VCAA ASSESSMENT ONLINE

THE COMPOSITION OF ON DEMAND ADAPTIVE TESTS

February 2017

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1. Adaptive Test Composition

- When completing an adaptive test, each student is presented with a different selection of questions drawn from a large item pool consisting of questions referencing a subset of the Victorian Curriculum.

- All questions are aligned to content descriptors from the Victorian Curriculum ranging from levels 2 to 10 in English and levels 2 to 10A (advanced) in Mathematics. Each question has also been given an estimated difficulty position within that level, designated as either at the 'level', or at the 'lower' (L) difficulty of the level. These are combined to form a sub-level for each question. For example, sub-level 3 indicates that the question is from the standard difficulty level indicating Victorian Curriculum level 3, sub-level 3L indicates that the question is from the lower difficulty level indicating Victorian Curriculum level 3.

- In English, the adaptive tests assess specific focus areas associated with the language modes of Reading and Viewing, and Writing. The questions are associated with content descriptions drawn from the Language, Literature and Literacy strands.   To support the inter-relational structure of the language modes and strands within the curriculum, tests in English have been categorised into the following assessment focus areas - Reading, Language Skills and Word Building. Below is a description of each of these assessment focus areas:
  - *Reading* - questions that test reading for information, for comprehension, and for interpretation
  - *Language Skills* - questions that test knowledge about language and language use, from text purpose, structures and features, through to finer structures and features at the paragraph/syntactic level, from the Reading and Writing modes
  - *Word Building* - questions that test knowledge of word formation, word changes that follow function, precision in word use for shades of meaning, knowledge of the sound-letter system, and spelling, from the Reading and Writing modes.

- In Mathematics, the focus adaptive tests are available in Number and Algebra, Measurement and Geometry, and Statistics and Probability.

2. General Adaptive Tests

- In a general adaptive test, students are presented with 20 subtests. Each subtest contains **three** questions from a particular sub-level.

- If a student correctly answers 2 or more questions within a subtest, the next subtest the student receives will be at the next highest sub-level. For example, if a student correctly answers 2 questions in a subtest at sub-level 4, the next subtest that student receives will be at sub-level 5L.

- If a student correctly answers less than 2 questions within a subtest, the next subtest the student receives will be at the next lowest sub-level. For example, if a student correctly answers only 1 question in a subtest at sub-level 4, the next subtest that student receives will be at sub-level 4L.

