Retrospective

2017 Queensland Core Skills Test

Multiple Choice (MC) I & II (Part 1 of 5)

Multiple Choice (MC) I & II

The 2017 MC subtest consisted of two testpapers, each with 25 verbal and 25 quantitative items. For an item, the facility (F) is the proportion of students who gave the correct response; it is expressed as a percentage. For the 2017 MC subtest, the average facility (AF) was 52.7%. The average facility on verbal items was 52.5%, and on quantitative items was 52.9%. The average facility for MC I was 52.8% and for MC II was 52.6%. On MC I, facilities for items ranged from 15% (item 33) to 84% (item 12), and on MC II from 21% (item 85) to 82% (item 57).

Within the verbal domain, stimulus materials included extracts from novels, poems, a biography, newspaper articles, opinion pieces, cartoons and artworks. Within the quantitative domain, stimulus materials included diagrams, illustrations, tables, graphs and displays. Epistemic areas covered included English language and literature, geography, astronomy, business/commerce, visual arts, history (ancient, medieval and modern), archaeological science, and pure and applied mathematics.

The following table summarises data about the 18 units that made up the 2017 MC subtest. The main Common Curriculum Elements (CCEs) tested in each unit are listed. The order of the CCEs for each unit does not reflect the order of the items, nor does it imply a cognitive hierarchy. The baskets into which CCEs are grouped are shown in Appendix 3.

MC I & II 2017 summary

Unit	Item	Key	Basket	F	AF (%)	Common Curriculum Elements
1 *Brisbane* (memoir; geography)	1	C	α	53	60.0	4 Interpreting the meaning of words or other symbols
	2	B	α	67		
2 *Pentagons* (geometry)	3	D	α	74	64.8	6 Interpreting the meaning of tables or diagrams or maps or graphs 19 Substituting in formulae 32 Reaching a conclusion which is necessarily true provided a given set of assumptions is true 51 Identifying shapes in two and three dimensions
	4	C	α	65		
	5	A	φ	67		
	6	D	θ	62		
	7	A	α	56		
3 *Wayman* (poetry)	8	A	β	46	59.9	4 Interpreting the meaning of words or other symbols 29 Comparing, contrasting 33 Reaching a conclusion which is consistent with a given set of assumptions 38 Generalising from information 52 Searching and locating items/information
	9	B	β	62		
	10	C	α	40		
	11	D	θ	56		
	12	B	α	84		
	13	A	α	70		
4 *Big wheels* (applied mathematics)	14	B	θ	51	56.1	15 Graphing 16 Calculating with or without calculators 32 Reaching a conclusion which is necessarily true provided a given set of assumptions is true 36 Applying strategies to trial and test ideas and procedures 37 Applying a progression of steps to achieve the required answer
	15	D	π	69		
	16	C	φ	50		
	17	D	β	42		
	18	A	φ	63		
	19	B	φ	62		
5 *Evans* (novel)	20	A	β	46	55.7	4 Interpreting the meaning of words or other symbols 11 Summarising/condensing written text 31 Interrelating ideas/themes/issues 38 Generalising from information 43 Analysing
	21	C	π	66		
	22	B	θ	31		
	23	D	β	54		
	24	C	α	53		
	25	D	β	84		
6 *Bright stars* (astronomy; applied mathematics; graph)	26	A	θ	57	44.3	15 Graphing 29 Comparing, contrasting 31 Interrelating ideas/themes/issues 32 Reaching a conclusion which is necessarily true provided a given set of assumptions is true 34 Inserting an intermediate between members of a series 45 Evaluating
	27	B	θ	45		
	28	A	θ	52		
	29	D	β	32		
	30	C	π	50		
	31	C	β	28		
	32	B	θ	45		

