question 25

Comprehensive responses

- A small number of learners identified both the lower and upper bounds correctly.
- Some learners recognised that a measurement given to 2 decimal places has an interval of 0.01 halved to give 0.005.

Limited responses

- The most common answers were 11.25 and 11.35 from treating the measurement as if accurate to 1 decimal place rather than 2 decimal places, giving an interval of 0.1 halved to 0.05.
- Some learners provided values that would themselves round to 11.30 to 2 decimal places rather than identifying the correct bounds.
- A small number of learners reversed the upper and lower bounds, showing an understanding of the values involved without correctly assigning them.
- Some learners correctly found 0.005 making a decimal place error when adding and subtracting it, often $11.30 - 0.005 = 11.25$ and $11.30 + 0.005 = 11.35$.
- Some learners listed values and attempted to check which rounded to 11.30, rather than calculating the interval directly.
- Upper bounds of 11.34, 11.349 and 11.304 were also seen, generally without supporting working.
- Many learners offered no response to this question.

Question 26

Comprehensive responses

- Many fully correct curves representing $y = x^2 + 1$ were seen.
- Almost all learners made use of the table provided to assist in drawing the graph.
- Learners who used pencil to draw their graphs were able to correct them if they made an error.
- Many learners recognised the symmetry in both the table of values and the coordinates they plotted.
- Most learners coped well with the different scales on each axis.

Limited responses

- The most common error was for correct plots to be joined with straight line segments rather than a curve or for the plots not to be joined at all.
- Another common error was for the point $(0, 1)$ to be plotted at $(0, 0)$.
- The most common errors in the table were for the negative values of x , where $(-2, -3)$ and $(-1, 0)$ were the most common incorrect points seen due to sign errors when squaring negative numbers.
- A small number of learners did not recognise that $y = x^2 + 1$ represents a curve and drew a straight-line graph between the two given points in the table then filling in the missing values in the table as 9, 8, 7, 6 and 4.

Question 27

Comprehensive responses

- The most successful method was to subtract the smaller rectangle from the larger rectangle.
- A few learners set out a clear approach of $20 \times 12 - (x - 2)(x + 5)$ before any attempt to expand brackets and collect terms.
- The two algebraic brackets were usually expanded correctly if given.
- Successful responses showed a line of working which included a bracket around the expanded terms such as $240 - (x^2 + 3x - 10)$.
- Care was then taken by a small minority of learners in subtracting terms, some of which were negative, to achieve a simplified answer.

Limited responses

- Many responses included no algebra and purely numerical values in the working.
- Many learners did not leave brackets around their expanded brackets and so only subtracted the x^2 part of the expansion leading to the common incorrect answer $230 - x^2 + 3x$.
- Learners who did leave the expanded expression in brackets, often dealt with the signs incorrectly when subtracting.
- Some learners omitted crucial brackets, giving $(x - 2 \times x + 5)$.
- Expanding the brackets $(x - 2)(x + 5)$ sometimes gave the result of $x^2 - 10$.
- A small number of learners attempted to use a sum of rectangles; they often omitted brackets when subtracting to find side lengths. For example, finding the height of the lower rectangle as $12 - x - 2$ rather than $12 - (x - 2)$.
- Very few learners produced a correct solution when summing rectangles.
- Some learners thought they needed to form and solve an equation to try and find a value for x which was then substituted.
- A few learners attempted to calculate a perimeter instead of an area.
- Some learners gave the answer 240 with no attempt to subtract the unshaded area.
- Many learners offered no response to this question.

3 Cambridge Lower Secondary Checkpoint Mathematics 0862

3.2 Cambridge Lower Secondary Checkpoint Mathematics 0862 – Component 02

Key messages

What learners did well

- Many learners showed their full working and calculations, especially in questions that specifically requested working.
- Many learners demonstrated a good understanding of the following topics:
 - Using a calculator effectively with calculations involving square roots.
 - Solving equations with an unknown on the denominator.
 - Writing values in standard form.
 - Rules of indices.
 - Identifying quantitative data.
 - Using function machines with cubes and cube roots.
- Questions that involved applying standard techniques were the most successful.
- Many learners presented efficient methods of answering multistage questions, with working shown if appropriate.

What learners needed to improve

- Some learners would benefit from showing full working.
- Errors should be crossed out rather than being written over.
- Clear distinctions should be made between the formation of different digits. For example, 4s and 9s, zeros and 6s, and 1s and 7s were not always clearly distinguished.
- Learners need to work to a sufficient degree of accuracy so that non-exact answers are given to an appropriate degree of accuracy.
- Learners should provide clear and appropriate justifications when answering questions that require a reason or explanation.
- Some learners need to write clear separate calculations, rather than allowing their calculations to trail into to the next part of the calculation.
- Many learners demonstrated a need for further practice of the following topics:
 - Finding the coordinates of a point one quarter of the way along a line.
 - Identifying features of parallel and perpendicular lines.
 - Finding and using n th terms of sequences.
 - Forming and solving an inequality.
 - Problems involving the circumference of a circle in questions set in context.
- Learners should consider whether their answer is realistic for the question. For example:
 - Probabilities should be between 0 and 1.
 - The speed of a car is unlikely to be above 200 km/h.
 - The cost of something after a percentage decrease will be lower than the original cost.
 - The mean should lie between the lowest and highest values in a frequency table.
 - The maximum value for the exterior angle of any regular polygon is 120° .

Comments on specific questions

Question 1

Comprehensive responses

- Some learners divided 360 by 15 to reach the correct result of 24° .

Limited responses

- Some learners gave the value for the interior angle of a regular 15-sided polygon; either by calculating 24 correctly and going on to subtract this from 180; or by using the formula $\frac{180(n-2)}{n}$.
- A small proportion of learners gave the total interior angle value of 2340° .
- A similarly small proportion of learners gave a final answer of 360° as the total exterior angle rather than the value of one of the angles.

- Many learners gave answers above 120° (the maximum size of an exterior angle of a regular polygon) answers such as 150 and 180 were common.

Question 2

Comprehensive responses

- Most learners used their calculator efficiently to calculate 72.

Limited responses

- A few learners evaluated $\sqrt{216}$ then $\sqrt{24}$ and then used truncated/rounded values to calculate the product to an incorrect decimal answer.
- A small number entered the calculation as $\sqrt{216 \times \sqrt{24}}$ causing the common incorrect answer of 32.5....
- A small minority added the values inside the square root symbols $\sqrt{216}$ and $\sqrt{24}$ to then calculate $\sqrt{240}$.
- A few overlooked the square root symbols and found $216 \times 24 = 5184$.