- Figure 1 shows the roadmap for a Level 7 - 60 item general adaptive test. The first subtest within a test for Level 7 is at sub-level 6.
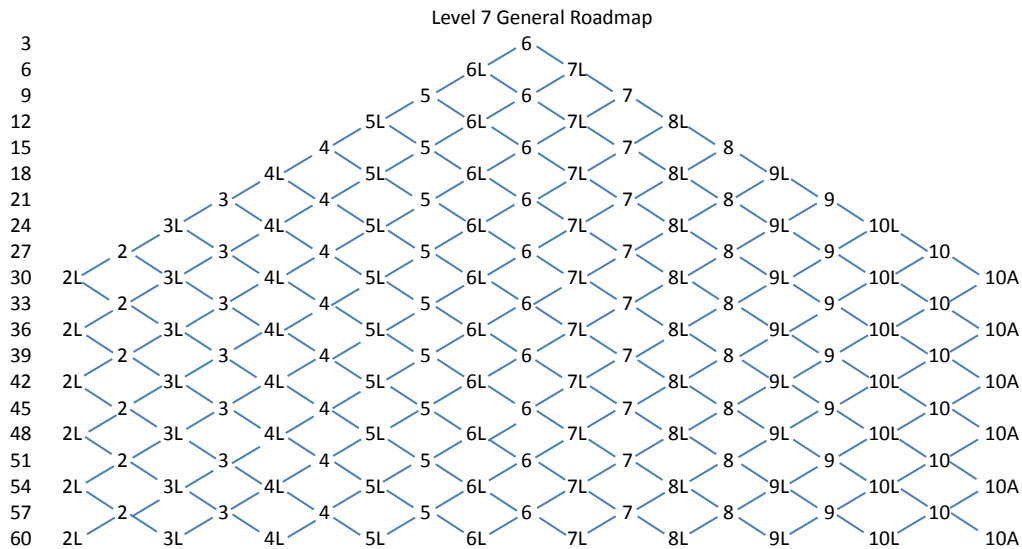
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                                    Level 7 General Roadmap
 3                                            6
 6                                     6L          7L
 9                                5          6          7
12                          5L         6L         7L         8L
15                      4         5          6          7          8
18                  4L      5L         6L         7L         8L         9L
21              3       4          5          6          7          8          9
24          3L      4L      5L         6L         7L         8L         9L         10L
27      2       3       4          5          6          7          8          9          10
30   2L     3L      4L      5L         6L         7L         8L         9L         10L         10A
33      2       3       4          5          6          7          8          9          10
36   2L     3L      4L      5L         6L         7L         8L         9L         10L         10A
39      2       3       4          5          6          7          8          9          10
42   2L     3L      4L      5L         6L         7L         8L         9L         10L         10A
45      2       3       4          5          6          7          8          9          10
48   2L     3L      4L      5L         6L         7L         8L         9L         10L         10A
51      2       3       4          5          6          7          8          9          10
54   2L     3L      4L      5L         6L         7L         8L         9L         10L         10A