Unit	Item	Key	Basket	F	AF (%)	Common Curriculum Elements
7 *Harbour bridge* (visual arts)	33	A	θ	15		
	34	C	α	40		5 *Interpreting the meaning of pictures/ illustrations*
	35	A	α	75	48.6	42 *Criticising*
	36	B	θ	60		45 *Judging*
	37	B	θ	53		
8 *Kiva* (commerce; applied mathematics; table & expository text)	38	D	α	71		6 *Interpreting the meaning of tables or diagrams or maps or graphs*
	39	D	φ	58		16 *Calculating with or without calculators*
	40	B	φ	41		32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true*
	41	C	θ	43	50.8	
	42	D	φ	38		
	43	C	θ	57		37 *Applying a progression of steps to achieve the required answer*
	44	B	φ	47		
9 *Saving English* (opinion piece; English language conventions)	45	A	θ	28		4 *Interpreting the meaning of words or other symbols*
	46	C	θ	58		7 *Translating from one form to another*
	47	A	α	58		21 *Structuring/organising extended written text*
	48	A	θ	28	43.1	35 *Extrapolating*
	49	D	β	40		43 *Analysing*
	50	C	α	47		45 *Judging*
10 *Modern art* (art history; cartoon)	51	B	α	32	32.0	5 *Interpreting the meaning of pictures/ illustrations*
11 *Odometer* (applied mathematics; illustration & table)	52	D	φ	74		16 *Calculating with or without calculators*
	53	C	θ	45		32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true*
	54	A	φ	47	54.8	
	55	A	θ	49		37 *Applying a progression of steps to achieve the required answer*
	56	B	φ	59		
12 *Henry VIII* (novel; history)	57	D	α	82		4 *Interpreting the meaning of words or other symbols*
	58	D	α	59		10 *Using vocabulary appropriate to a context*
	59	A	θ	37		33 *Reaching a conclusion which is consistent with a given set of assumptions*
	60	B	θ	54	55.3	
	61	A	π	40		38 *Generalising from information*
	62	B	β	60		43 *Analysing*
13 *Canopus* (applied mathematics; board game)	63	C	φ	67		16 *Calculating with or without calculators*
	64	B	θ	68		32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true*
	65	D	β	58		
	66	C	β	55	58.9	35 *Extrapolating*
	67	B	β	67		36 *Applying strategies to trial and test ideas and procedures*
	68	D	θ	38		49 *Perceiving patterns*

Unit	Item	Key	Basket	F	AF (%)	Common Curriculum Elements
14 *Luck* (opinion piece; sociology)	69	D	π	65	53.2	4 *Interpreting the meaning of words or other symbols* 10 *Using vocabulary appropriate to a context* 11 *Summarising/condensing written text* 31 *Interrelating ideas/themes/issues* 33 *Reaching a conclusion which is consistent with a given set of assumptions* 41 *Hypothesising*
	70	A	α	41		
	71	C	θ	76		
	72	D	β	42		
	73	C	π	47		
	74	A	θ	49		
15 *Greek jury* (ancient history; applied mathematics; diagram)	75	A	θ	55	49.5	16 *Calculating with or without calculators* 29 *Comparing, contrasting* 32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true* 37 *Applying a progression of steps to achieve the required answer* 41 *Hypothesising*
	76	C	φ	60		
	77	C	φ	41		
	78	D	φ	49		
	79	C	φ	48		
	80	A	β	53		
	81	A	θ	41		
16 *One life* (memoir; personal relationships)	82	D	θ	54	47.5	5 *Interpreting the meaning of pictures/ illustrations* 28 *Empathising* 33 *Reaching a conclusion which is consistent with a given set of assumptions* 43 *Analysing*
	83	B	θ	51		
	84	A	α	63		
	85	D	θ	21		
	86	D	α	48		
17 *Pollen archaeology* (archaeological science; table, graphs & diagrams)	87	B	θ	36	49.2	6 *Interpreting the meaning of tables or diagrams or maps or graphs* 7 *Translating from one form to another* 16 *Calculating with or without calculators* 32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true* 45 *Judging* 49 *Perceiving patterns*
	88	B	φ	49		
	89	B	α	55		
	90	C	θ	44		
	91	D	α	55		
	92	C	θ	39		
	93	A	β	67		
18 *Fame* (opinion piece; sociology)	94	C	α	67	55.9	4 *Interpreting the meaning of words or other symbols* 10 *Using vocabulary appropriate to a context* 43 *Analysing* 45 *Judging*
	95	D	α	70		
	96	B	π	32		
	97	A	π	60		
	98	B	θ	68		
	99	B	θ	52		
	100	C	θ	43		
	Average facility on subtest				52.7	

MC I commentary

This section gives a brief outline of each unit. Two units (4 and 7) are singled out for detailed analysis.

Unit 1 *Brisbane*

This unit is based on an extract offering an Australian author's thoughts on living in Brisbane. The two items required students to make a broad assessment of the extract as a whole.

