Retrospective

2019 Queensland Core Skills Test

Short Response (SR) (Part 2 of 5)

Queensland Government
Queensland Curriculum & Assessment Authority
For all Queensland schools

Short Response (SR)

This year's SR subtest comprised 14 items across seven units. As students worked through each unit, they interacted with stimulus material, which was chosen to be challenging and engaging. Test developers paid careful attention to framing each item in a way that made it accessible to most students. The SR testpaper comprised units with stimulus material selected from fields such as mathematics, logic, English, geography, sport, arts and the social sciences.

This year's paper was varied in its content, covering a broad range of CCEs. The different tasks included recognising how best to use different words, tracking a hurricane using given data then writing and sketching to describe different categories of hurricanes, applying a system for scoring a surfing competition, assessing a method for saving money when buying fuel, understanding strategies used by authors to achieve various effects, using a given notation to deduce a culprit and interacting with contemporary art in public spaces.

Model responses and commentaries on student performance

What follows is an item-by-item report that includes model responses, marking schemes, tables and graphs of the distributions of grades, and commentaries that discuss the tasks. At times, references to specific student responses are included to exemplify observations. As much as possible, model responses are actual student responses. Model responses are those that demonstrate a level of performance that would have been awarded the highest grade.

For some items, especially the more open-ended ones, responses were extremely varied. For these responses it is not possible to provide examples of the many ways students responded. The detailed, item-specific marking schemes indicate the scope of acceptable responses for different grades. Even for the more closed items, marking schemes demonstrate that different ways of perceiving 'the solution' were able to gain credit.

Marking schemes

The marking schemes used during the marking operation and included in this section of the *Retrospective* are not designed to be read in isolation. They are only one element of the marking prescription. During the marking operation, markers undergo rigorous training in how to apply the marking schemes to student responses of one marking unit. The training involves careful consideration and application of the material presented by immersers.

Each marking scheme provides descriptors for up to five creditable grades, as well as the non-contributory grades N (where the response is unintelligible or does not satisfy the requirements of any other grade) and O (where no response has been made at any time).

For organisational purposes during the marking operation, the testpaper units were grouped into four marking units. In 2019, Marking Unit 1 contained testpaper units One and Three, Marking Unit 2 contained testpaper units Two and Seven, Marking Unit 4 contained testpaper units Four and Five, Marking Unit 6 contained testpaper unit Six.

All SR items are double-marked. This means that a student's response booklet is marked by at least 10 different, independent markers. Referee marking also occurs when necessary.

SR 2019 summary

Unit	Item	Basket	Common Curriculum Elements by unit
One *Very …*	1	π	4 *Interpreting the meaning of words …* 10 *Using vocabulary appropriate to a context*
Two *Surfers*	2	ϕ	16 *Calculating with or without calculators* 31 *Interrelating ideas …* 36 *Applying strategies to trial and test ideas and procedures* 37 *Applying a progression of steps to achieve the required answer*
	3	β	
Three *Writers*	4	β	26 *Explaining to others* 27 *Expounding a viewpoint* 28 *Empathising* 30 *Classifying* 38 *Generalising from information* 43 *Analysing*
	5	θ	
Four *Logic*	6	α	7 *Translating from one form to another* 32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true* 43 *Analysing*
Five *Dylan*	7	α	6 *Interpreting the meaning of … maps …* 6 *Interpreting the meaning of tables …* 15 *Graphing* 16 *Calculating with or without calculators* 26 *Explaining to others* 31 *Interrelating ideas …* 34 *Interpolating* 48 *Justifying* 49 *Perceiving patterns* 52 *Searching and locating items/information* 60 *Sketching/drawing*
	8	ϕ	
	9	θ	
Six *Trafalgar*	10	α	5 *Interpreting the meaning of pictures …* 10 *Using vocabulary appropriate to a context* 27 *Expounding a viewpoint* 29 *Comparing, contrasting* 31 *Interrelating ideas/themes/issues* 42 *Criticising* 43 *Analysing* 44 *Synthesising* 46 *Creating/composing/devising*
	11	θ	
	12	θ	
Seven *Fuel*	13	ϕ	16 *Calculating with or without calculators* 18 *Approximating a numerical value* 22 *… organising a mathematical argument* 37 *Applying a progression of steps to achieve the required answer* 52 *Searching and locating items/information*
	14	ϕ	

Note: CCEs specific to an item are listed on the item's marking scheme.
The baskets into which CCEs are grouped are shown in Appendix 3.

Unit One

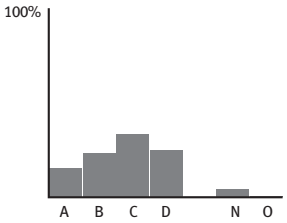
The item in this unit is based on a suggestion aimed at adding more meaning to a sentence.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 1	15.1	23.1	33.0	24.7		4.0	0.2
A shaded box indicates that the grade was not available for the item.							

Item 1

Commentary



Item 1 is a three-star item that tested achievement in CCEs 4 *Interpreting the meaning of words* and 10 *Using vocabulary appropriate to a context*.

The introduction informed students that instead of using 'very' paired with another word more meaning could be added to a sentence if the pair of words were replaced by a single more precise word.

This item contained eight separate sentences and a list of 10 single words. It required students to match eight of the single words to the sentences. Students were told to use a word only once and that two of the words would not be needed.

An A-grade response needed to provide the eight correct matches. A strong year 12 vocabulary was required to complete this item successfully.

Model response

Instead of very annoying, write …	C
Instead of very bright, write …	G
Instead of very clear, write …	F
Instead of very difficult, write …	B
Instead of very deep, write …	A
Instead of very careful, write …	I
Instead of very different, write …	E
Instead of very confusing, write …	D

UNIT ONE ITEM 1

Marking Scheme

PERFORMANCE DOMAIN	10 Using vocabulary appropriate to a context 4 Interpreting the meaning of words …

A	B	C	D	N
The response provides • **8 of the sentences and words, correctly matched.**	**The response provides** • **6 or 7 of the sentences and words, correctly matched.**	**The response provides** • **4 or 5 of the sentences and words, correctly matched.**	**The response provides** • **2 or 3 of the sentences and words, correctly matched.**	**Response is unintelligible or does not satisfy the requirements for any other grade.**

O
No response has been made at any time.

Model response:

Instead of very annoying, write …	C
Instead of very bright, write …	G
Instead of very clear, write …	F
Instead of very difficult, write …	B
Instead of very deep, write …	A
Instead of very careful, write …	I
Instead of very different, write …	E
Instead of very confusing, write …	D

Notes:

1. **For all grades, a match may be indicated other than by a letter in the ☐ beside a sentence.**
2. **Where a letter/word is in the ☐ beside a sentence, use this as the intended match for that sentence. Disregard any other indications of a match for that sentence outside the ☐.**
3. **Where a letter/word has been used in more than one ☐, none of those can be counted towards the grade for the response.**
4. **Where more than one letter/word is in a ☐, none of those can be counted towards the grade for the response.**
5. **Marking aid:**

Instead of very annoying, write …	C	*exasperating*
Instead of very bright, write …	G	*luminous*
Instead of very clear, write …	F	*obvious*
Instead of very difficult, write …	B	*arduous*
Instead of very deep, write …	A	*profound*
Instead of very careful, write …	I	*meticulous*
Instead of very different, write …	E	*disparate*
Instead of very confusing, write …	D	*perplexing*

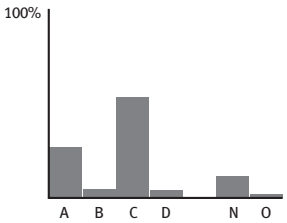
Unit Two

The items in this unit are based on a scoring method used in a surfing competition.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 2	26.4	4.1	53.0	3.8		11.0	1.7
Item 3	12.8	1.2	4.1	10.6		65.5	5.9
A shaded box indicates that the grade was not available for the item.							