57      2       3       4          5          6          7          8          9          10
60   2L     3L      4L      5L         6L         7L         8L         9L         10L         10A
```

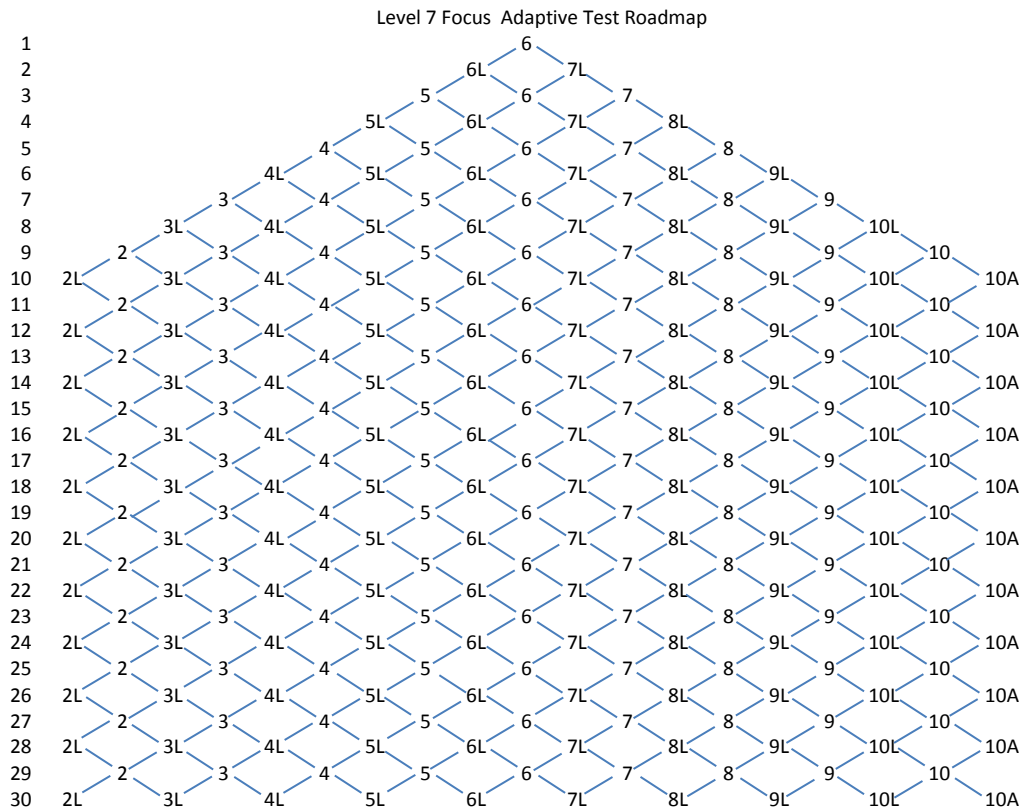**Figure 1: Roadmap for a Level 7 - 60 Item General Adaptive Test**

- For the general Mathematics adaptive test, the 3 questions in the subtest consist of questions from Number & Algebra, Measurement & Geometry, and Statistics & Probability.

- For the general English adaptive test, the 3 questions in the subtest consist of questions from Reading, Language Skills, and Word Building.

2. Focus Adaptive Tests

- The focus adaptive tests, in English and Mathematics, consist of 30 questions. Each student is presented with a different selection of questions drawn from a large item pool of questions from the selected assessment area or topic.

- In focus adaptive test, students are presented with 30 subtests. Each subtest contains **one** question from a particular sub-level.

- If a student correctly answers a question, the next question the student receives will be at the next highest sub-level. For example, if a student successfully answers a question at sub-level 4, the next question that student receives will be at sub-level 5L.

- If a student does not correctly answer the question, the next question the student receives will be at the next lowest sub-level. For example, if a student incorrectly answers a question at sub-level 4, the next question that student receives will be at sub-level 4L.

- Figure 2 shows the roadmap for a Level 7 - 30 item focus adaptive test. The first question presented to students within a test for Level 7 is at sub-level 6.

Level 7 Focus Adaptive Test Roadmap