Unit 2 *Pentagons*

This unit focuses on pentagons and their angles and required students to calculate the sizes of various angles and side lengths.

Unit 3 *Wayman*

This unit is based on 'What Good Poems Are For', a poem by American poet Tom Wayman, whose style is described as conversational or colloquial.

Unit 4 *Big wheels*

This unit is based on observation wheels in various cities. A table of information about selected observation wheels is given. The items tested students abilities to locate relevant information presented in the table, to extract that information and to perform various quantitative processes and transformations on it, including calculating, graphing, deducing, extrapolating and applying strategies.

Item 14: This item explores 'clearance' — the idea that the wheel needs to rotate clear of the ground — in relation to the New York Wheel. The height of the New York Wheel is given in the table but not its wheel diameter. Students are told that the New York Wheel will have a clearance equal to the current largest clearance in the table. Clearance is calculated by subtracting the wheel diameter from the wheel height. The Changsha Wheel had the highest clearance: 21 metres. The diameter for the New York Wheel, using a clearance of 21 metres and height of 192 metres, is 171 metres. Option B is the key. Using incorrect data from the table will result in options A and D. Option C incorrectly uses the clearance of the Singapore Flyer, which is the wheel with greatest wheel height but second-largest clearance.

Item 15: This item required students to select the graph of how a cabin moves in relation to the ground, as it completes three rotations. The cabin gradually moves further away from the ground until it reaches its highest point, after which the distance from the ground gradually decreases as the cabin returns to its starting point near the ground. This is described by the graph in option D (the key), where the transition points at the top and bottom of each rotation form smooth curves. Option A indicates that there is a flat stage when the cabin stays at the same distance from the ground for a period of time; this suggests, incorrectly, that the cabin moves linearly beside the loading platform instead of continuing its circular motion. Option B indicates that a cabin can be at different distances from the ground at the same time. Option C indicates that the cabin moves from a decreasing distance from the ground instantaneously to an increasing distance from the ground.

Item 16: This item required students to calculate the circumferential speed of the Singapore Flyer, i.e. the speed of a fixed point on the rim of this wheel as determined by the distance it travels over a certain time. The diameter of the Singapore Flyer, 150 m, is given in the table. When 75 m (the radius) is substituted into the circumference formula 471.24 m is obtained which corresponds to the distance the fixed point travels in a single rotation. The table shows that this takes 30 minutes, so a fixed point on the Singapore Flyer would travel 942.48 m, or 0.94248 km, in one hour. Option C is the key. Option A is obtained if the diameter of the Singapore Flyer is used as r in $C = 2\pi r$ instead of the radius, giving a circumference of 942.48 m, which yields 1.88 km/hr. Incorrectly using the height of the Singapore Flyer as the diameter results in a speed of 1.04 km/hr which is option B. Option D, 0.30 km/hr, results when 150 m (0.15 km) — the wheel's diameter — is incorrectly used as the distance travelled in one rotation, i.e. 30 minutes.

Item 17: In this item, Figures 1 and 2 represent an observation wheel with an X marked on the rim. The diagrams show the wheel divided into 10 equal sections each of 36° (there are 360° in a circle) . Figure 2 shows that, after a specified time, the X has moved seven sections, or 252° (7 x 36°), from its starting position. The Tianjin Eye takes 30 minutes for a complete rotation, so the X marked on the rim of this wheel will be in the position shown at the start in Figure 1 at 30 min, 60 min, 90 min and so on. After 280 min (option A) and 85 min (option B) of operation, the Tianjin Eye has completed 9.33 rotations (9 complete rotations plus 0.33 of a rotation) and 2.83 rotations (2 rotations plus 0.83 of a rotation) respectively. The 0.33 of a rotation is 0.33 x 360°, approximately 120°, and the 0.83 of a rotation is approximately 300°. Options A and B are incorrect. The Diamond and Flower Wheel takes 17 min for each complete rotation.

After 255 min it has completed 15 rotations, while in 80 min it makes 4 complete rotations plus 0.7 of a rotation. For 15 rotations the position of X is identical to where it was in Figure 1, so option C is incorrect. Option D is the key, as 0.7 of a rotation is 0.7 x 360° = 252°.