Item 2



Item 2 is a three-star item that tested achievement in CCEs 37 *Applying a progression of steps to achieve the required answer* and 16 *Calculating with or without calculators*.

The introduction to this unit described how wave scores and heat scores are calculated during a surfing competition. This item consisted of two parts. Part I required students to calculate the wave score for a competitor given the points awarded by the five judges. Part II required them to determine a wave score that would be required if the two surfers in a heat were to be equal at the completion of the heat. The cue instructed students to show all steps.

An A-grade response needed, for part I, to indicate which two scores were to be discarded and to provide the correct average of the three remaining scores as 8.73. For part II, the response needed to provide 7.7 or 7.70 as the required wave score.

It was important when attempting this item to be aware of the different ways of calculating wave scores and heat scores. Careful reading of the stimulus clarifies this difference.

Model response

I

Discarded scores are 7.9 and 9.4

Wave score = (8.1 + 8.7 + 9.4)/3 = 8.73

II

Blue heat score = 8.90 + 8.73 = 17.63

If heat scores are equal then red heat score = 9.93 + X = 17.63

X = 17.63 - 9.93 = 7.7

Red's last wave must score 7.7 for the heat scores to be equal.

UNIT TWO ITEM 2

Marking Scheme

PERFORMANCE DOMAIN	16 Calculating with or without calculators 37 Applying a progression of steps to achieve the required answer

A	B	C	D	N	O
The response includes steps that for part I • indicate the two correct points not used • provide 8.73 as the wave score for part II • provide 7.7 or 7.70 as the required score. No incorrect working is used.	The response, allowing for at most one observable mechanical error and consequentially correct value/s, includes steps that for part I • indicate the two correct points not used • provide an average of remaining three points (≤ 10) for part II • provide a required score (≤ 10).	The response, allowing for at most one observable mechanical error and consequentially correct value/s, includes steps that for part I • indicate the two correct points not used • provide an average of remaining three points (≤ 10). OR The response for part I • provides 8.73 as the wave score. No incorrect working is used. OR The response, allowing for at most one observable mechanical error and consequentially correct value/s, for part II • provides a required score (≤ 10). OR The response includes steps that for part II • provide 0.2 (the difference between the blue and red heat scores after six waves). No incorrect working is used.	The response includes steps that for part I • provide a correct average of three of the points. OR The response includes steps that for part II • provide 17.63 as the heat score for blue.	Response is unintelligible or does not satisfy the requirements for any other grade.	No response has been made at any time.

Model response:

I

Discarded scores are 7.9 and 9.4
Wave score = (8.1 + 8.7 + 9.4)/3 = 8.73

II

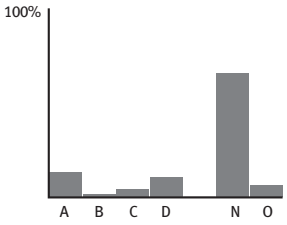
Blue heat score = 8.90 + 8.73 = 17.63
If heat scores are equal then red heat score = 9.93 + x = 17.63
x = 17.63 - 9.93 = 7.7
Red's last wave must score 7.7 for the heat scores to be equal.

Notes:

1. An 'observable mechanical error' means that sufficient intermediate steps are shown so that an inference does not need to be made to show how an error occurred. Such errors may include:
   - a recognisable transcription error
   - an incorrect result to a correctly-stated operation
   - inappropriate rounding
   - failure to round.
2. The correct points that are not to be used in part I are 7.9 and 9.4.
3. The required score, in part II, is the red wave score that would make the heat scores of both surfers equal.

Item 3

Commentary



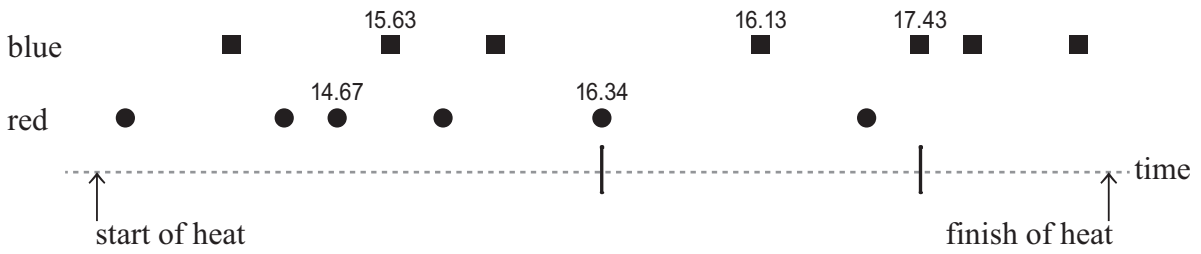
Item 3 is a three-star item that tested achievement in CCEs 31 *Interrelating ideas* and 36 *Applying strategies to trial and test ideas and procedures*.

The introduction to this item provided a list of the wave scores for two surfers in a heat. It also included a diagram showing when each surfer caught their waves in the course of the heat.

Students were required to identify the beginning and the end of the period of time during which the red surfer was winning the heat (even though the blue surfer eventually won). A clear explanation of why this was the period was also required. The cue directed students to annotate the diagram to support their explanation. A copy of the diagram was provided in the back pages of the testpaper.

An A-grade response needed to clearly identify only the two required points and provide an explanation which included relevant and correct numerical reasoning to support the placements. The two required points were at the red surfer's fifth wave and the blue surfer's fifth wave. No incorrect working or reasoning was to be used to arrive at the answer. For the reasoning to be relevant it had to consider the various heat scores of the two surfers during the heat.

Model response



After blue's second wave, red's score is 14.67 and blue's score is 15.63, putting blue ahead. Red's fourth and blue's third wave scores do not change heat scores. After red's fifth wave, red's score is 16.34, putting red ahead, so the first line to indicate beginning of red in front is the red's fifth wave. Blue's fourth wave score takes their heat score to 16.13 but this is still behind red's. Red's sixth wave score does not change their heat score. Blue's fifth wave score increases their heat score to 17.43 which takes blue ahead of red. So the second line to indicate end of red being in front is blue's fifth wave.

UNIT TWO ITEM 3

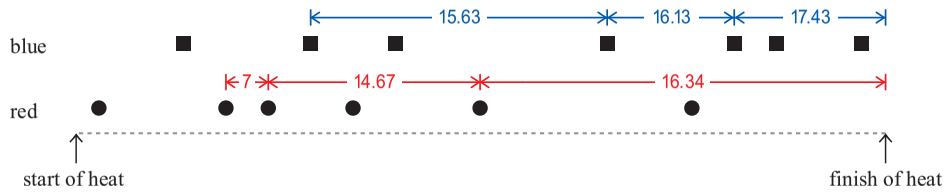
Marking Scheme

PERFORMANCE DOMAIN	31 Interrelating ideas … 36 Applying strategies to trial and test ideas and procedures

A	B	C	D	N	O
The response • clearly identifies ONLY the two required points • provides an explanation that includes relevant and correct numerical reasoning to support the placements. No incorrect working or reasoning is used.	The response, allowing for at most one observable mechanical error and consequentially correct value/s, • clearly identifies ONLY two required points • provides an explanation that includes relevant numerical reasoning to support the placements. No incorrect reasoning is used.	The response • clearly identifies ONLY the two required points • provides an explanation that includes relevant reasoning to support the placements. No incorrect reasoning is used. OR The response • indicates ONE of the two required points • provides an explanation that includes relevant numerical reasoning to support the placement. No incorrect reasoning is used. OR The response • provides an explanation that indicates only the two required points and includes relevant numerical reasoning to support the placements. No incorrect working or reasoning is used.	The response • indicates ONE of the two required points. No incorrect reasoning is used. OR The response • indicates red's second wave as the beginning point • indicates blue's second wave as the end point.	Response is unintelligible or does not satisfy the requirements for any other grade.	No response has been made at any time.