Question 3

Comprehensive responses

- Most learners recognised that $145 \div 5$ led directly to the correct answer of 29.
- Some learners included interim working of $5p = 145$ before the final division leading to the correct answer.

Limited responses

- The most common incorrect answer came from learners incorrectly multiplying 5 and 145 giving an answer of 725.
- Occasional learners divided the wrong way round so $5 \div 145 = 0.034..$ was sometimes seen.
- Some learners used the correct operation and made arithmetic errors when dividing 145 by 5, giving answers such as 2.9 or 28.
- Occasionally learners did not recognise the correct operation to use and subtracted 5 from 145 giving 140 or subtracted 145 from 5 giving -140.

Question 4

Comprehensive responses

- Many learners were able to write the answer in correct standard form.

Limited responses

- Some learners multiplied their power of 10 by a number that was not between 1 and 10, for example writing 70×10^3 or 0.7×10^5
- Other learners did not use a power of 10 for example $7 \times 10\,000$ or 70×1000 .
- Other errors included, 7^4 , $7 + 10^4$ and giving the answer in words – seventy thousand.
- A few gave the value in the question as their answer.

Question 5

Comprehensive responses

- Many learners gave the correct answer 14 by multiplying 7 by 2.

Limited responses

- Some learners added 7 and 2 and gave the answer 9, this was the most common error.
- Another common error was 49 arising from 7^2 rather than 7×2 .

Question 6

Comprehensive responses

- In this question, a large proportion of learners correctly identified 'height in cm' as the only piece of quantitative data.

Limited responses

- Incorrect responses were generally evenly distributed between the other three pieces of qualitative data.
- Some learners identified more than one piece of data, often one incorrect with the one correct, sometimes with two of the incorrect items.

Question 7

Comprehensive responses

- Learners showed competence in using the function machine, the majority calculating 4 cubed and the cube root of 343 correctly.

Limited responses

- Some learners found the square and square root so common incorrect answers were 16 and 18.5.
- A small number of learners multiplied and divided by 3 instead of cubing and cube rooting.
- Some were able to find the output then left the input blank as they were unsure about the inverse operation.

Question 8

Comprehensive responses

- Many learners recognised that they needed to work out how many counters were either pink or white, and then to present this value as a proportion of the total number of counters.
- Many learners gave the correct answer, either in the form of 0.9, $\frac{9}{10}$, 90% or a combination of two or three correct answers.

Limited responses

- The most common error was to write 9 as the answer rather than to give the probability.
- Another common incorrect method was to multiply instead of add giving $\frac{6}{10} \times \frac{3}{10} = \frac{18}{100}$ (or decimalised to 0.18), sometimes simplifying to $\frac{9}{50}$.
- Some learners gave two probabilities as their answer without adding them; $\frac{6}{10}$ for pink and $\frac{3}{10}$ for white.
- A few learners added $\frac{6}{10}$ and $\frac{3}{10}$ to get $\frac{9}{20}$.
- Some learners wrote the probability as a ratio.

Question 9

Comprehensive responses

- Many learners solved the simultaneous equations by using the most efficient method of adding them to eliminate y .
- Many learners used the correct value of $x = 6$ and substituted this into one of the equations, often $2x + 4y = 24$, to obtain the correct value of $y = 3$.
- A small minority checked their values worked by substituting both values into the equation not used in the previous stage.

Limited responses

- Some learners with a correct value of $x = 6$ made errors when substituting into $5x - 4y = 18$.
- Some learners attempted to eliminate x by subtracting the equations leading to x -values of 2 or -2.
- Many learners with an incorrect value for x , successfully substituted into one of the original equations to give two values that satisfied one of the original equations.
- Some learners with a correct value for x made arithmetic errors when substituting to find the value of y .
- Some learners did not identify that the most efficient method was to add the two equations and multiplied the equations to obtain the same coefficient of x for each.
- A small minority used a method of substitution to solve which was often less successful.

Question 10

Comprehensive responses

- Many learners correctly placed 7 as both a natural number and an integer.
- Many learners correctly identified that -8 is an integer and not a natural number.
- Some learners recognised that 0.3 is neither an integer nor a natural number.

Limited responses

- Some learners repeated a number in more than one part of the table, thinking that there should be a number in every cell.
- 0.3 was often in the top right cell, a natural number and not an integer.
- There was often more than one number inside a cell, commonly this was both 7 and -8 in the cell for a natural number and an integer.

Question 11

Comprehensive responses

- A large proportion of learners correctly identified that the car travelled 100 km over the 2-hour period and reached the required answer of 50 km/h.

Limited responses

- Some learners gave the distance travelled during the period (100) as their answer.
- Some learners gave the total distance travelled (200) as their answer.
- A common incorrect response was 10 km/h arising from dividing the distance 100 by the clock time 10.
- Also commonly seen was the answer 33.3 arising from dividing 100 by the total time for the journey from 8 am to 11 am, 3 hours.

Question 12

(a) Comprehensive responses

- Many learners gave the correct response of 350.

Limited responses

- Some learners correctly multiplied 14 by 25 then divided it by 2 leading to answer of 175.
- Some added 25 and 19.
- A small minority thought that they needed to use π in the calculation and attempted to work out the volume of a cylinder with radius 25 or 5.
- A few learners thought that three values needed to be multiplied for a volume therefore it was common to see $14 \times 25 \times k$ where k was sometimes 25 or 8.
- Some read that the cross-sectional area was 25^2 rather than 25 cm^2 .

(b) Comprehensive responses

- Some learners correctly identified the number of planes of symmetry of the prism as 9.
- The majority of learners ringed just one answer.

Limited responses

- A few learners ringed more than one answer.
- The most common wrong answers were 4 and 8 and a few chose 5.

Question 13

Comprehensive responses

- Some learners recognised that the first step was to find the difference in the x and y coordinates and find a quarter of them, adding these values to $(0, 3)$.
- Some learners approached the question by initially drawing triangles on the given graph to help avoid arithmetic or conceptual slips.
- Another successful approach was to find the midpoint of $(0, 3)$ and $(16, 23)$ which is $(8, 13)$ and then find the midpoint of $(0, 3)$ and $(8, 13)$.