Item 18: This item required students to determine which wheel had an occupancy rate of 35% when 144 passengers were being carried. Occupancy rate is defined in the extra information provided. One strategy for approaching this item is to use the total maximum number of passengers in order to calculate the number of passengers carried if the occupancy rate is 35%, and then to compare this with 144, the passenger number given in the item stem. Option A, the Diamond and Flower Wheel, can carry a maximum of 408 passengers (68 cabins x 6 passengers per cabin). With an occupancy rate of 35%, this gives about 143 passengers (0.35 x 408). Option B, the Star of Nanchang, has a maximum capacity of 480 passengers (60 x 8). At 35% occupancy, 168 passengers would be on the ride. The Suzhou Wheel, option C, has a maximum capacity of 300 passengers (60 x 5). At 35% occupancy, 105 passengers would be on the ride. Option D, the Tianjin Eye, has a maximum capacity of 384 passengers (48 x 8). At 35% occupancy, that is about 135 passengers on the ride. Option A is the key, with 143 passengers being closest to 144.

Item 19: This item required students to extract the relevant information from the table and from within the item itself, and correctly perform a series of calculations. The total number of passengers that can be carried in one year on the New York Wheel with an occupancy rate of 100% (36 cabins x 40 passengers per cabin x 19 rides per day x 365 days per year) is 9986400 or 9.9864 million passengers. The predicted number of passengers per year is given as 4.5 million which would occur if the occupancy rate per ride was about 45% of the full occupancy rate. Thus, the key is option B.

Unit 5 *Evans*

This unit is based on an extract from Richard Flanagan's Man Booker Prize-winning novel, *The Narrow Road to the Deep North*. The extract involves a reminiscence on the life of the main character, Dorrigo Evans.

Unit 6 *Bright stars*

This unit required students to understand and interpret a graph known as a Hertzsprung-Russell diagram, which displays a variety of information about stars, including their size, brightness, temperature and luminosity. The graph is accompanied by explanatory text.

Unit 7 *Harbour bridge*

This unit presents students with four very different artworks of the Sydney Harbour Bridge. The unit required students to understand key elements of the compositions of each artwork, and how those elements contributed holistically to an understanding of each artwork. Part of that understanding is to differentiate between a subjective response to an artwork and the ideas encoded purposefully by the artist and intended to be perceived by a viewer. Both responses to visual art — the subjective and the objective — are valid, though in this unit the latter was tested.

Item 33: Students were required to identify and analyse the composition's elements — the main parts (bridge, buildings, water, watercraft, etc.) and their manner of depiction — and then to see how the synthesis of these elements contributes to the central ideas of the artwork. The emphasis in the artwork is on the bridge as a built structure in which the individual beams, struts and pylons that comprise it are clarified with strong lines and tonality. Also emphasised are the foreground buildings, which are of an industrial rather than a domestic character. The chimney smoke in the foreground is echoed in two or three similar elements in the background, on the other side of the harbour, where we also see depicted buildings of a largely industrial character. The other kinds of buildings and spaces are marginalised or absent from this image: no trees or parks or beautiful historic buildings, and so forth. The harbour is depicted with a dullish tone. Also, the artwork shows few activities taking place on the harbour. What we see on the harbour are a small number of large vessels, and none of these are depicted in a way that emphasises aspects of lightness or fun, rather they are in dull and flat tones which portray the harbour as a functional space, subordinated visually to the towering bridge. So, option B is incorrect because it suggests that the central focus of this artwork is on the harbour and its life, which is not the case. For option C to be correct one would expect the broader scope of the city itself to have been a focus of the composition. Little if anything of that broader city can be seen, just sharp-edged industrial buildings in the foreground and some washed-out buildings on the far shore of the harbour, all with a functional appearance. The composition can hardly be considered 'welcoming' given the absence of light colours and tones. For option D to be correct, one would expect a composition that gives equal weight to both sides of the harbour. But here, the other side of the harbour is reduced to misty colours intermixed with some patches of wan light. Also, it may be noted how the structure of the bridge itself recedes into the distance; by the time it reaches the other shore, its individual elements are barely discernible. The emphasis in this artwork is on the foreground elements, so the title 'Bridging Worlds' is not appropriate. This leaves option A as the key. The elements of the composition emphasise industrial structures and, by implication, the industrial processes by which material culture is 'built'. The foreground emphasises the structure and building of the bridge through clear lines and strong light tonalities. Sydney is used here as a recognisable icon of Australia as the artwork could not depict the whole of Australia.