```
 1                                              6
 2                                     6L           7L
 3                               5          6           7
 4                          5L       6L          7L          8L
 5                     4       5       6       7       8
 6                4L      5L      6L      7L      8L      9L
 7            3      4       5       6       7       8       9
 8        3L     4L      5L      6L      7L      8L      9L      10L
 9      2     3       4       5       6       7       8       9       10
10   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
11      2     3       4       5       6       7       8       9       10
12   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
13      2     3       4       5       6       7       8       9       10
14   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
15      2     3       4       5       6       7       8       9       10
16   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
17      2     3       4       5       6       7       8       9       10
18   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
19      2     3       4       5       6       7       8       9       10
20   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
21      2     3       4       5       6       7       8       9       10
22   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
23      2     3       4       5       6       7       8       9       10
24   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
25      2     3       4       5       6       7       8       9       10
26   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
27      2     3       4       5       6       7       8       9       10
28   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
29      2     3       4       5       6       7       8       9       10
30   2L    3L      4L      5L      6L      7L      8L      9L      10L      10A
```

Figure 2: Roadmap for a Level 7 - 30 Item Focus Adaptive Test

3. A Possible Path for a Student

The example below illustrates how two different students can progress through the adaptive roadmap for a 60 item general test.   The 60 item general test presents subtests of 3 items. A student will move up to the next level of difficulty if they answer two or more questions correctly. If they answer less than two questions correctly, they will move down to an easier subtest.

In the example shown below, **Student-1** (highlighted in **red**) and **Student-2** (highlighted in **blue**) both start at 6. Student-1 finishes at 6L and Student-2 finishes at 7L. It is clear from the diagram that Student-1 is presented with questions from generally lower difficulty level ranges than Student-2. The paths illustrated below were determined by the number of questions each student answered correctly within each subtest (see Table 1).
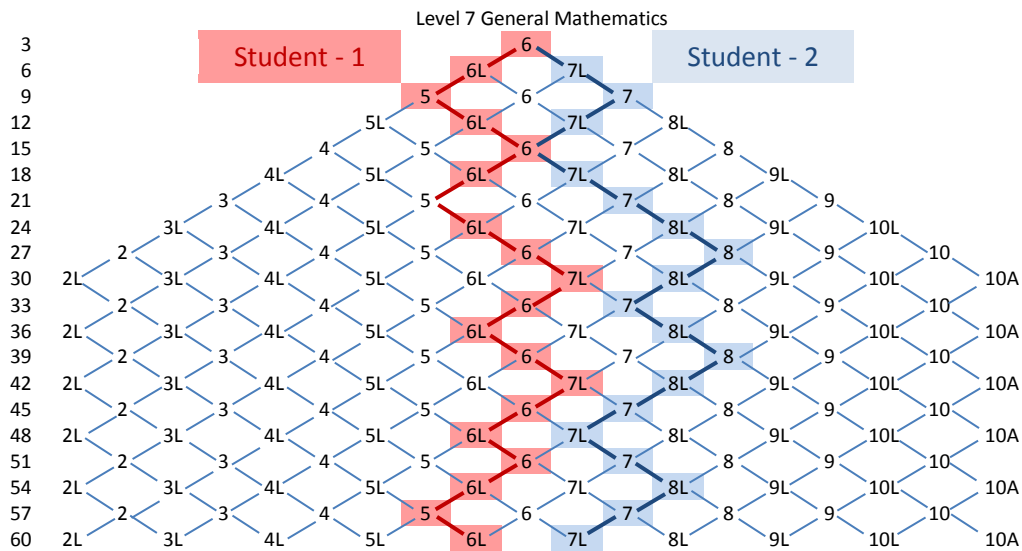
Figure 3 Possible Pathways for Level 7 - 60 Item General Adaptive Test

4. Comparing Results for 'Student-1' and 'Student-2'

In the example above, both Student-1 and Student-2 have correctly answered a total of 32 out of the 60 questions that were presented to them. However the questions that were presented to each student were from different difficulty levels and this is reflected by the different Standard Score results achieved by each student. The 'Raw Score' is not relevant in adaptive tests and does not display on the reports.

Table 1: The number of correct answers in each subtest of a 60 item general adaptive test

Student-1			Student-2	
Level of subtest	Number of correct answers		Level of subtest	Number of correct answers
6	1		6	3
6L	1		7L	2
5	2		7	1
6L	3		7L	0
6	0		6	2
6L	1		7L	2
5	2		7	2
6L	2		8L	3
6	3		8	1
7L	1		8L	1
6	1		7	2
6L	2		8L	2
6	2		8	1
7L	1		8L	1
6	1		7	1
6L	2		7L	2
6	1		7	2
6L	1		8L	1
5	3		7	1
6L	2		7L	2
Raw Score	**32**		Raw Score	**32**
Standard Score	**5.7**		**Standard Score**	**6.9**

5. Interpreting On Demand Reports

As with any assessment instrument, a single On Demand test cannot provide a definitive summary of a student's ability in any given subject area. The tests are intended to be used in conjunction with other classroom assessments and should not be used in isolation.

Curriculum

All test questions in the On Demand system have been calibrated to reference the Victorian Curriculum content descriptions and standards. For more information about the curriculum visit the VCAA website at:
http://victoriancurriculum.vcaa.vic.edu.au

Estimated Standard Scores

The On Demand adaptive tests provide teachers with an estimated ability standard score. The knowledge and skills assessed by any single test represents only a sampling of content descriptions from the Victorian Curriculum. The On Demand standard score does not represent full achievement against the Victorian Curriculum Achievement Standards. Use of the On Demand scores to represent mastery of an Achievement Standard is not an appropriate use of these scores.