Notes:

1. The required points are: the beginning of the time that the red surfer was winning which can be considered to be between the start of the fifth dot and just after the fifth dot and the end of the time that the red surfer was winning which can be considered to be between just before and just after the fifth square.
2. The required points can be identified with lines or other unambiguous markings.
3. Relevant reasoning will include comparing the progressive heat scores of the surfers.
4. An 'observable mechanical error' means that sufficient intermediate steps are shown so that an inference does not need to be made to show how an error occurred. Such errors may include:
   - a recognisable transcription error
   - an incorrect result to a correctly-stated operation.
5. For the C- and D-grades, where there are more than two indicated points consider the first from the left as the start of the time and the last on the right as the end of the time and mark accordingly.
6. Indicating a required point can be achieved by clearly identifying it or clearly describing the placement, e.g. 'just after the red surfer's fifth wave'.
7. Marking aid:



Unit Three

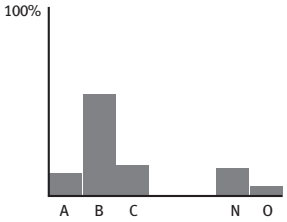
The items in this unit are based on different strategies employed by authors to achieve a desired effect in their writing.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 4	11.4	53.8	15.9			14.2	4.7
Item 5	16.2	27.3	25.2	10.2	9.1	6.7	5.2
A shaded box indicates that the grade was not available for the item.							

Item 4

Commentary



Item 4 is a two-star item that tested achievement in CCEs 38 *Generalising from information*, 26 *Explaining to others* and 28 *Empathising.*

The introduction to this item included an extract from an opinion piece about 'being in the now'. The author does not have a high opinion of the concept of mindfulness and was making fun of it. This item required students to identify two examples of absurdity used in the extract to convey the author's opinion of mindfulness. The item then required students to clarify what is absurd about each example.

An A-grade response needed to provide two different examples of absurdity that related to the author's opinion of mindfulness and to give a reason each example was absurd. There were many instances of absurd statements in the extract but students had to discern which of these were being used to convey the author's opinion. Examples that related to the author's opinion of mindfulness talked down the present or talked up the past and/or future in a ridiculous way.

Model response

'I have lived in the present from time to time, and I can tell you that it is much overrated'. It is ridiculous to state that living in the present, when we are literally alive, is something not to be prized. This is nonsensical, how could life be overrated?

The statement, 'to be here now, hour after hour would never work' is illogical as of course anyone alive is 'here' all the time, 'hour after hour' and presumably it works!

UNIT THREE ITEM 4

Marking Scheme

PERFORMANCE DOMAIN	38 Generalising from information	28 Empathising
	26 Explaining to others	

A	B	C	N
The response • provides TWO different examples of absurdity that relate to the author's opinion of mindfulness • gives a reason each example is absurd. **The response is not inconsistent with a reasonable reading of the extract.**	**The response** • provides ONE example of absurdity that relates to the author's opinion of mindfulness • gives a reason that example is absurd. **The creditable part of the response is not inconsistent with a reasonable reading of the extract.** **OR** **The response** • provides TWO different examples of absurdity • gives a reason each example is absurd.	**The response** • provides ONE example of absurdity • gives a reason that example is absurd.	**Response is unintelligible or does not satisfy the requirements for any other grade.**

O
No response has been made at any time.

Model response:

'I have lived in the present from time to time, and I can tell you that it is much overrated'. It is ridiculous to state that living in the present, when we are literally alive, is something not to be prized. This is nonsensical, how could life be overrated?

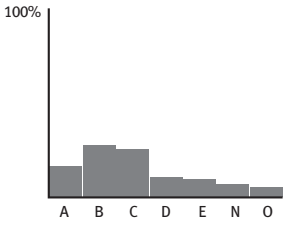
The statement, 'to be here now, hour after hour would never work' is illogical as of course anyone alive is 'here' all the time, 'hour after hour' and presumably it works!

Notes:

1. **An example of absurdity is a statement, idea or state of affairs *in the extract* that can be reasonably understood to be absurd, i.e. unreasonable, ridiculous, illogical, incongruous with human life, silly, irrational, bizarre, paradoxical …**
   An example can be provided by a quotation, line referencing or paraphrasing. It must be from the extract.
2. **An example that relates to the author's opinion of mindfulness is one where the author talks down the present or talks up the past and/or future in ridiculous ways, e.g. 'to 'be here now', hour after hour, would never work' and 'if I attend a concert, obviously not to listen to the music but … to meditate on the past and future'.**
   These types of examples 'get' the tone of the extract - empathising.
   A reasonable reading of the extract will reveal that the author is making fun of the concept of 'being in the now' (the present) by describing in an over-the-top way how being in the past and/or future is preferable.
3. **An example that is merely a ridiculous statement does not relate to preference for past and/or future or rejection of the present, e.g. I attend a concert, obviously not to listen to the music' and 'to 'be here now', hour after hour'.**
4. **The reason given for why the example provided is absurd does not have to expound on the author's opinion.**

Item 5

Commentary



Item 5 is a four-star item that tested achievement in CCEs 43 *Analysing*, 27 *Expounding a viewpoint* and 30 *Classifying*.

This item required students to explain how three specific techniques used by an author worked to create a sense of suspense in a given extract. The techniques given were; discriminating selection of words, deliberate structuring of sentences and withholding information or details. The cue instructed students to support their response with references to specific details in the extract.

An A-grade response, for each of the three given techniques, needed to allow the technique to be identified, provide an example of that technique and explain how that example creates suspense in the extract.

Students needed to make sure that the examples they provided for the technique specifically referenced the extract. To 'explain how', they needed to go further than relaying the fact that it was contributing to the suspense. The explanation had to articulate how the example created the suspense by considering the effect on the reader, on the character in the extract or on both.

Model response

The author has used techniques to create suspense, and it works.

The author's use of selection of words creates suspense. The words give the feeling of fear and anticipation. Examples are 'nervous apprehension', 'swiftly', 'unexpectedly' and 'blood galloped'. They make the mood of the text feel tense and sharp. The author's deliberate use of sentence structure makes the text suspenseful. Fast paced sentences include, 'At the first side street he halted', 'There was no one in sight' and 'He heard footsteps, and his blood galloped.' These sentences are short and swift and create suspense by leading the reader quickly through the passage to find out what will happen next. Similarly, withholding information builds suspense as the reader is not given all the information to know what is going on. They are left in the 'darkness', peering 'down the street', along with the character. In the text, the reader is left waiting in anticipation having seen only, 'the red point of a cigarette.' All of the techniques work together to create suspense in the text.