Limited responses

- A common error was to correctly divide 20 by 4 to reach 5 then using 5 for the y-coordinate forgetting to add 3; (4, 5) was the most common incorrect answer.
- (8, 13) was also a common incorrect response from finding the midpoint of (0, 3) and (16, 23).
- A few learners found $23 \div 4 = 5.75$ (forgetting to subtract 3 from 23) and so a common incorrect answer was (4, 5.75) or (4, 8.75) if they went on to add 3.
- Another common incorrect answer was (4, 6.5) with the 6.5 coming from the common midpoint method applied to quarter of the way so $\frac{23 + 3}{4}$.

Question 14

Comprehensive responses

- Many learners gave a correct reason that referred to only picking an area of 1 m^2 , only measuring the tallest plants or only having a small a sample.
- Some learners correctly suggested how to improve the sampling method such as selecting more plants, measuring in different places or sampling plants with varying heights.

Limited responses

- Some learners just repeated parts of the information given in the question for example 'she picked an area of 1 m^2 ' or 'she picked the five tallest plants'.
- Other learners gave an incorrect answer indicating that the problem was that she had not taken a census rather than giving a problem with the sampling method for example 'she should measure all the plants in the garden'.
- Some gave problems that would be true of any sample taken and nothing to do with the problem with Naomi's specific sampling method, for example 'some plants may be shorter or taller'.
- Many learners offered no response to this question.

Question 15

Comprehensive responses

- A few learners wrote a correct initial calculation of $56 \div 7 = 8$ and then found the cube root of 8, using the result as the multiplier.
- Many learners used a trial and improvement method to find the multiplier and chose sensible numbers to try, often setting out working showing the given terms with the 3 gaps between.
- Some learners set up a more formal approach and formed the equation $7h^3 = 56$.

Limited responses

- Many learners realised that they had to divide the given terms of 56 and 7 and were then unsure as to what to do with the result.
- It was common to see 40 as an answer, from finding 8 and then multiplying this by the term number 5.
- Some learners identified h , rather than h^3 , as 8.
- Many realised that the terms were multiples of 7, so gave an answer of 49, the multiple of 7 below 56.
- Learners formed equations such as $3h = 8$ or $6h = 56$, and then solved for h .
- Many learners offered no response to this question.

Question 16

Comprehensive responses

- A small number of learners showed understanding of Venn diagrams and the equation of a straight line and correctly placed the equation outside the two sets and within the box.

Limited responses

- A large proportion of learners placed the equation in the intersection of the two sets.
- A similarly large proportion placed it inside one of the other two sections in the sets.
- Few showed any working out, so it is not possible to determine whether it was the understanding of Venn diagrams or of the meaning of $y = mx + c$ that learners found most challenging.
- A very small proportion of learners wrote comments such as 'it doesn't go anywhere' not realising that outside of the two sets and inside the box is also a region in the Venn diagram.
- Many learners offered no response to this question.

Question 17

Comprehensive responses

- The majority of learners were able to give the correct response of 4 for the first value.
- Most learners gave the correct values for t and w .

Limited responses

- The most common incorrect response was $w = 1$, this was due to the first value of 17 not showing an index so it was treated as 0 instead of 1.
- A small number of learners left their answers as 13^4 and 17^2 .
- It was common to see answers of -60 and -6 arising from multiplying indices instead of adding them.

Question 18

Comprehensive responses

- Many learners found the correct first four terms of sequence C.
- Some learners found the correct first four terms of sequence D.
- Some learners correctly described how one or both sequences were related to sequence A.
- A few learners found one or both n th terms correctly.

Limited responses

- Some learners did not understand the table fully, not realising that they had to relate each sequence to sequence A.
- Some learners needed to show greater understanding of how to generate a sequence from the n th term.
- Some learners formed sequence D by repeatedly multiplying by 3 within the sequence, giving terms such as 5, 15, 45 and 135, rather than multiplying each term of sequence A by 3.
- Many learners needed to show greater understanding in expressing the relationship between the sequences in words.
- For sequence C description some learners:
 - Used the -7 from the n th term ($2n - 7$) for example, 'subtract 7 from each term'.
 - Used a term-to-term rule such as 'add 2 each time.'
 - Gave the description as subtract -10 instead of subtract 10.
 - Used 'subtract to' instead of 'subtract from'.
- For sequence E description some learners:
 - only considered the first value of each sequence and wrote 'subtract 10'.
 - attempted to describe in words $2n + 3 - 2(2n + 3)$ usually not well.
- $2n + 9$ or $2n \times 3$ were common errors for the n th term for sequence D.
- $-2n + 3$ or $(2n + 3) - 1$ were common errors for the n th term for sequence E.

Question 19

Comprehensive responses

- A few learners showed efficient working such as $1026 \times 0.95 \times 0.90$.
- Many learners were able to reach the correct answer with less efficient working, often showing the interim value of 1140 first.

Limited responses

- Many learners thought a 5% decrease followed by a 10% decrease the next year was equivalent to a 15% decrease, so 1020 was a common incorrect answer.
- A small number of learners gave the second decrease of 114 as the answer, rather than the 2026 cost.
- Some learners increased the cost by 5% then 10% instead of decreasing it.
- Some used 1200 for the second decrease of 10% rather than 1140. This value of 1080 was either stated as the final answer or was subtracted from 1140 to give a common error of 60.
- Some learners correctly decreased to get the 2025 cost then increased by 10% giving an answer of 1254.

Question 20

Comprehensive responses

- Most learners could correctly find the area of the square.

- Many learners recognised the need to find the area of a circle and knew the formula for this.
- Some learners found the correct area of the semicircle.

Limited responses

- Many learners found the area of a full circle with radius 13 cm and the area of the square, then added them together.
- Many learners used the correct formula for the area of the circle or semicircle and used the diameter of 26 instead of halving this to find the radius.
- Some learners found the correct areas of the square and semicircle, then went on to multiply these together rather than add.
- Some learners confused perimeter with area for some or all of their working.
- It was very common to see learners use a circumference formula for the circle often combined with an area formula for the square.

Question 21

Comprehensive responses

- A few learners started with the correct inequality $7k - 6 < 50$ and solved to reach $k < 8$, then identified the largest possible integer for k as 7 then substituted this back into the expression $7k - 6$ to reach the correct answer of 43.

