KeyMaths3

Austin J. Connolly

Australian and New Zealand Language Adapted Edition

Examinee Information

Name: Lily Sample
ID Number: 88
Birth Date: 11/06/1999
Age: 10:8
Sex: Female
Current School Year: 5
School: Oceanic

Classification/Diagnosis

Behavioural Observations During Testing
Confidence: Good
Attention: Good
Conscientiousness: Good
Effort: Good

Test Information

Test Date: 28/02/2010
Form: A
Norms: Age
Examiner Name: Charlie Brown

Examiner ID:
Reason for Assessment

Other Information

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

Norms Used: Age

Subtest / Area	Raw Score	Scale Score	Standard Score	Confidence Interval	Percentile Rank	Year Equivalent	Age Equivalent	Descriptive Category
Numeration (NUM)	16	6		4.5-7.5		2.8	8:4	below average
Algebra (ALG)	15	8		6.0-10.0		3.8	9:5	average
Geometry (GEO)	15	7		4.7-9.3		3.0	8:5	below average
Measurement (MEA)	21	10		8.4-11.6		4.8	10:4	average
Data Analysis and Probability (DAP)	16	8		6.4-9.6		3.7	8:11	average
Basic Concepts	Sum = 83		87	81-93	19	3.7	9:1	average
Mental Computation and Estimation (MCE)	13	7		5.4-8.6		3.1	8:8	below average
Addition and Subtraction (A&S)	18	7		5.4-8.6		3.8	9:1	below average
Multiplication and Division (M&D)	15	12		10.4-13.6		6.0	11:6	average
Operations	Sum = 46		91	84-98	27	4.2	9:7	average
Foundations of Problem Solving (FPS)	16	10		8.0-12.0		5.0	10:5	average
Applied Problem Solving (APS)	13	7		5.4-8.6		3.0	8:5	below average
Applications	Sum = 29		90	81-99	25	3.9	9:4	average
Total Test Composite	Sum = 158		88	83-93	21	3.8	9:3	average

Note: Subtest confidence level = 90%. Area and total test confidence level = 95%. Scale score mean = 10 (SD = 3). Standard score mean = 100 (SD = 15).
N/A = scale score not available.

Area Comparisons

Age Norms

Comparison	Standard Score Difference	Significance Level	Frequency of Occurrence
Basic Concepts < Operations	4	NS	>10%
Basic Concepts < Applications	3	NS	>10%
Operations > Applications	1	NS	>10%

Note: NS = nonsignificant

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010
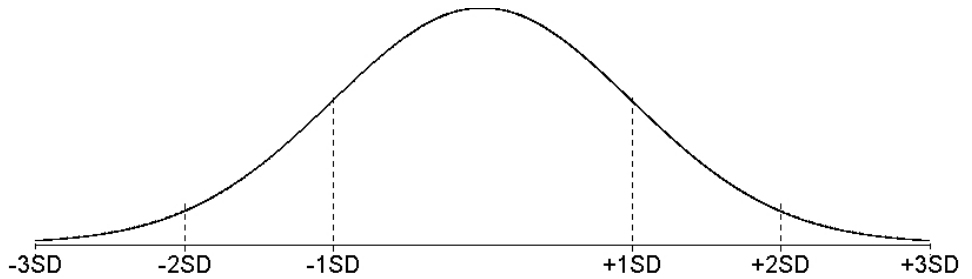
Well-Below Average | Below Average | Average | Above Average | Well-Above Average

Percentile Rank 1 2 5 9 16 25 37 50 63 75 84 91 95 98 99

Area and Total Test Standard Score 60 70 80 90 100 110 120 130 140

	Standard Score	95% Conf. Interval
Basic Concepts	87	81-93
Operations	91	84-98
Applications	90	81-99
Total Test Composite	88	83-93

Subtest Scale Score 1 4 7 10 13 16 19

	Scale Score	90% Conf. Interval
Numeration	6	4.5-7.5
Algebra	8	6.0-10.0
Geometry	7	4.7-9.3
Measurement	10	8.4-11.6
Data Analysis and Probability	8	6.4-9.6
Mental Computation and Estimation	7	5.4-8.6
Addition and Subtraction	7	5.4-8.6
Multiplication and Division	12	10.4-13.6
Foundations of Problem Solving	10	8.0-12.0
Applied Problem Solving	7	5.4-8.6

Well-Below Average | Below Average | Average | Above Average | Well-Above Average

KeyMaths3
Australian and New Zealand Language Adapted Edition
Austin J. Connolly

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

The KeyMaths–3 Diagnostic Assessment - Australian and New Zealand Language Adapted Edition (KeyMaths–3 DA) is a comprehensive, individually administered measure of essential mathematical concepts and skills. It includes 10 subtests that represent three general areas: Basic Concepts (conceptual knowledge), Operations (computational skills), and Applications (problem solving). KeyMaths–3 DA content covers the full spectrum of maths concepts and skills from early experiences with rote and rational counting through to factoring polynomials and solving linear equations and can be used with individuals aged 4½ through to 21 years who are functioning at these instructional levels.