Item 34: This item required students to analyse the given painting in some detail and to evaluate the four options against their analysis. Option A: The aggressiveness of this statement is not a strong match for the elements of the composition. Though the strong lines and detail of the bridge imply robustness, that impression is softened by its curved, flowing lines, which impart to the bridge a sleekness and smoothness; so one cannot defend the view that the bridge simply 'powers through' the city or 'cuts a swathe'. Option B: Some elements of the foreground composition suggest a suburban, domestic environment — the house, telegraph poles, shrubs, trees, and a single human being at the foot of the piers — however the middle ground shows part of an industrial building. So this is a mixed-use environment and not solely a 'domestic suburban' environment. Irrespective of that, the view that the bridge 'makes no sense' in its environment is not well supported. We can see the bridge resting on its piers, and the piers firmly founded on the ground, and we can appreciate the 'reality' of the spatial relationships between bridge, piers and surrounding environment, i.e. they make sense. Option C: From what has been said above in relation to options A and B, it is clear that, through its piers, the bridge is grounded in the city; also, it is equally clear that the bulk of the bridge rides clear of the roofs of surrounding buildings; 'rise clear' is a phrase that is supported by the upward-soaring curves of the bridge. Option C is the key. Option D: Though the idea that the bridge 'grows logically out of the city' is supported by several elements of the composition — the size and tonality of the piers in relation to the adjacent buildings and land, and the cables that rise from the ground to become part of the bridge's fabric — the idea that the bridge is 'fully' a part of the city is not well supported; indeed, as argued for option C, the bridge exists in two worlds, in the city and above the city.

Item 35: This item presents statements that could apply to any artwork of the bridge, and asked students to choose which were most relevant to this painting of the bridge. Attribute P: The Harbour Bridge is most readily recognisable when it is shown face-on, and that is how it is depicted here; so attribute P is correct. Attribute Q: Though it is a reasonable supposition that the Harbour Bridge has been somehow integrated with the city, this painting is not so much interested in the city per se; rather, it focuses on the bridge as a commanding icon. The city as such barely exists in this artwork. Attribute Q is thus incorrect. Attribute R: There is no evidence in the artwork for significant physical distortion of the bridge; it is depicted very much as it would be seen from a boat on the harbour; attribute R does not apply to this artwork. Attribute S: The bridge is by far the largest single object in the composition, it is placed almost centrally, its structure is clearly delineated and thrown into relief against the golden yellow of the setting sun. This elevates the bridge above the mundane and effectively puts it on display; thus attribute S is very relevant to this artwork. In summary, the two attributes that are well-supported by an analysis of this composition are P and S. Option A is the key.

Items 36 and 37 present a very different take on the Harbour Bridge. Students were required to try to see the merits in two opposing opinions about how the bridge was depicted in this artwork.

Item 36: Option A: In this artwork we see a major road sweeping up toward the bridge from the left foreground, and the bridge itself straddling the harbour; from these observations we can reasonably conclude that the bridge serves as a means of vehicular communication between both sides of the harbour; therefore the idea that the bridge serves no practical function is not well-supported. Option B: The bridge is small in relation to the whole composition, occupying only a small part of the total area; also, it is unnaturally small in relation to some of the structures and objects near it, such as the roadway that leads up to it, the train beside the road, the three jetties, and the tall building to the left of the bridge on the far shore. The bridge is clearly shown as 'dark'; in fact, it is shown as a blackish blob. The bridge is 'distanced' in the sense that it is set near the top of the composition, in the background, and most of the major lines in the foreground are funnelled toward it. Though we can still make out the essential shape of the bridge, it has lost nearly all its internal structure and coherence; to that extent the bridge can be said to be 'reduced in form'. For all these considerations, option B is the key. Option C: Other features in the city are not emphasised at all. Option D: Though the bridge represents a concentration of very dark tones, one can readily find equally dark tones throughout the composition; though we see the occasional touch of colour and lighter tones, the atmosphere of the composition is sombre.