Limited responses

- Some learners reached 43 without following the requirement in the question to write and solve the inequality.
- Some learners did not show a correct inequality because they included their working for solving within the inequality, for example it was common to see $7k - 6 < 50 + 6$ instead of $7k - 6 < 50$ or $7k - 6 + 6 < 50 + 6$.
- Some learners misinterpreted 'greatest possible number of counters' as the greatest value for k giving 7 as their final answer.
- Some learners solved their inequality to reach $k < 8$ then gave this as their answer.
- Some learners made errors in rearranging the inequality, most commonly $7k < 44$ arising from subtracting 6 from 50 instead of adding.
- Some learners made errors in the initial set up commonly using an equal sign and occasionally an incorrect inequality sign instead of a less than sign.
- Trial and improvement methods were commonly seen which often led to $k = 7$ or the correct number of counters being found.
- Some learners missed the requirement in the question for k to be an integer and sometimes decimal values of k were found.
- Many learners offered no response to this question.

Question 22

Comprehensive responses

- Many learners correctly named the single transformation as enlargement alongside one of either a scale factor or a centre of enlargement.
- Some learners gave the correct scale factor and centre of enlargement.

Limited responses

- Many learners just identified one or two elements required.
- Some wrote 'made larger' for enlargement.
- The most common incorrect transformation given was a translation, often with the correct centre or scale factor.
- Many learners gave a scale factor of 3.
- A few learners reversed the coordinates and wrote (1, 3).
- Some learners simply described the change in the position of each of the coordinates such as '(2, 2) goes to (-1, 5)' and so on.
- A small number of learners incorrectly gave the centre of enlargement as a vector, $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$.
- Some learners had a fully incorrect answer because they gave two transformations.

Question 23

Comprehensive responses

- Most learners gave the correct midpoints of 145, 155, 165 and 175.
- Most then correctly used these to find the correct 'midpoint $\times$ frequency' values.
- Many learners were able to estimate the mean height of the 20 horses correctly, giving 162 as their answer.

Limited responses

- A common error was to divide the sum of the midpoints by 4 reaching a common incorrect answer of 160.
- Some learners divided the sum of the midpoints by 20 to reach a common incorrect answer of 32.
- Many learners found the correct total for the midpoint $\times$ frequency column then divided this by 4, instead of 20, reaching a common incorrect answer of 810.
- Some learners did not consider whether their answer was sensible; for example, a horse would not be 32cm or 810cm tall, and so they should have looked for an error in their working.
- Occasionally there were miscalculations of the midpoint $\times$ frequency or one of the midpoints was incorrect in an otherwise correct method resulting in answers close to 162.
- Some learners gave the modal class $160 \leq h < 170$ as their answer.
- Some completed the table correctly then did not use any of the values from it in their subsequent working leading to the answer.
- A few used incorrect midpoints such as 144, 144.5 or 140.5 instead of 145.

Question 24

Comprehensive responses

- Fully correct answers came from clearly set out working, showing each step required to solve the problem a few learners were able to do this.
- The most successful methods worked in mm until the end then either converted the distance Safia drove into m or converted 60 m into millimetres for the comparison.

Limited responses

- A significant number of learners offered no response to this question.
- The majority of learners attempted to solve the problem without using π instead using various multiplications or divisions of values given in the question often 304 or 608 multiplied or divided by 28.
- Some learners doubled the radius of 304 mm to give the diameter and used the correct formula for the circumference of a circle and then were not sure what to do next.
- Many then went on to multiply their result by 28 to find how far Safia drove in mm.
- A few learners reached the correct circumference then divided this by 28 instead of multiplying, leading to a distance travelled by the car of 68 mm – as a check learners should consider how likely their answer to a problem is.
- Some learners did not double the radius, multiplying just 304 by π for the circumference of a circle.
- Some learners used an incorrect conversion for mm to m, often dividing by 100.
- Some learners used a formula for the area of a circle instead of the circumference.

Question 25

Comprehensive responses

- Many learners showed the first and second differences of the sequence to work out that it was quadratic and then gave a correct answer.
- Many learners recognised the sequence and gave the correct n th term with no working.

Limited responses

- After finding a second difference of 2, it was common to see 2 appearing in an incorrect place in an expression, such as $n^2 + 2$, $n + 2$ or an expression containing $2n^2$.
- Some learners found the n th term for the differences, resulting in $2n + 1$ or a different expression containing $2n$.
- Many learners gave a quadratic n th term that was not $n^2 + 3$ for example $n^2 - 3$ from seeing that there was a difference of 3 between each term of n^2 and each term of the sequence.
- Some learners gave the next term of the sequence as the answer.

Question 26

Comprehensive responses

- Many learners were able to use the slope area and prism length to correctly find the slope length of 26 cm.
- After correctly reaching 26 some realised this was the hypotenuse of the cross-section and correctly used Pythagoras' theorem to find the required value, this was often set out clearly.

Limited responses

- A significant proportion of learners correctly found the length of the hypotenuse to be 26 cm and gave this as their final answer, possibly misunderstanding which of the faces of the prism was the largest.
- Of those who recognised the need to use Pythagoras' Theorem, errors were sometimes made in substituting the values into the formula; most commonly seen was $10^2 + 26^2 = x^2$.
- Some learners thought 1040 was the volume rather than the area of the largest face; resulting in

attempts to rearrange the formula $\frac{1}{2} \times x \times 10 \times 40 = 1040$, quite often these learners did not include the $\frac{1}{2}$.

4 Cambridge Lower Secondary Checkpoint Science 0893

4.1 Cambridge Lower Secondary Checkpoint Science 0893 – Component 01

Key messages

What learners did well

- Interpretation of a diagram of the carbon cycle.
- Construction of word equations.
- Recall of the function of the human renal system.
- Many learners were able to construct a logical answer to a continuous prose answer that ensured the key points were included.

What learners needed to improve

- Learners must be able to distinguish between different types of thermal energy transfer and be able to explain them in terms of particles.
- Learners must be able to describe the limitations about evidence collected or described.
- Learners found planning investigations complex and were not always able to identify the variables to keep the same, variables to change and variables to measure.
- Learners must appreciate the importance of the range of data and repeating readings during investigations.

Comments on specific questions

Question 1

(a) Comprehensive responses

- Many learners appreciated that water is lost by leaves by the process transpiration.
- Other learners referred to evaporation or diffusion.

Limited responses

- Some learners incorrectly referred to photosynthesis.

(b) Comprehensive responses

- Many learners appreciated that water was absorbed from the soil by the roots hair cells.
- Some learners referred to osmosis within their answer.