A student whose Standard Score result indicates a certain curriculum standard level has demonstrated a limited range of knowledge and skills commensurate with the curriculum outcomes up to and including that standard level. The student may also have demonstrated some skills assessed at higher levels. The reported Standard Score therefore provides an indication of the curriculum standard level at which a student can engage and be challenged in terms of their knowledge and skills. **The Standard Score is not indicative of mastery at that level.**

For more information about adaptive tests, refer to the 'Adaptive Test – Frequently Asked Questions (FAQ)' document on the VCAA website -
http://www.vcaa.vic.edu.au/Pages/prep10/ondemand/docodownload.aspx

6. Class Standard Score Report

Test Number: **4002**
Test Description: **Mathematics General 4**
Test Domain: Mathematics
Date From: Any
Date To: **11 Jan 2017**

(Year level: All, Home Group: All, LBOTE: All, ATSI: All

Number of Student: 6
Number of Test Results: 6

Note that for the student Paul Newman, with a perfect score of 60/60, the standard score is reported as 'Above 10.9', which is the highest reportable score for this test. For River Phoenix, who has a zero score, the standard score is reported as 'Below 1.0'. This is the system default for any score of zero.

It is not possible to provide accurate information for zero or perfect scores, and in both cases, testing at a more appropriate level is recommended.

Student Name	Student ID	Test Date	Standard Score	Standard Level 02	Standard Level 03	Standard Level 04	Standard Level 05	Standard Level 06	Standard Level 07	Standard Level 08	Standard Level 09	Standard Level 10	Standard Level 11
Newman Paul	Student100	11/01/2017	Above 10.9		3/3	6/6	6/6	6/6	6/6	6/6	6/6	12/12	9/9
Nolte Nick	Student101	11/01/2017	4.2		7/9	20/33	6/15	2/3					
Norton Edward	Student102	11/01/2017	4.7		3/3	20/27	13/27	1/3					
Oldman Gary	Student103	11/01/2017	4.6		6/9	5/6	23/42	0/3					
O'Tool Peter	Student105	11/01/2017	5.7		6/6	7/9	16/24	7/12	3/9				
Phoenix River	Student107	11/01/2017	Below 1.0	0/54	0/6								

7. Student Test Session Performance Report

Test Number: 4002
Test Description: Mathematics General 4
Test Domain: Mathematics
Date From: Any
Date To: 11/01/2017

(Year level: All, Home Group: All, LBOTE: All, ATSI: All)

Number of Student: 6
Number of Test Results:6

Student Name: Edward, Norton
Student ID: Student102
Year Level: 07
Standard Score: 4.7
Test Data: 11/01/2017 11:12:15 PM

> **Note:**
> - Question IDs are links to view questions presented to students.
> - Content descriptions that are too long to print in the report are truncated with an ellipsis (…). Complete content descriptions and curriculum information are available at http://victoriancurriculum.vcaa.vic.edu.au
> - The grey shaded cells show questions the student answered incorrectly.

Question Number	Question ID	Correct Response	Student Response	Standard Level	Key Area	Skill Descriptor
1	21873	A	A	03	Number and place value	(VCMNA134) Recall multiplication facts of two, three, five and ten and related division facts
2	5843	C	C	03	Number and place value	(VCMNA133) Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies
3	10868	C	C	03	Using units of measurement	(VCMNA115) Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units
4	21902	D	D	04	Number and place value	(VCMNA156) Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no reminder
5	21956	4	4	04	Patterns and algebra	(VCMNA138) Describe, continue, and create number patterns resulting from performing addition or subtraction
6	23871	B	B	04	Location and transformation	(VCMMG172) Use simple scales, legends and directions to interpret information contained in basic maps
7	21478	B	Skipped	04	Patterns and algebra	(VCMNA162) Solve word problems using number sentences involving multiplication or division where there is no reminder
8	5892	Cannot display	Correct	04	Money and financial mathematics	(VCMNA160) Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies
9	16546	C	C	04	Using units of measurement	(VCMMG140) Measure, order and compare objects using familiar metric units of length, area, mass and capacity
10	23974	45	Skipped	05	Number and place value	(VCMNA153) Apply place Value to partition, rearrange and regroup numbers to at least tens of thousands to assists calculations and solve problems

8. Student Tracking Report

Date From: Any
Date To: 12 Jan 2017

(Year level: All, Home Group: All, LBOTE: All, ATSI: All)

Number of Student: 6
Number of Test Results: 6

> **Note** that the 'Raw Score Mark' is not displayed for an adaptive test. Raw Scores are not relevant in adaptive tests because students with the same raw score may be working at different Victorian Curriculum levels and will receive different Standard Score results. See Section 4 of this document.

Student ID	Student Name	Test ID	Test Description	Testing date	Total Mark Possible	Raw Score Mark	Standard Score	Satisfactory/Non Satisfactory Indicator
Student100	Newman Paul	4002	Mathematics General 4	11/01/2017	60		Above 10.9	
Student101	Nolte Nick	4002	Mathematics General 4	11/01/2017	60		4.2	
Student102	Norton Edward	4002	Mathematics General 4	11/01/2017	60		4.7	
Student103	Oldman Gary	4002	Mathematics General 4	11/01/2017	60		4.6	
Student105	O'Tool Peter	4002	Mathematics General 4	11/01/2017	60		5.7	
Student107	Phoenix River	4002	Mathematics General 4	11/01/2017	60		Below 1.0	