Item 37: Option A: There is a deal of sketchiness and deliberate exaggeration or distortion in this artwork. However, there is enough spatial coherence to make some sense of the composition. For example, we can identify the typical form of a roadway leading up to the bridge; we can see jetties and a train alongside this roadway; we can make out the forms of other buildings in the right foreground, enough to form the idea of 'inner suburb'; we can identify the farther shore of the city, with some buildings picked out, and rolling hills in the distance. It is therefore incorrect to say that the composition is 'chaotic and formless'. Option B: All the major lines of the composition lead toward, or emanate from, the bridge. In the foreground, all major lines move in perspective recession toward the bridge, yielding an impression of a 'grand sweep'. Option B is the key. Option C: This option is only partially correct. The black tones of the bridge do make it a visually impressive feature. However, it is not just the dark tones of the bridge that contribute to its visual dominance. The left and central foreground of the composition is, like the bridge, represented in bold, black tones; yet, this part of the composition cannot be said to command the visual field. Option D: If we took the bridge out of this composition, we would still be able to recognise roads, buildings, a train, the harbour and its foreshore, and the distant hills, and we would be able to understand the essential spatial relations between these elements of composition. It might be argued that a road that leads only to the water's edge makes no sense without a bridge to carry it across the harbour; but there is no *necessity* for a road down to the harbour to be *carried across* the harbour.

Unit 8 *Kiva*

This unit is based on information about an organisation that lends relatively small sums of money to individuals, small businesses and groups, mainly in Third World countries. Students were required to deal with proportion, percentage and fractions in the various items.

Unit 9 *Saving English*

This unit is based on an extract from an opinion piece by British novelist George Orwell, in which he criticises the manipulation of the English language for political purposes, and suggests ways in which English written expression might be improved.

MC II commentary

This section gives a brief outline of each unit. Two units (13 and 14) are singled out for detailed analysis.

Unit 10 *Modern art*

This unit is based on a cartoon about galleries of modern art, and poses the question: what actually is 'modern art'?

Unit 11 *Odometer*

This unit required students to understand and apply the information provided in a driver display, which appears on the dashboards of most vehicles and allows drivers to know how far they have driven in a particular trip and what their fuel consumption has been.

Unit 12 *Henry VIII*

This unit is based on an extract from a novel by Hilary Mantel about the reign of the English king, Henry VIII. The text takes the form of a piece of advice delivered by the king's chief councillor Thomas Cromwell to a young courtier. The text is rich both linguistically and conceptually.

Unit 13 *Canopus*

This unit is based on an invented board game called Canopus. Players play numbered tiles, in turn, onto a 4x4 square board. At the end of each turn, the player selects the next tile to be played and gives it to their opponent. A player wins and the game ends by creating a row, diagonal or column of tiles which share one attribute. Each of the 16 tiles is either black or white, square or circular and has a number which is either large (greater than 10) or small (less than 9). The fourth attribute is that the tile's number is either even or odd. The rules of the game are explained and a game board is shown with a full set of tiles.

Item 63: This item considers only those tiles with numbers greater than 10, paired on the basis of their shape and their odd- or even-ness. For each option the particular tiles had to be determined and their values added. The odd, square tiles are 11 and 15, giving the sum of 26. The odd, circular tiles are 13 and 17, giving the sum of 30. The even, square tiles are 14 and 18, giving the sum of 32. The even, circular tiles are 12 and 16, giving the sum of 28. The largest sum is 32 so option C is the key. This item enabled students to familiarise themselves with the set of tiles.

Item 64: As explained in the stimulus, to set up a game, six tiles are chosen at random and placed on the board in specified places. This item required students to consider whether it was possible to win on the first turn or not and to know why. The positions of the first six tiles preclude winning on the first turn as no row, column or diagonal contains more than two tiles at the start of play so no row, column or diagonal can be completed with the placement of just one tile. Options C and D are incorrect and option B is the key. Option A suggests that the uniqueness of the tiles is what makes an instant win impossible. Each tile is indeed unique but that has no impact on whether the game can be won on the first turn or not.

Item 65: This item presents a board with thirteen tiles already placed and three still in play – the 4, the 6 and the 13, all of which are white. Students were required to identify which of these tiles would allow Jim to win immediately. As each of the three tiles is white and no all-white row, column or diagonal is possible, colour does not need to be considered here. The 4 is square and can be played in the bottom right corner to complete the diagonal of squares and win the game for Jim. The 13 can also be played in the bottom right corner to complete the bottom row with all large numbers. The circular 6 cannot be placed to give an immediate win to Jim. This makes option D the key.