UNIT THREE ITEM 5

Marking Scheme

PERFORMANCE DOMAIN	43 Analysing	27 Expounding a viewpoint
	30 Classifying	

A	B	C	D	E	N
The response, for each of the THREE techniques used to build suspense • allows the technique to be identified • provides an example of that technique • explains <u>how</u> that example creates suspense in the extract.	The response, for each of TWO techniques used to build suspense • allows the technique to be identified • provides an example of that technique • explains <u>how</u> that example creates suspense in the extract.	The response, for ONE technique used to build suspense • allows the technique to be identified • provides an example of that technique • explains <u>how</u> that example creates suspense in the extract.	The response, for each of TWO techniques used to build suspense • allows the technique to be identified • provides an example of that technique.	The response, for ONE technique used to build suspense • allows the technique to be identified • provides an example of that technique.	Response is unintelligible or does not satisfy the requirements for any other grade.

O
No response has been made at any time.

Model response:

The author has used techniques to create suspense, and it works.
The author's use of selection of words creates suspense. The words give the feeling of fear and anticipation. Examples are 'nervous apprehension', 'swiftly', 'unexpectedly' and 'blood galloped'. They make the mood of the text feel tense and sharp. The author's deliberate use of sentence structure makes the text suspenseful. Fast paced sentences include, 'At the first side street he halted', 'There was no one in sight' and 'He heard footsteps, and his blood galloped.' These sentences are short and swift and create suspense by leading the reader quickly through the passage to find out what will happen next. Similarly, withholding information builds suspense as the reader is not given all the information to know what is going on. They are left in the 'darkness', peering 'down the street', along with the character. In the text, the reader is left waiting in anticipation having seen only 'the red point of a cigarette.' All of the techniques work together to create suspense in the text.

Notes:

1. Suspense is a state or feeling of anxious uncertainty or tense anticipation about what may happen.
2. The techniques are the three cited in the stimulus.
3. The exact wording of a technique does not have to be used to 'allow the technique to be identified'.
4. An example can be provided by a quotation, line referencing or paraphrasing. It must be from the extract.
5. It is stated in the stimulus that the techniques were used to build a sense of suspense, therefore a response that only states, e.g. 'this choice of words creates suspense' gives nothing new and so does not explain <u>how</u>.
6. There is no penalty for an incorrect attribution of a literary feature such as a simile/metaphor/ personification, etc.

Unit Four

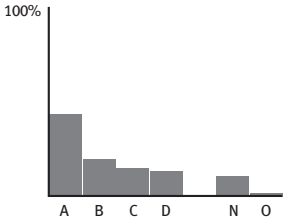
The item in this unit is based on a theft having occurred and, given certain assumptions, the thief is to be determined.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 6	42.9	18.9	14.2	12.9		10.1	0.9
A shaded box indicates that the grade was not available for the item.							

Item 6

Commentary



Item 6 is a three-star item that tested achievement in CCEs 7 *Translating from one form to another*, 43 *Analysing* and 32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true*.

The introduction to this item contained an extract outlining what three suspects in an investigation said when questioned about a theft.

This item required students to complete a table that had the first row already populated. This gave the students a model to follow. How to use a particular notation and how to indicate a truth or lie was explained. For part I, the students were required to use the notation and the truth/lie indicators to show what the cook and the housekeeper each said in the passage provided in the introduction. For part II, the students were required to identify the thief by circling the appropriate letter.

An A-grade response needed, for part I, to correctly position the ticks and crosses and correctly assign the Ts and Ls and for part II, to identify the waiter as the thief.

Students needed to carefully follow the instructions for the use of the notation and to check for understanding against the model provided.

Model response

I

	P	C	H
W	×(T)	✓(L)	
C	✓(L)		×(T)
H		✓(L)	×(T)

II

H C W P

UNIT FOUR ITEM 6

Marking Scheme

PERFORMANCE DOMAIN	7 Translating from one form to another 43 Analysing 32 Reaching a conclusion which is necessarily true provided a given set of assumptions is true

A

The response

for part I, in a table, shows

- **correct positioning of the two ticks and the two crosses only**
- **correct assignment of all Ts and Ls to those ticks and crosses**

for part II

- **clearly indicates only W as the thief.**

Model response:

I.

	P	C	H
W	×(T)	✓(L)	
C	✓(L)		×(T)
H		✓(L)	×(T)

II.

H C W P

B

The response

for part I, in a table, shows

- **correct positioning of the two ticks and the two crosses only**
- **correct assignment of all Ts and Ls to those ticks and crosses.**

OR

The response

for part I, in a table, shows

- **correct positioning of the two ticks and the two crosses only**
- **correct assignment of any two of the Ts and Ls**

for part II, without contradicting any information shown in part I,

- **clearly indicates only W as the thief.**

C

The response

for part I, in a table, shows

- **correct positioning of the two ticks and the two crosses**
- **correct assignment of any two of the Ts and Ls.**

OR

The response

for part II, without contradicting any information shown in part I,

- **clearly indicates only W as the thief.**

D

The response

for part I, in a table, shows ONE of

- **correct positioning of the two ticks**
- **correct positioning of the two crosses**
- **correct positioning of one of the ticks and one of the crosses.**

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Notes:

1. **Other than for an A grade, a response may show T/L using Truth / Lie, True / False or T/F.**
2. **Stand alone Ts or Ls cannot be credited.**
3. **Where there is more than one tick or more than one cross in a row, none of those ticks / crosses can gain credit.**

Unit Five

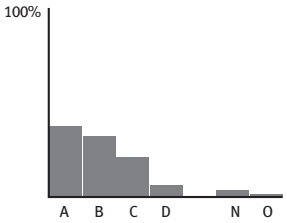
The items in this unit are based on hurricanes, their tracking and the categories into which they are classified.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 7	36.9	32.0	20.9	5.8		3.2	1.2
Item 8	24.8	25.2	32.7	8.1		6.4	2.9
Item 9	13.5	20.6	36.0	18.2	9.7	1.5	0.5
A shaded box indicates that the grade was not available for the item.							

Item 7

Commentary



Item 7 is a three-star item that tested achievement in CCEs 6 *Interpreting the meaning of … maps …*, 48 *Justifying* and 15 *Graphing*.

The introduction to this unit provided a table of data based on the tracking of a hurricane that was monitored as it formed and approached the United States.

This item consisted of two parts. For part I, students were required to mark on the given map the location of the hurricane when the tracking first began and when its winds reached maximum speed. For part II, students were required to determine the date and time when the hurricane first crossed the coast and to indicate on the map where this occurred. A copy of the map was provided in the back pages of the testpaper.

An A-grade response needed, for part I, to unambiguously indicate the correct positions for the beginning of tracking and for maximum wind speed. For part II, the response needed to provide 24 September and the hours from 6 am to 12 as the time period. Annotation on the map had to support the correct date and time.