Limited responses

- Many learners included irrelevant details about what happens to water once it reaches the root xylem.
- Some learners had the misconception that water entered the plant from the leaves and then went down the plant to the roots.

(c) Comprehensive responses

- Many learners stated that minerals also travelled up the xylem.
- Some learners gave the names of specific mineral ions such as magnesium or nitrate.

Limited responses

- Some learners included oxygen and carbon dioxide rather than minerals.
- Other learners just referred to nutrients rather than referring to minerals or the names of specific minerals.

Question 2

(a) Comprehensive responses

- Some learners gave the correct electronic structure of aluminium.

Limited responses

- Some learners gave the number of electrons in an atom of aluminium rather than the electronic structure.

- (b) **Comprehensive responses**
- Most learners were able to give the symbol or name of an element in the same group as aluminium.
 - Some learners gave all the elements in Group 3.
- Limited responses**
- Some learners gave elements in the same Period as aluminium rather than the same group.
- (c) **Comprehensive responses**
- Some learners gave the correct number of outer shell electrons.
 - Other learners gave the full electronic structure for strontium.
- Limited responses**
- Some learners gave the total number of electrons in an atom of strontium rather than the number of outer shell electrons.

Question 3

- (a) **Comprehensive responses**
- This question was not assessed.
- Limited responses**
- This question was not assessed.
- (b) **Comprehensive responses**
- This question was not assessed.
- Limited responses**
- This question was not assessed.

Question 4

- (a) **Comprehensive responses**
- Many learners identified all five processes from the carbon cycle.
- Limited responses**
- Some learners confused combustion, respiration and decomposition.
- (b) **Comprehensive responses**
- Many learners stated that the graph showed that the sea levels were rising.
 - Some learners did link this increase with the idea of ice in the poles melting.
- Limited responses**
- Some learners did not link the rise in sea level with a specific effect of global warming.
 - Other learners referred to ice meting and did not state that it was ice in a glacier or at the poles of the Earth.

Question 5

- Comprehensive responses**
- Many learners were able to match the function with the current part of the human renal system.
- Limited responses**
- Some learners drew five lines rather than just three lines (one from each function).

Question 6

- (a) **Comprehensive responses**
- Some deduced an acceptable value for the melting point.

Limited responses

- Many learners gave a melting point value that was above 0 °C and learners rarely gave a negative value.

(b) Comprehensive responses

- Some learners appreciated or deduced that iodine was a solid.

Limited responses

- Many learners gave the answer that iodine was a liquid.

(c) Comprehensive responses

- Some learners appreciated that iodine has a simple structure.

Limited responses

- Many learners misinterpreted the question and gave the electronic structure of fluorine or that it has a gas, liquid or solid structure.
- Some learners did not attempt the question.

Question 7

(a) Comprehensive responses

- Many learners were able to draw a waveform with the same amplitude.
- Many learners were able to draw a waveform with a greater frequency.

Limited responses

- Many learners drew waveforms in which the frequency was not constant, this was allowed providing all the frequencies were greater than the original.
- Many of the waveforms drawn did not closely resemble waves.

(b) Comprehensive responses

- Most learners appreciated that the pitch of **B** was higher.

Limited responses

- Some learners did not appreciate that the loudness of **B** would stay the same.

Question 8

(a) (i) Comprehensive responses

- Some learners appreciated that at one time all the continents were together and the most comprehensive answers described the jigsaw nature of the coastlines.
- Many learners described the idea of tectonic plates moving or continental drift.

Limited responses

- Some learners described the coastlines as being the same rather than being complementary shapes.

(ii) Comprehensive responses

- Some learners recognised that there was no evidence about how the movement happened.
- Other candidates described the lack of diagrams for times between 145 million years ago and the current day.
- Other learners stated that there were no tectonic plates shown in the diagrams since it only showed the continents.

Limited responses

- Some learners just describe the evidence as inaccurate and did not offer any explanation for this answer.

(b) Comprehensive responses

- Learners gave a variety of different answers and most mentioned fossils or the fossil record, other learners mentioned the location of volcanoes and earthquakes.

Limited responses

- Some learners referred to fossil fuels rather than fossils.

Question 9

(a) Comprehensive responses

- Most learners could write the correct word equation.

Limited responses

- Some learners tried to write the symbol equation and these learners were not able to write the correct formulae.
- Many learners did not make effective use of the answer space given. When the equation did not fit on the answer line wrote the answer under the answer line. There was ample space above the answer line for the equation to be written correctly.

(b) Comprehensive responses

- Some learners named the process as filtration.

Limited responses

- Some learners described the process rather than naming the process.
- Other learners just referred to evaporation rather than filtration.

(c) Comprehensive responses

- Many learners named the process as either crystallisation or evaporation.

Limited responses

- Some learners described the process rather than naming the process.

Question 10

(a) Comprehensive responses

- Some learners appreciated that the frogs were small and jumped around so they would be difficult to see.
- Other learners appreciated that the photographs were recorded so could be studied at a later date.

Limited responses

- Some learners confused the term size and used it to describe the frog rather than the population.
- Other learners did not give an explanation and just stated it was to measure the population size.
- Some learners stated the use of the digital camera made the counting more precise, accurate or reliable and without further supporting reasons these comments were not included.

(b)(i) Comprehensive responses

- Some learners appreciated that it helped to reduce any bias.
- Other learners referred to the frogs being distributed across a large area.

Limited responses

- Many learners did not appreciate that the question was really about sample size and getting representative data from the forest.
- Some learners referred to reliability and accuracy.

(ii) Comprehensive responses

- Some learners referred to having reliable results, checking for anomalous results and taking averages.

Limited responses

- Many learners focused on the frogs rather than the reason for repeating measurements.
- Many learners gave accuracy and precision as answers.
- Many learners referred to checking if a result was correct and offered no explanation such as to check if the population of frogs was the same.

- (c) **Comprehensive responses**
- Many learners were able to give two environmental changes that decrease the population of the frog.
 - The most common answers were climate change and associated impacts of climate change, lack of small insects, deforestation, increased predation and new diseases.

Limited responses

- Some learners just listed the factor without detailing how it would change to reduce the population. For example, food rather than lack of food.

Question 11

- (a) **Comprehensive responses**
- Most learners were able to list at least one factor that had to be kept constant.
 - Some learners were able to identify the variable to change referring to the thickness of the insulation.