Item 66: Four completed boards are shown and students were required to determine which completed game had ended in a draw. The third column of the board in option A contained 6-1-7-3, all small numbers, so this game was won by the last player to play. The bottom row of the board in option B contained 16-12-2-18, all even, so this game was also won by the last player. A diagonal of the board in option D contained 12-4-7-15, which are all white, and so D was also won by the last player. The board in option C contained no row, column or diagonal that was all even, all less than 9 or greater than 10, all one colour or all one shape and hence was not won by either player, i.e. it was a draw. Option C is the key.

Item 67: This item presents a board with four spaces still open and four tiles — 3, 4, 15 and 18. Only one of the tiles will give an immediate win if Jim gives it to Sara. If he gives her the 3, she could put it in the top left corner to complete an all black diagonal. Both the 15 and the 18 could be placed to complete the left-most column with all large numbers. The 4 is the tile Jim should give Sara. Option B is the key.

Item 68: This item required students to determine the sequence of turns that would continue beyond Jim's next turn. A nearly complete diagonal contains 6, 1 and 3, each of which is circular and a small number. For option B, if Jim gives Sara the 13, and she places it beside the 3 then gives Jim the 4 or the 7 he could complete the diagonal with all small numbers and win the game and so it would not continue past his next turn. For option C, if Jim gives Sara the 13 and she places it under the 14 then gives Jim the 2 or the 5 he could once again complete the diagonal with all small numbers and win, and the game would end. Both options B and C are therefore incorrect. Option A has Sara placing the 15 beside the 3 and giving Jim the 13. Jim could complete the diagonal with the circular 13 and win, and the game would end. However, if she places the 15 beside the 17 the diagonal cannot be completed. She can then give Jim the 4 or 7, which are both square and white, and cannot complete the right-most column. The game can continue beyond Jim's turn so o ption D is the key.

Unit 14 *Luck*

This unit is based on an extract from an article written by Australian philosopher Patrick Stokes. The extract is about how humans think about, and are affected by, the concept of luck.

Item 69: This item required students to summarise the ideas presented in the first six lines. Option D is the key. The author asks readers to imagine a person who achieves despite overwhelmingly difficult life circumstances, only to then point out that such an individual is still reliant on luck in order to have the resources and temperament required to achieve. Option A is incorrect — even though the author agrees that the individual in question would deserve more credit for their success than others, he does not suggest that this individual should be praised or idolised. Although it is more in line with the author's view of luck as fundamentally influential, option B is incorrect because the author does not discuss the ideas of gratitude or luck changing. Option C is incorrect as it suggests that luck is secondary to effort when it comes to achieving, which is the opposite of the ideas expressed by the author.

Item 70: This item required students to interpret the phrase 'dizzyingly contingent', which is used to describe a number of specific life circumstances. 'Dizzyingly' is the adverbial form of dizzying, meaning *to make one dizzy*, and 'contingent' meaning *dependent on something uncertain in order to exist*. In the context of the extract, the phrase therefore means that the life circumstances are dependent on so many other events having happened that the unlikelihood would make one dizzy, and so option A is the key. Option B is incorrect as it suggests that the circumstances are not subject to chance, which contradicts the meaning of 'contingent'. Option C is incorrect as it is not consistent with the meanings of either word. Option D is also incorrect, despite being quite in line with the author's perspective; it reflects the opposite meaning of the word contingent by portraying the circumstances as *allowing for* something else to exist rather than being *dependent on* something else to exist.

Item 71: The relevant information required to answer this item can be found in lines 11–14, where the author states that admitting the role of luck in our lives would make 'our claims to have what we have by merit alone shallower and more relative than we might like to believe'. Option C is the key. Option A is incorrect as, even though the author agrees that discussing luck makes people 'uneasy', it is never stated that this is due to potential misfortune. Option B is incorrect as it is unsupported as well as being somewhat illogical — admitting the role of luck would allow one to justify why some do better than others, so it would more likely

be the case that unrealistic expectations for what one should achieve would come from *ignoring* the role of luck rather than recognising it. Option D is incorrect as it also lacks supporting evidence — the author only ever discusses the consequences of recognising luck on the individual's own achievements and perceptions thereof, not the individual's perceptions of others.