Model response

I

II

24 Sept, 06:00 – 12:00

UNIT FIVE ITEM 7

Marking Scheme

PERFORMANCE DOMAIN	6 Interpreting the meaning of … maps …	48 Justifying
	15 Graphing	

A

The response

for part I, unambiguously indicates correct position of

- **beginning of tracking**
- **maximum wind speed**

for part II, provides

- **24 September as the date**
- **the six hours from 6 am to 12 as the time period**
- **annotation on the map that supports the correct date and time.**

Notes:

1. **The crossing point must be marked with symbols other than those used in part I.**
2. **If the symbols used in part I are different from those required, their intention must be clear.**
3. **Time may be shown in any recognised format.**

B

The response

for part I, unambiguously indicates correct position of ONE of

- **beginning of tracking**
- **maximum wind speed**

for part II, provides

- **24 September as the date**
- **the six hours from 6 am to 12 as the time period.**

OR

The response

for part I, unambiguously indicates correct position of

- **beginning of tracking**
- **maximum wind speed**

for part II, provides ONE of

- **24 September as the date**
- **annotation on the map that supports the correct date.**

C

The response

for part I, unambiguously indicates correct position of

- **beginning of tracking**
- **maximum wind speed.**

OR

The response

for part II, provides

- **24 September as the date**
- **the six hours from 6 am to 12 as the time period.**

OR

The response

for part I, unambiguously indicates correct position of ONE of

- **beginning of tracking**
- **maximum wind speed**

for part II, provides ONE of

- **24 September as the date**
- **annotation on the map that supports the correct date and time.**

D

The response

for part I, unambiguously indicates correct position of ONE of

- **beginning of tracking**
- **maximum wind speed.**

OR

The response

for part II, provides ONE of

- **24 September as the date**
- **annotation on the map that supports the correct date and time.**

N

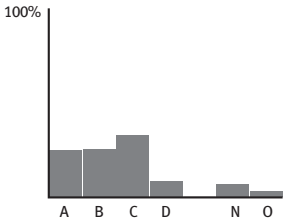
Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Item 8

Commentary



Item 8 is a two-star item that tested achievement in CCEs 6 *Interpreting the meaning of tables*, 16 *Calculating with or without calculators,* 52 *Searching and locating items … information* and 26 *Explaining to others*.

The introduction to this item includes the Saffir-Simpson Hurricane Scale which is what the rating of hurricanes is based on. It shows categories of hurricanes and the respective wind speeds in km/h.

This item consisted of two parts. For part I, students were required to calculate, in knots, the speed of the wind when a tropical storm first reaches hurricane strength. For part II, students were required to determine for how many hours the hurricane was rated as category 4 or higher.

An A-grade response for part I needed to provide correct operations and a wind speed between 64 and 65 knots. For part II the response needed to show valid reasoning, identify a minimum speed for category 4 and give 54 as the number of hours. No incorrect working could be used to arrive at the answer, and units, if shown, had to be correct.

Model response

I

$\frac{119}{1.85} \approx 64.3$

II

minimum for category 4 is $209 = \frac{209}{1.85} \approx 113$ knots

wind is greater than 113 kn from 21 Sept at 12:00 to 23 Sept at 12:00

time hurricane is blowing at more than 113 knots is $9 \times 6 = 54$ h

UNIT FIVE ITEM 8

Marking Scheme

PERFORMANCE DOMAIN		
	16 Calculating with or without calculators	6 Interpreting the meaning of tables …
	52 Searching and locating … information	26 Explaining to others

A	B	C	D	N
The response for part I, provides • correct operation/s • wind speed of 64–65 (inclusive) for part II, shows valid reasoning and • identifies an acceptable minimum speed for category 4 • provides 54. No incorrect working is used to arrive at the answer. Units, if shown, must be correct.	The response for part I, provides • correct operation/s • wind speed of 64–65 (inclusive) for part II, allowing for at most one observable mechanical error and consequentially correct values, shows valid reasoning and • identifies a minimum speed for a category • provides a total time.	The response, allowing for at most one observable mechanical error and consequentially correct values for part I, provides • correct operation/s • a wind speed. OR The response for part II, allowing for at most one observable mechanical error and consequentially correct values, • identifies a minimum speed for a category • provides a total time. OR The response for part I, provides • wind speed of 64–65 (inclusive). No incorrect working is used to arrive at the answer.	The response for part I • uses 119 and 1.85 in an operation. OR The response for part I or part II • uses 1.85 correctly.	Response is unintelligible or does not satisfy the requirements for any other grade.
				O
				No response has been made at any time.

Model response:

I.

$\frac{119}{1.85} \approx 64.3$

II.

minimum for category 4 is $209 = \frac{209}{1.85} \approx 113$ knots

wind is greater than 113 kn from 21 Sept at 12:00 to 23 Sept at 12:00

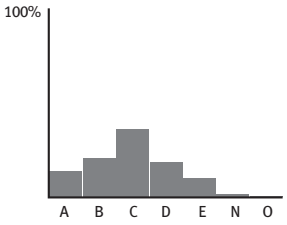
time hurricane is blowing at more than 113 knots is $9 \times 6 = 54$ h

Notes:

1. A response shows valid reasoning when it indicates; an understanding of Table 2, relevant time periods from Table 1 and calculates a total time.
2. An 'observable mechanical error' means that sufficient intermediate steps are shown so that an inference does not need to be made to determine how an error occurred. Such errors include:
   - a recognisable transcription error
   - a conversion error
   - an incorrect result to a correctly-stated operation
   - for part I, using 118 in place of 119
   - for part II, miscounting time periods
   - for part II, considering times at category 4 only or times at category 5 only.

Item 9

Commentary



Item 9 is a four-star item that tested achievement in CCEs 34 *Interpolating*, 31 *Interrelating*, 60 *Sketching/drawing* and 49 *Perceiving patterns*.

The introduction to this item provided a partially completed poster describing in writing and showing with sketches the potential damage from hurricanes in categories 1 to 5.

This item consisted of two parts and required students, for part I, to write a description for a category 3 hurricane (the sketch for this category was given on the poster) in a style consistent with that used on the poster. For part II, students were required to provide a sketch for a category 4 hurricane (the written description for this category was given on the poster) in a style consistent with that used on the poster.

An A-grade response needed to provide an appropriate overall damage rating, a suitable description of damage to five key elements and a sketch that showed appropriate damage to the four illustrative features. For both parts the style had to be consistent with that on the poster.

Model response

I

Medium damage. Most tree and shrub foliage blown off, breakage in the tree branches. Small sections of roofs lose tiles. Windows and doors are damaged. Flying debris becomes dangerous. Caravans severely damaged.

II

UNIT FIVE ITEM 9

Marking Scheme

PERFORMANCE DOMAIN		
	34 Interpolating	31 Interrelating
	60 Sketching/drawing	49 Perceiving patterns

A	B	C	D	E	N
The response provides for part I • an appropriate overall damage rating • a suitable description of damage to FIVE key elements for part II • a sketch that shows appropriate damage to the FOUR illustrative features. The style used is consistent with that on the given poster.	The response provides for part I • an appropriate overall damage rating • a suitable description of damage to FOUR key elements for part II • a sketch that shows appropriate damage to the FOUR illustrative features. OR The response provides for part I • an appropriate overall damage rating • a suitable description of damage to FIVE key elements for part II • a sketch that shows appropriate damage to THREE illustrative features.	The response provides for part I • an overall damage rating • a suitable description of damage to FOUR key elements for part II, • a sketch that shows appropriate damage to THREE illustrative features.	The response provides for part I • an overall damage rating • a suitable description of damage to FOUR key elements. OR The response provides for part II • a sketch that shows appropriate damage to THREE illustrative features.	The response provides for part I • a description of damage to THREE key elements.	Response is unintelligible or does not satisfy the requirements for any other grade.
					O
					No response has been made at any time.

Notes:

1. Marking aid for part I.

	cat 2	cat 3	cat 4
overall damage	minimal	–	extreme
a) shrubs or trees	noticeable amount blown off	–	foliage totally shredded, branches broken
b) windows or doors	some cracks — windows	–	severely damaged — windows and doors
c) roofs	some cracks	–	large sections lose tiles
d) flying debris	cause problems	–	becomes destructive
e) caravans	damaged	–	some blown over
f) building structures	intact	–	cracks appear in walls

UNIT FIVE ITEM 9

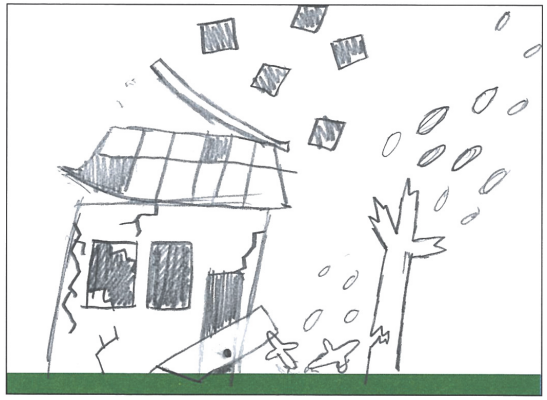
Marking Scheme

Model response:

I.