Limited responses

- Many learners were imprecise when describing the control variables involving temperatures. The most comprehensive answers referred to the initial temperature and/or room temperature.
- Some learners mentioned the time taken should be the same.
- Many learners were unable to state the measurement that needed to be made and often just stated the time for the mixture to cool down. The most comprehensive answers were the temperature change for a fixed time or the time to measure a fixed temperature change.

- (b) **Comprehensive responses**
- Some learners correctly identified the two thermal energy transfer processes.

Limited responses

- Some learners gave evaporation and/or radiation.

- (c) **Comprehensive responses**
- Some learners were able to give detailed answers that described high energy particles escaping the liquid, leaving behind low energy particles.

Limited responses

- Many learners referred to hot particles and cold particles rather than high energy particles and low energy particles.

Question 12

- (a) **Comprehensive responses**
- Some learners referred to both particles and collisions in their answers.
 - These learners mentioned particles having more energy or particles moving faster.
 - These learners also mentioned more collisions or more successful collisions.

Limited responses

- Some learners did not refer to particles in their answers.
- Some learners referred to particles vibrating faster or colliding faster rather than referring to particles moving faster and colliding successfully or more often.

- (b) **Comprehensive responses**
- Many learners referred to both particles and collisions in their answers.
 - Learners often referred to more collisions or a greater collision frequency.

Limited responses

- Some learners only referred to more particles and did not relate this to the particles being closer together or being more crowded.
- Some learners also had the misconception that particles moved faster if the concentration was increased.
- Some learners did not attempt the question.

4 Cambridge Lower Secondary Checkpoint Science 0893

4.2 Cambridge Lower Secondary Checkpoint Science 0893 – Component 02

Key messages

What learners did well

- Learners often showed all the required working out in calculations. Many learners used the format of writing the equation to be used and then substituting in the numerical values and finally calculating a numerical answer.
- Learners were able to interpret waveforms in terms of deducing the amplitude and the time for a complete wave.
- Learners were often able to write chemical equations.
- Learners seldom left questions blank and followed the instructions within the questions in terms of where to put their answer.

What learners needed to improve

- Learners need to improve their understanding of thermal energy transfer including when to use particles and when not to use particles in their answers.
- Learners need to be able to link a risk in an experiment with the why to control the risk.
- Learners must appreciate the link between rate and the time taken and avoid the use of the phrase quicker or faster time.
- Learners need to be able to define the term molecule and appreciate that molecules are made of atoms and not atoms are made of molecules.

Comments on specific questions

Question 1

(a) Comprehensive responses

- Some learners gave ethical answers about not testing a mother and her fetus.
- Other learners appreciated that the computer model would provide more data which could be processed by the computer.

Limited responses

- Many learners gave answers that relate to reliability or accuracy.

(b) Comprehensive responses

- Some learners could interpret the data in the chart.

Limited responses

- Many learners did not appreciate the scale of the y-axis and so often could not state the number of women who stopped smoking during pregnancy.

(c) Comprehensive responses

- Many learners gave at least one valid answer this was often still births, premature births, and a decreased birth mass compared to the mean.

Limited responses

- Some learners did not understand the difference between a fetus and a newborn baby.
- Some learners described ways that smoking effects the mother rather than the fetus.
- Many learners just referred to decreased fetal development without any qualification.
- Other learners referred to suffocation or breathing problems for the fetus.

Question 2

(a) (i) Comprehensive responses

- Most learners could recall that resistance is measurement by the unit ohms.
- Some learners gave the symbol for ohms, Ω .

Limited responses

- Some learners gave symbols such as volts or amps or even V/A.

(ii) Comprehensive responses

- Many learners were able to calculate the resistance of the kettle. Typically, the most comprehensive answers included the equation to be used and/or the correct substitution.

Limited responses

- Some learners just quoted the final answer.

(b) Comprehensive responses

- Some learners appreciated that conduction transfers thermal energy through the walls of the kettle to the outside.

Limited responses

- Some learners confused the two processes convection and conduction.
- Some learners referred to hot and cold particles and described hot particles moving towards cold particles rather than thermal energy moving from a hot region to a cold region.
- Learners rarely mentioned about convection happening inside the kettle.

(c) Comprehensive responses

- Many learners appreciated that one of the risks was that the kettle or water was hot and could cause burns.
- Learners that used goggles often linked this to the risk of getting hot water in the eyes.

Limited responses

- Learners often gave answers that did not link the risk with the way the risk is controlled.
- Many learners did not specify the type of gloves that should be worn for example rubber gloves to avoid an electric shock and thermally insulated gloves to stop the hand being burnt.

Question 3

(a) Comprehensive responses

- Some learners gave a comprehensive definition involving two or more atoms being bonded together by covalent bonds.
- Some other learners defined the term in the context of methane referring to hydrogen and carbon atoms being combined.

Limited responses

- Most learners were not able to define the term molecule and often did not appreciate that a molecule was made of more than one atom. The answers often referred to ions rather than atoms.
- Many learners referred to particles being bonded together and often gave ionic bonds or just sharing electrons rather than a shared pair of electrons.
- Some learners did not mention particles in their answers and just gave answers based on elements and/or compounds instead.

(b) Comprehensive responses

- Some learners described the loss of electrons from a sodium atom and often these answers referred to the loss of just one electron.

Limited responses

- Some learners described the formation of a negative ion by the gain of electrons.
- Other learners described the loss of an atom rather than an electron.

Question 4

Comprehensive responses

- Most learners were able to select the correct word from the list to write correct sentences about nebulae.

Limited responses

- Some learners used words not included in the list of words.

Question 5

Comprehensive responses

- Many learners were able to choose suitable words to complete all three sentences about photosynthesis.
- Most learners were able to recall the name of the green pigment in chloroplasts even if they were not always able to give the correct spelling.
- Sunlight was well known by most learners.

Limited responses

- Some learners did not recall the products of photosynthesis and typically gave the reactants rather than the products.

Question 6

(a) Comprehensive responses

- Many learners were able to deduce the amplitude as 3 cm, with a few learners quoting the answer as ± 3 cm.

Limited responses

- Some learners gave 6 cm rather than 3 cm.
- Some learners gave 2 cm rather than 3 cm.

(b) Comprehensive responses

- Many learners calculated the time for one complete wave as 2 s.

Limited responses

- Some learners gave the full time scale on the x-axis of the waveform namely 12 s and other learners the time for half a complete wave, 1 s.