Item 72: This item required students to infer how the author regards karma based on his comments in the last two paragraphs. Option D is the key. In lines 15 and 16, the author discusses karma's popular appeal, calling the concept 'powerful' and recognising that it has underpinned a sense of justice for 'billions of people for millennia'. He notes that the concept has carried over into Western society under the idea 'you get what you deserve', a mantra which he sees as 'no less stark'. This suggests that he thinks both beliefs are somewhat severe and unforgiving. Lines 18–21 then confirm that the author sees karma as questionable, since he goes on to discuss the moral 'cost' of believing in karma — namely that we see everyone who is unsuccessful as unworthy. Option A is incorrect. Although 'stark' might be related to 'exacting', it is unlikely that the author sees karma as 'reasonable', since he devotes most of the last paragraph to pointing out the problems that arise from believing in it. Option C is incorrect for similar reasons; while the author certainly does recognise karma's imperfections, he does not view it as a 'worthwhile' belief.
Option B is incorrect as the author gives no indication that he thinks karma is misunderstood in any meaningful way: even though the 'modern Western version' is 'far less grandiose', it is still 'no less stark', implying that variants of the belief system have the same flaws as the belief system itself.

Item 73: In this item, students were required to find a suitable substitute for the word 'effacing', used in line 18. Even if students did not know the meaning of the word, it was possible to answer the item correctly by considering the context in which the word was used. In lines 14–17, karma, and its 'modern Western' equivalent are associated with viewing the world as a 'meritocracy', i.e. a world in which rewards are based on merit rather than luck. 'Effacing the role of luck' is used within the context of describing the 'cost' of these belief systems — so it follows that, since these belief systems deliberately minimise the role of luck, option C is the key. Options A, B and D are all inconsistent with the context, as they each presume that people who adopt these belief systems recognise the role of luck to a significant extent — something which people who adopt these belief systems deliberately avoid doing.

Item 74: In this item, students were required to speculate about the type of person that the author intended the article to be read by. To do this, students had to consider the whole extract in order to determine the main argument posed by the author: namely, that people should recognise the role of luck in their lives to a greater extent, and that failing to do so has moral consequences. With this in mind, option B can be discounted, as the author would have had no need to reach people that see luck as influential — these people already agree with the author and so would not have required convincing. One must remember that this item is posed from the *author's* perspective. Even though people who agree with the author would probably enjoy reading the article since it is in line with their beliefs, the *author's* purpose in this text is to persuade, and it follows that there is little point in persuading those who already agree with the perspective. Option C is incorrect, as it is probable that a person who has endured considerable hardship would recognise the role of luck far more than an average person, since they have suffered the effects of misfortune firsthand. Option D is also incorrect. People would not necessarily need to be self-focused or egotistical in order to view the world as a meritocracy — indeed, it is not unreasonable to think that they might happily recognise others' achievements and view them as proof that success is purely a matter of hard work, thus reinforcing their views. Option A is the key. People who view themselves as 'self-made' are the same people who would 'insist that luck plays only a minor role', and also be the ones who 'pay the cost' of viewing people who fail as 'simply undeserving'.

Unit 15 *Greek jury*

This unit is based on an explanation of how the ancient Greeks used a device called a kleroterion to elect jury members. A diagram of a kleroterion was also provided.

Unit 16 *One life*

This unit presents an extract from Australian author Kate Grenville's biography of her mother, and discusses the issue of who is allowed a voice in the writing of history.

Unit 17 *Pollen archaeology*

This unit presents stimulus about an archaeological investigation. Students were required to analyse data presented in tabular and graphical form.

Unit 18 *Fame*

This unit is based on an opinion piece published in an Australian newspaper. It represents a genre of popular, informal writing about subjects of general interest.

Common Curriculum Elements (CCEs) and the MC format

Of the 49 CCEs, the following cannot be tested directly in MC format, though a few CCEs such as graphing, summarising and manipulating equipment, may be tested at 'second order' i.e. indirectly:

- 11 *Summarising/condensing written text*
- 12 *Compiling lists/statistics*
- 13 *Recording/noting data*
- 14 *Compiling results in a tabular form*
- 15 *Graphing*
- 20 *Setting out/presenting/arranging/displaying*
- 21 *Structuring/organising extended written text*
- 22 *Structuring/organising a mathematical argument*
- 26 *Explaining to others*
- 27 *Expounding a viewpoint*
- 46 *Creating/composing/devising*
- 53 *Observing systematically*
- 55 *Gesturing*
- 57 *Manipulating/operating/using equipment*
- 60 *Sketching/drawing*.

These CCEs can be validly tested in SR format.