Medium damage. Most tree and shrub foliage blown off, breakage in the tree branches. Small sections of roofs lose tiles. Windows and doors are damaged. Flying debris becomes dangerous. Caravans severely damaged.

II.



Notes:

1. **See front page.**
2. **The written description should use terminology suitable for damage incurred by a hurricane worse than category 2 and not as bad as category 4.**
3. **The sketch should depict damage incurred by a hurricane worse than category 3 and not as bad as category 5.**
4. **Key elements — for written description: a) shrubs or trees, b) windows or doors, c) roofs, d) flying debris, e) caravans, f) building structures.**
5. **Illustrative features — for sketch: i) shrubs or tree, ii) windows or door, iii) roof, iv) building structure.**
6. **Once an appropriate description is used for damage to a key element any subsequent uses of that same description are discounted.**

Unit Six

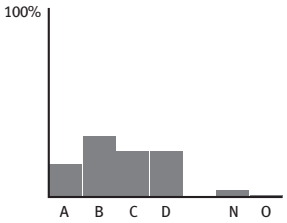
The items in this unit are based on the use of the empty plinth in London's Trafalgar Square to display contemporary sculptures.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 10	16.9	31.7	23.9	24.1		2.9	0.5
Item 11	1.9	5.7	17.9	30.2	29.4	9.9	5.1
Item 12	3.5	17.6	29.8	32.7		8.6	7.8
A shaded box indicates that the grade was not available for the item.							

Item 10

Commentary



Item 10 is a three-star item that tested achievement in CCEs 10 *Using vocabulary appropriate to a context*, 5 *Interpreting the meaning of pictures* and 29 *Comparing, contrasting*.

The introduction to this unit sets the context for the three items. It describes the significance of Trafalgar Square and in particular its monuments. The focus of the items is the use of the fourth plinth.

Item 10 contains four images of sculptures each of which has at some time occupied the fourth plinth. Five extracts from comments about abstract sculptures are also given. This item required students to match each image with the best associated comment.

An A-grade response needed to show four correct matches. The comments contained words and phrases that gave clues to help with the matching.

Model response

II

V

I

IV

UNIT SIX ITEM 10

Marking Scheme

PERFORMANCE DOMAIN	10 Using vocabulary appropriate to a context	29 Comparing, contrasting
	5 Interpreting the meaning of pictures/illustrations	

A	B	C	D	N
The response shows FOUR correct matches.	The response shows THREE correct matches.	The response shows TWO correct matches.	The response shows ONE correct match.	Response is unintelligible or does not satisfy the requirements for any other grade.

O
No response has been made at any time.

Model response:

II

V

I

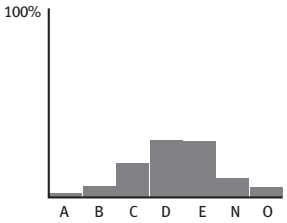
IV

Notes:

1. A match is between an image and a comment.
2. A match can be indicated other than by a Roman numeral written in the given box, provided the match is unambiguous.
3. Where an image has been matched to more than one comment, none of the matches for that image can be credited.
4. Where a comment has been matched to more than one image, none of the matches for that comment can be credited.

Item 11

Commentary



Item 11 is a four-star item that tested achievement in CCEs 43 *Analysing,* 44 *Synthesising*, 27 *Expounding a viewpoint* and 29 *Contrasting*.

This item focuses on a contemporary sculpture that once occupied the fourth plinth. Students were told in the introduction to the unit that the statues on the fourth plinth act as a foil to the grandiose occupants of the other plinths in the square. Trafalgar Square contains a series of statues of famous British historical figures among which is a statue of King George IV astride a horse. The contemporary sculpture in this item is a 'golden' child astride a rocking horse and is titled *Powerless Structures, Fig 101*.

For this item, students were asked to consider the sculpture, its title, the neighbouring statues and the fact that it was created specifically to be installed in Trafalgar Square. Students were required to suggest a message that could be drawn from *Powerless Structures, Fig 101* and explain how that message was conveyed. The cue directed students to refer to the significance of the title as well as factors such as contrast and symbolism.

An A-grade response needed to provide an appropriate message — a statement of a significant social, moral or political point that was relevant to the presence of the 'golden' child on the fourth plinth. It also needed to recognise the significance of a part of the title, explore meaningful symbolism of an aspect of the 'golden' child and also of an aspect of the neighbouring statues that supported the message. Finally, the response needed to identify meaningful contrast and be internally consistent, i.e. not contain any information that contradicted other parts of the response.

Model response

> The message that can be drawn from this statue of the 'golden' child sitting on a rocking horse is that children represent the future generations who will fight for many and different social causes. The bright golden colour symbolises that children are very precious and they represent the future whilst the dull bronze statues of the old military leaders symbolise the ideas and values of the past. The title, 'Powerless Structures', reinforces this notion by alluding to the powerless state of the old men and their desire to fight wars. At the moment, the child is also powerless with no influence in society. However, the child is waving his hand triumphantly because children will, in the future, fight for modern day more worthwhile causes such as saving the planet while the old men stand lifelessly because they belong in the past along with their warlike desire to fight for power and dominance.

UNIT SIX ITEM 11

Marking Scheme

PERFORMANCE DOMAIN		
	44 Synthesising	27 Expounding a viewpoint
	43 Analysing	29 Contrasting

A	B	C	D	E	N
The response, in the context of Trafalgar Square, • provides an appropriate message • recognises the significance of a part of the title • explores meaningful symbolism of an aspect of the 'golden' child AND an aspect of neighbouring statue/s that support the message • identifies meaningful contrast. The response is internally consistent.	The response, in the context of Trafalgar Square, • provides an appropriate message • recognises the significance of a part of the title • explores meaningful symbolism of an aspect of the 'golden' child OR an aspect of neighbouring statue/s that supports the message • identifies meaningful contrast.	The response fulfils THREE of • provides an appropriate message • recognises the significance of a part of the title • identifies meaningful symbolism of an aspect of the 'golden' child • identifies meaningful symbolism of an aspect of neighbouring statue/s • identifies meaningful contrast.	The response fulfils THREE of • provides a message • makes reference to a part of the title • identifies symbolism of an aspect of the 'golden' child • identifies symbolism of an aspect of neighbouring statue/s • identifies contrast.	The response fulfils TWO of • provides a message • makes reference to a part of the title • identifies symbolism of an aspect of the 'golden' child • identifies symbolism of an aspect of neighbouring statue/s • identifies contrast.	Response is unintelligible or does not satisfy the requirements for any other grade.
					O No response has been made at any time.