(c) Comprehensive responses

- Most learners described the waveform by drawing on the graph.
- Many learners were able to draw a suitable waveform.

Limited responses

- Some learners described the waveform in word and often found it very difficult to express their answers. In particular they were unable to express the idea that the waveform would be a reflection of the original waveform in the x-axis.
- Some learners stated that or drew a waveform which had a smaller amplitude than the original waveform.

Question 7

(a) Comprehensive responses

- Most learners were able to calculate the density of the sample of zinc and quoted the answer to three significant figures.
- Many learners gave the correct equation for density. Some learners gave the equation in words and the others in symbols.

Limited responses

- Some learners were not able to give the units for density giving units such as g / cm^2 , g cm^3 , and cm^3 / g .

- (b) **Comprehensive responses**
- Most learners appreciated that the density of oxygen was less than that of zinc. Some learners explained their answer in terms of the separation of particles stating that in oxygen the particles were far apart and in zinc they were close together.
- Limited responses**
- Some learners had the misconception that oxygen had no density because it had no mass.
 - Some learners did not attempt this question.

Question 8

- (a) **Comprehensive responses**
- Most learners recognised that the diagram showed fertilisation.
 - Some learners referred to fusion instead.
- Limited responses**
- Some learners referred to sexual reproduction or the term zygote.
- (b) **Comprehensive responses**
- Many learners were able to deduce suitable ratios such as 1 : 1, 2 : 2, 4 : 4, 50 : 50 or 0.5 : 0.5.
- Limited responses**
- Some learners included the sex chromosomes in their ratio giving the answer XX : XY.
- (c) **Comprehensive responses**
- Many learners included the terms gene, genetic, chromosomes or DNA.
- Limited responses**
- Some referred to environmental factors or just variation.

Question 9

- (a) **Comprehensive responses**
- Many learners were able to list two suitable properties these often being mass, volume, speed or composition.
- Limited responses**
- Some learners did not appreciate that density involves both the mass and the volume of the asteroid and so referred only to density and mass.
 - Some learners misinterpreted the question and listed effects of an asteroid collision on the Earth.
 - Some learners referred to the height the asteroid dropped which was not relevant for this question.
- (b) **Comprehensive responses**
- Many learners were able to give a consequence of an asteroid collision with the Earth.
 - The most common answers involved extinction of plant and/or animal species. Other answers included temperature changes such as an impact Winter.
- Limited responses**
- The most common misconception involved causing earthquakes rather than shockwaves.

Question 10

- (a) **Comprehensive responses**
- Many learners were able to choose the answer that explains why ice floats in water.
- Limited responses**
- The most common incorrect answer was that water is a liquid and ice is a solid.

Question 11

(a) Comprehensive responses

- Many learners recognised the reaction as displacement.

Limited responses

- Other learners gave answers such as neutralisation, exothermic and a chemical reaction.

(b) Comprehensive responses

- Many learners were able to construct the word equation.

Limited responses

- Some learners just wrote the reactants in the equation so that it did not represent a chemical reaction.

(c) Comprehensive responses

- Many learners appreciated that silver was less reactive than zinc or that zinc was more reactive than silver.

Limited responses

- Some learners stated that silver was less reactive than zinc sulfate rather than zinc.
- Other learners stated that zinc was more reactive without stating to which substance it was more reactive.

Question 12

(a) Comprehensive responses

- Many candidates appreciated that the convection current moves the block of wood but only some learners appreciated that the convection current drags, pulls or pushes the block of wood.
- Some answers described the flow of oil through the liquid in terms of hot oil rising and cool oil sinking.

Limited responses

- Some learners incorrectly referred to the particles of oil moving the wood rather than the whole flow of oil.

(b) Comprehensive responses

- Many learners appreciated that the time taken for the block to travel to the side decreases.
- Some learners went a stage further and stated that the block of wood moved faster.

Limited responses

- Some learners had the misconception that the time taken was faster which is incorrect since the time can be shorter but not faster.

(c) Comprehensive responses

- Some learners appreciated that the investigation was not fair because the temperature of the oil increases as the experiment number increased.
- Many learners appreciated that the experiment should be repeated.
- Some learners suggested a change of oil so that the oil was more viscous and more like the dense nature of the magma in the mantle.

Limited responses

- Many learners gave very imprecise answers regarding repeating the experiment and it was not always clear if the experiment was repeated with the same or different oil.

Question 13

(a) Comprehensive responses

- Many learners identified the anomalous result.

Limited responses

- Some learners did not answer the question.

(b) Comprehensive responses

- Many learners described the correct trend between the concentration of the acid and the time of reaction.

Limited responses

- Some learners gave the trend that suggested the concentration was affected by the time of reaction stating that as the time of reaction increased the concentration decreased.
- Some learners did not describe a trend because they only described one of the variables giving answers such as the time increases.
- Other learners described the time as being quicker or faster which is not appropriate because time cannot be quicker it can only be shorter.

(c) Comprehensive responses

- Only a few learners appreciated that as the reaction time decreased the rate of reaction increased.

Limited responses

- Many learners repeated the trend from **Question (c)** as their support for the conclusion.
- Some learners just repeated the conclusion and offered no evidence to support the conclusion.
- Some learners did not use the evidence from the graph and gave an answer that used collision theory.

Question 14

(a) Comprehensive responses

- Many learners were able to interpret the population data shown in the graph.

Limited responses

- Some learners did not describe the change in population and just quoted numerical values.
- For April to October some learners gave the overall trend rather than the population decreased, increased and then decreased.

(b) Comprehensive responses

- Many learners appreciated that the graph showed the number of black rats captured rather than the actual population.
- Other learners appreciated that some of black rats may have reproduced or had been hiding.

Limited responses

- Some learners gave answers to suggest the data in the graph was inaccurate without offering any explanation why this may be so.

5 Cambridge Lower Secondary Checkpoint Global Perspectives 1129

5.1 Cambridge Lower Secondary Checkpoint Global Perspectives 1129 – Component 01

Key messages

The following points are a summary of the key elements of the moderated Checkpoint:

- The question should focus on a global issue or problem.
- Learners must understand how to present a global and national perspective and explain how or why the perspectives are different.
- Evaluation of sources should explain whether a particular source is credible and why it is credible.
- The written work should be structured and presented as a research report, using a question as the title to focus the work.
- There should be one national or local solution offered in the report to help resolve the issue and this solution should be well explained.
- When reflecting, it is important for learners to explain how their personal perspective has changed or developed as a result of their research and the global and national perspectives they have explored; this needn't be very detailed or lengthy.
- The maximum word count is 1000.
- References should be complete and in a consistent format, including the title of article, author, date, website address and date accessed.