Model response:

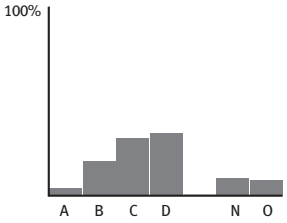
The message that can be drawn from this statue of the 'golden' child sitting on a rocking horse is that children represent the future generations who will fight for many and different social causes. The bright golden colour symbolises that children are very precious and they represent the future whilst the dull bronze statues of the old military leaders symbolise the ideas and values of the past. The title, 'Powerless Structures', reinforces this notion by alluding to the powerless state of the old men and their desire to fight wars. At the moment, the child is also powerless with no influence in society. However, the child is waving his hand triumphantly because children will, in the future, fight for modern day more worthwhile causes such as saving the planet while the old men stand lifelessly because they belong in the past along with their warlike desire to fight for power and dominance.

Notes:

1. An appropriate message is a statement of a significant social, moral or political point; it is relevant to the presence of the 'golden' child on the Fourth Plinth.
2. 'Meaningful' means it is relevant in the context of the response as a whole.

Item 12

Commentary



Item 12 is a three-star item that tested achievement in CCEs 42 *Criticising*, 31 *Interrelating ideas/themes/issues*, and 46 Creating/**composing**/devising.

The stimulus for this item was an extract from a written criticism of using the fourth plinth for displaying contemporary art. In this criticism, the author argues that the current use of the plinth is a distraction from the purpose of Trafalgar Square and proposes that a single, permanent figure should occupy the plinth instead.

This item required students to write a reply to this criticism arguing in favour of continuing the current use of the fourth plinth and against installing a permanent statue on the plinth. To do this, students needed to recognise the essential features of the current use of the plinth — namely that the artworks occupying it are contemporary (artwork 'of the now') and temporary (the pieces change periodically). Students also needed to recognise the essential features of the author's proposed alternative, i.e. an artwork that would be permanent and one which would have one theme or idea in line with the existing theme/idea of Trafalgar Square.

An A-grade could be achieved in two ways. The first way required students to argue convincingly for both of the essential features of the current use and against one of the features of the proposed alternative. The second way required students to argue convincingly for one of the essential features of the current use and against both of the features of the proposed alternative.

Model responses

1. Society changes over time and who or what was considered important to commemorate a generation ago may be irrelevant now. The statues of past military men have no meaning for modern generations, where ideas of feminism and multiculturalism are current. Therefore, it would be a good idea to choose artwork that changes as ideas change. Trafalgar Square is a significant public space in London and provides an opportunity to showcase contemporary artworks that highlight modern ideas, values and beliefs on the fourth plinth. If a permanent statue were to be installed, it would reduce its attraction for tourists. Another permanent statue would appear boring and staid and take away from the dynamic nature of the square.

2. While a proportion of the general public may disagree with the choice of use of the fourth plinth as a rotating sculptural plinth, its current use represents more than a sculpture 'unrelated' to the context of Trafalgar Square. Considering Trafalgar Square's high tourist density the idea of the fourth plinth's artwork changing from time to time will encourage tourists to revisit the Square. Installing another permanent statue would take away from the anticipation and curiosity about the fourth plinth and would possibly drive away tourism revenue. Such a public place presents an opportunity to showcase diverse themes rather than focussing on the single, outdated idea of old military victories.

UNIT SIX ITEM 12

Marking Scheme

PERFORMANCE DOMAIN	42 Criticising	31 Interrelating ideas/themes/issues
	46 Creating/**composing** /devising	

A

The response argues convincingly

***for* BOTH of**

- **installing contemporary artwork**
- **installing temporary artwork**

and *against* ONE of

- **installing a permanent artwork**
- **installing artwork with one theme/idea.**

OR

The response argues convincingly

***for* ONE of**

- **installing contemporary artwork**
- **installing temporary artwork**

and *against* BOTH of

- **installing a permanent artwork**
- **installing artwork with one theme/idea.**

B

The response argues convincingly

***for* ONE of**

- **installing contemporary artwork**
- **installing temporary artwork**

and *against* ONE of

- **installing a permanent artwork**
- **installing artwork with one theme/idea.**

C

For each of TWO of the following, the response gives a reason to

- **install contemporary artwork**
- **install temporary artwork**
- **not install a permanent artwork**
- **not install artwork with one theme/idea.**

D

For ONE of the following, the response gives a reason to

- **install contemporary artwork**
- **install temporary artwork**
- **not install a permanent artwork**
- **not install artwork with one theme/idea.**

OR

The response counters ONE of the following:

- **'feeble distraction'**
- **'neither a happy nor pleasing rationale'**
- **the author's presumed idea of the context of Trafalgar Square.**

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Note:

1. **To 'counter' a statement requires more than simply dismissing it.**

Model responses:

1. **Society changes over time and who or what was considered important to commemorate a generation ago may be irrelevant now. The statues of past military men have no meaning for modern generations, where ideas of feminism and multiculturalism are current. Therefore, it would be a good idea to choose artwork that changes as ideas change. Trafalgar Square is a significant public space in London and provides an opportunity to showcase contemporary artworks that highlight modern ideas, values and beliefs on the fourth plinth. If a permanent statue were to be installed, it would reduce its attraction for tourists. Another permanent statue would appear boring and staid and take away from the dynamic nature of the square.**
2. **While a proportion of the general public may disagree with the choice of use of the fourth plinth as a rotating sculptural plinth, its current use represents more than a sculpture 'unrelated' to the context of Trafalgar Square. Considering Trafalgar Square's high tourist density the idea of the fourth plinth's artwork changing from time to time will encourage tourists to revisit the Square. Installing another permanent statue would take away from the anticipation and curiosity about the fourth plinth and would possibly drive away tourism revenue. Such a public place presents an opportunity to showcase diverse themes rather than focussing on the single, outdated idea of old military victories.**

Unit Seven

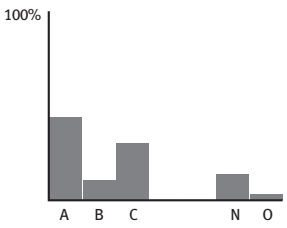
The items in this unit are based on a car's fuel consumption and the cost of the fuel.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 13	44.0	10.1	29.8			13.4	2.7
Item 14	3.6	2.5	45.3	19.1	6.6	16.6	6.4
A shaded box indicates that the grade was not available for the item.							

Item 13

Commentary



Item 13 is a two-star item that tested achievement in CCEs 16 *Calculating with or without calculators* and 18 *Approximating a numerical value*.

This item consisted of two parts. Part I required students to calculate how many kilometres a car could travel on one litre of fuel. The fuel consumption of the car was given in the introduction. Part II required students to determine the cost of the fuel used by the same car to travel one kilometre if fuel cost 140 c/L. The cue in both parts instructed students to show all steps.

An A-grade response needed to show working and, for part I, provide a correct number of kilometres, and for part II, provide a correct cost to travel one kilometre. No incorrect working could be used to arrive at the answer.

For part I, the answer could be truncated, rounded or expressed to any number of decimal places as long as it was between 16.9 and 17 inclusive. For part II, a range of rounded or truncated values were creditable for an answer in cents or the equivalent in dollars. Some students appeared to find it difficult determining whether to use dollars or cents as the unit of currency. A test of reasonableness should be applied when answering items of this type.