What candidates did well

- Most learners formulated a question; many of these were questions about global issues, and many of the reports focused entirely on the issue in the question.
- Many learners were able to suggest causes and consequences for their chosen issue and were able to explain either the causes or consequences.
- More learners evaluated their sources or attempted to do so.
- Many reports contained evidence that information relevant to their chosen issue had been used and that this came from at least three different sources. This was clear to see when reports were referenced, and evidence was cited within the text.
- Some reports contained global and national perspectives.
- Explicit comparisons between the national and global perspectives were increasingly common.
- Most learners tried to explain a course of action. Learners who understood that their issues were problems that required solutions were most successful in fulfilling this assessment criterion.
- Most learners tried to use a consistent referencing system that included the author, title and access date, as is relevant.

What candidates needed to improve

- Some learners chose questions that were too focused on just one country. They should ensure that questions are global in nature and focus.
- Some learners evaluated all their sources together, as a set, which limits their fulfilment of the assessment criteria.
- Many learners provided global information rather than using that global information to provide a global perspective or viewpoint.
- Many learners provided national information instead of using that national information to provide a national perspective or viewpoint.
- Some learners did not use headings and did not specify which country was their national perspective.
- Many reports ended with a general conclusion or a statement about what the learner thought about the issue or what they learned, instead of a full reflection on the issue that explained how their perspective had changed or developed as a result of both their research and the perspectives they provided in their report.

Comments on specific tasks/activities

Analysis of causes and consequences of the issue

What candidates did well

- Learners explained both causes and consequences. The explanation just needs to be a few sentences where the learner explains how that piece of evidence caused the issue in the question.
- An excellent example of two explained causes: 'Qatar reportedly spent 6.5 billion dollars on constructing the new stadiums, which is only a small portion of the overall investment which was around 220 billion Dollars (Statista Research Department, 2024). While this created many temporary jobs, workers of the Al Bayt stadium went unpaid for at least 7 months (Harley, 2020), these workers live paycheck to paycheck, therefore them being unpaid for 7 months is unfair and conflicts with human rights laws. Each stadium in Qatar required 10 000 litres of water per day during winter months (Syal, 2022), to maintain the pitches while the tournament was being played. Qatar had little to no freshwater supply. The water that had to be sourced was saltwater which must be 'desalinated' (which is the process of removing salt from seawater). Desalination plants heavily rely on fossil fuels which cause greenhouse gases to get released into the atmosphere causing global warming, which was heavily criticized.'
- These two explanations are brief, and they explain two reasons why countries should not host international sports competitions, which was the focus of the report.

What candidates needed to improve

- Learners often listed causes and consequences instead of explaining them.

Global and national perspectives on the issue

What candidates did well

- Learners used headings in their reports labelled Global Perspectives and National Perspectives to help them organise the content of their report.
- Learners tried to explicitly provide and explain perspectives that were global.
- A global perspective is the viewpoint of an organisation, country or individual about the global issue in the report. Reports should explain and give evidence to support a global perspective, and also provide some justification for why it is global.
- For example, one learner wrote: 'On a larger scale organizations like the International Labor Organization (ILO) argue that while banning child labour is critical for increased school attendance, it does not create a necessary enough condition in and of itself (International Labor Organization). The world is grappling simultaneously with child labour and poverty and lack of social protection, the ILO points out, as billions of children across the globe lack access to or do not benefit from basic welfare assistance. The result is legislation that, without financial support, too often slips through the cracks or pushes child labour even deeper underground.'
- It is clear that these are perspectives, because based on what the learner has written, a global organisation, the ILO, feels that it is important to ban child labour and that children also need financial support, so that they do not turn to child labour.
- Learners also tried to explicitly provide and explain perspectives that were national.
- An example:
 - 'Sweden believes that schooling works best on pen and paper, not on devices. This means that students are not permitted to use any technology during lessons. They once tried to introduce technology to classrooms with a digital programme called IXL (Economist, 2026). This application gave every student their own tailor-made exercises so that they will be able to learn at their own paces, but this quickly turned against them (Economist, 2026). The students found this programme highly repetitive and boring, so they started using other sites like YouTube to entertain themselves (Economist, 2026). Even though the teachers tried to ban these sites, the students always found a loophole (Economist 2026). In addition to this, their Progress in International Reading Literacy Study has dropped a lot (Guardian, 2023). Test scores in maths and science have also decreased by a tremendous amount (Economist, 2026). Therefore, students are rarely allowed to use their schools' computers and IXL is only used occasionally (Economist, 2026).'
- Here Sweden's perspective about schooling and technology is that they believe that schooling works best on pen and paper. Their perspective is supported by the information about the technology apps used in Sweden and the ways in which they were unsuccessful in the past.

What candidates needed to improve

- Learners sometimes provided global information without any specific perspectives. Perspectives are viewpoints on an issue, not just facts, data or other evidence.
- An example of global information is 'Junk food is a key element in why around 390 million children and adolescents are overweight. Ultra-processed foods contribute to weight gain by providing more calories than people burn. Childhood obesity is now increasing faster than undernutrition and for the first time in history, there are more obese than underweight children globally. (The Guardian) Some countries, like Mexico and the United Kingdom, are introducing measures to reduce junk food consumption. For example, Mexico has banned the sale of junk food in schools and introduced a tax on sugary drinks and high-caloric foods to encourage healthier diets.
- In this example, the learner provides information about junk food consumption and obesity. The learner does not explain what people think or feel globally about junk food.
- Regarding national perspectives, without headings, it was not always clear which country a learner had chosen for their national perspective or how this perspective was different to their global perspective.
- An example of national information is 'In Colombia, migration and urbanization is a very important problem, because in recent years a lot of immigrants from some nearby countries. A lot of them move to cities like Bogota, Medellin, Cali, because those places have more job opportunities, health care, education and better living conditions. That means that the country receives a big amount of immigrants that make an upgrade of the jobs, the public transportation, the schools and the money that the country invests in them.'
- In this instance, the learner needed to explain, based on this information, what people in Medellin or Bogota or Cali think, believe or feel about the issue.