Model response

I

If the car travels 100 kilometres on 5.9 litres

It travels 100 ÷ 5.9 = 16.95 km on one litre

II

Litres to travel 1 km = 5.9 ÷ 100 = 0.059 L

cost = 0.059 x 140 = 8.26 c

UNIT SEVEN ITEM 13

Marking Scheme

PERFORMANCE DOMAIN	16 Calculating with or without calculators 18 Approximating a numerical value

A	B	C	N	O
The response shows working and **for part I** **• provides a correct number of kilometres** **for part II** **• provides a correct cost.** **No incorrect working is used.**	**The response, allowing for at most one observable mechanical error and consequentially correct value/s, shows working and** **for part I** **• provides a number of kilometres travelled on one litre** **for part II** **• provides a cost to travel one kilometre.**	**The response shows working and** **for part I** **• provides a correct number of kilometres.** **No incorrect working is used.** **OR** **The response, allowing for at most one observable mechanical error and consequentially correct value/s, shows working and** **for part II** **• provides a cost to travel one kilometre.**	**Response is unintelligible or does not satisfy the requirements for any other grade.**	**No response has been made at any time.**

Model response:

I

If the car travels 100 kilometres on 5.9 litres
It travels 100 ÷ 5.9 = 16.95 km on one litre

II

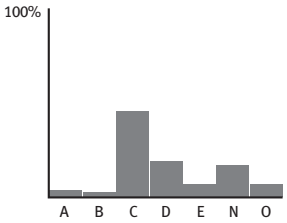
Litres to travel 1 km = 5.9 ÷ 100 = 0.059 L
cost = 0.059 x 140 = 8.26 c

Notes:

1. **An 'observable mechanical error' means that sufficient intermediate steps are shown so that an inference does not need to be made to show how an error occurred. Such errors may include:**
   - **a recognisable transcription error**
   - **an incorrect result to a correctly-stated operation**
   - **incorrect currency unit or conversion.**
2. **A correct number of kilometres travelled on one litre can be 16.94915254237… rounded or truncated to between 16.9 and 17 inclusive.**
3. **A correct cost, in part II, is the cost of the fuel to travel one kilometre.**

Item 14

Commentary



Item 14 is a four-star item that tested achievement in CCEs 22 *Organising a mathematical argument,* 37 *Applying a progression of steps to achieve the required answer* and 52 *Searching and locating items/information*.

The introduction to this item included the proposed rules to help save money when buying fuel and the diary notes for May.

This item consisted of two parts. For part I, students were required to calculate how much money was spent on fuel from May 1 to May 14 inclusive. The cost was to be calculated based on the rules and on information in the diary notes. The cue instructed the students to show all steps. For part II, students were to determine the difference in cost between buying fuel according to the rules and buying fuel by filling to capacity on both of May 20 and May 28. There were two cues, 'show all steps' and 'explain your reasoning'.

An A-grade response needed to show working and, for part I, provide the correct total cost (about $128.08). For part II, the response had to provide reasoning to justify that the purchase as per the rules on May 20 was $20, provide a correct cost of filling to capacity on May 20 (about $52.57), provide a correct cost of filling to capacity on May 28 after filling to capacity on May 20 (about $16.96) and a correct difference in cost (about $4.10). No incorrect working could be used to obtain the answer.

Clear logical organisation would help to structure a type of response that consists of various steps. For example, determining the cost of filling to capacity on May 28 after filling to capacity on May 20 required calculating the amount of fuel used by working backwards from the information regarding fuel costs and distances travelled provided in the diary notes.

Model response

I

Total cost = $43.10 + $20 + $20 + 35 x 128.5 ÷ 100 = 128.075 = $128.08

II

By the rules:

litres needed May 20 = 600 × 5.9 ÷ 100 = 35.4 L

remaining fuel = 40 – 35.4 = 4.6 L less than ¼ (10 L)

price = 128.5 + 20 = 148.5 c/L greater than 130 c/L

so by the second rule buy $20.00 on May 20.

Total by the rules = $20.00 + $45.43 = $65.43

By filling to capacity:

to fill up on May 20 you must buy 35.4 L (see by the rules)

cost = 35.4 × 148.5 ÷ 100 = 52.569 = $52.57

petrol bought on May 20 = $20 @ 148.5 c/L = 13.47 L

petrol bought on May 28 = $45.43 @ 129.8 c/L = 35 L, there is 5 L left

petrol used between May 20 and May 28 = 4.6 + 13.47 – 5 = 13.07 L

cost of fuel to be bought on May 28 = 13.07 L @ 129.8 c/L = $16.96

Total for fill to capacity = $52.57 + $16.96 = $69.53

Difference between methods:

$69.53 - $65.43 = $4.10 better off following the rules.

UNIT SEVEN ITEM 14

Marking Scheme

PERFORMANCE DOMAIN	37 Applying a progression of steps to achieve the required answer 22 … organising a mathematical argument 52 Searching and locating items/information

A

The response shows working and provides

for part I

- a correct total cost

for part II

- reasoning to justify the purchase as per the rules on May 20 was $20.00
- a correct cost of filling to capacity on May 20
- a correct cost of filling to capacity on May 28 after filling to capacity on May 20
- a correct difference in cost.

No incorrect working is used.

B

The response, allowing for at most one observable mechanical error and consequentially correct value/s, shows working and provides

for part I

- a total cost

for part II

- reasoning to justify the purchase as per the rules on May 20
- a cost of filling to capacity on May 20
- a cost of filling to capacity on May 28 after filling to capacity on May 20.

OR

The response shows working and provides ONE of

- a correct total cost for part I
- reasoning to justify the purchase as per the rules on May 20 was $20.00

AND provides BOTH

- a correct cost of filling to capacity on May 20
- a correct cost of filling to capacity on May 28 after filling to capacity on May 20.

C

The response shows working and provides TWO of

- a correct total cost for part I
- reasoning to justify the purchase as per the rules on May 20 was $20.00
- a correct cost of filling to capacity on May 20
- a correct cost of filling to capacity on May 28 after filling to capacity on May 20.

D

The response shows working and provides ONE of

- a correct total cost for part I
- reasoning to justify the purchase as per the rules on May 20 was $20.00
- a correct cost of filling to capacity on May 20
- a correct cost of filling to capacity on May 28 after filling to capacity on May 20.

E

The response, allowing for at most one observable mechanical error and consequentially correct value/s, shows working and provides

for part I

- a total cost.

OR

The response provides ONE of

- a correct cost of filling to capacity on May 14 in part I
- a correct amount of fuel to fill to capacity on May 20
- a correct range in kilometres for a tank of fuel.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Model response:

I

Total cost = $43.10 + $20 + $20 + 35 x 128.5 ÷ 100 = 128.075 = $128.08

II

By the rules:
litres needed May 20 = 600 × 5.9 ÷ 100 = 35.4 L
remaining fuel = 40 - 35.4 = 4.6 L less than ¼ (10 L)
price = 128.5 + 20 = 148.5 c/L greater than 130 c/L
so by the second rule buy $20.00 on May 20.
Total by the rules = $20.00 + $45.43 = $65.43

By filling to capacity:
to fill up on May 20 you must buy 35.4 L (see by the rules)
cost = 35.4 ×148.5 ÷ 100 = 52.569 = $52.57

petrol bought on May 20 = $20 @ 148.5 c/L = 13.47 L
petrol bought on May 28 = $45.43 @ 129.8 c/L = 35 L, there is 5 L left
petrol used between May 20 and May 28 = 4.6 + 13.47 - 5 = 13.07 L
cost of fuel to be bought on May 28 = 13.07 L @ 129.8 c/L = $16.96
Total for fill to capacity = $52.57 + $16.96 = $69.53

Difference between methods:
$69.53 - $65.43 = $4.10 better off following the rules.

Notes:

1. An 'observable mechanical error' means that sufficient intermediate steps are shown so that an inference does not need to be made to show how an error occurred. Such errors may include:
   - a recognisable transcription error
   - an incorrect result to a correctly-stated operation.
2. The cost of filling to capacity can be given as an expression.

Marking Unit 2 15 of 15