The KeyMaths–3 DA provides several types of derived scores that are useful for interpreting performance and for communicating results to parents and practitioners. Scale scores (mean = 10; SD = 3), confidence intervals, year and age equivalents, and descriptive categories are used to describe subtest performance. Standard scores (mean = 100; SD = 15), confidence intervals, year and age equivalents, percentile ranks, and descriptive categories are used to describe area and Total Test performance.

Charlie Brown administered Form A of the KeyMaths–3 DA to Lily on 28/02/2010. Lily was 10 years 8 months old at the time of testing. This narrative report describes Lily's maths proficiency in relation to a representative national sample of students of the same age.

During the testing session, Lily's confidence was observed to be Good, her attention was Good, her conscientiousness was Good, and her effort was Good.

Lily's KeyMaths–3 DA scores are presented below. Scores correspond to her performance with respect to the areas and subtests administered. Where an area or Total Test standard score is provided, its corresponding 95% confidence interval is presented in parentheses. Where a subtest scale score is provided, its corresponding 90% confidence interval is presented in parentheses.

Total Test Performance

Lily's Total Test standard score of 88 (83-93) summarises her overall maths proficiency. This score is considered average and corresponds to a percentile rank of 21, which indicates that Lily's Total Test standard score is higher than 21% of the same-age population in the norm sample.

Area Performance

Lily's performance in each of the KeyMaths–3 DA areas—Basic Concepts, Operations, and Applications—administered was compared with that of her same-age peers in the norm sample. The results are presented below.

Basic Concepts

This area addresses an individual's conceptual understanding with five content strands that correspond to the five content standards presented in the U.S. National Council of Teachers of Mathematics Principles and Standards for Mathematics . It includes the following KeyMaths–3 DA subtests: Numeration, Algebra, Geometry, Measurement, and Data Analysis and Probability. Lily's Basic Concepts standard score is 87 (81-93), which corresponds to a percentile rank of 19 and an age equivalent of 9:1. Her performance on this area is considered average for her age. Lily's performance on each of the five Basic Concepts subtests is described in the Subtest Performance section of this report (below).

Operations

This area addresses an individual's written and mental computation skills with respect to addition, subtraction, multiplication, and division of whole and rational numbers (including variables). It includes the following KeyMaths–3 DA subtests: Mental Computation and Estimation, Addition and Subtraction, and Multiplication and Division. Lily's Operations standard score is 91 (84-98), which corresponds to a percentile rank of 27 and an age equivalent of 9:7. Her performance on this area is considered average for her age. Lily's performance on each of the three Operations subtests is described in the Subtest Performance section of this report (below).

Applications

This area addresses an individual's ability to identify the key elements of maths problems and the operations and strategies necessary to solve problems as well as an individual's ability to apply this knowledge to solve story problems. It includes the following KeyMaths–3 DA subtests: Foundations of Problem Solving and Applied Problem Solving. Lily's Applications standard score is 90 (81-99), which corresponds to a percentile rank of 25 and an age equivalent of 9:4. Her performance on this area is considered average for her age. Lily's performance on each of the two Applications subtests is described in the Subtest Performance section of this report (below).

Subtest Performance

Numeration

The Numeration subtest measures an individual's understanding of whole and rational numbers. It covers topics such as identifying, representing, comparing, and rounding one-, two-, and three-digit numbers as well as fractions, decimal values, and percentages. It also covers advanced numeration concepts such as exponents, scientific notation, and square roots. Lily's Numeration scale score is 6, which corresponds to an age equivalent of 8:4. Her performance on this subtest is considered below average for her age.

Algebra

The Algebra subtest measures an individual's understanding of pre-algebraic and algebraic concepts. It covers topics such as sorting, classifying, and ordering by a variety of attributes; recognising and describing patterns and functions; working with number sentences, operational properties, variables, expressions, equations, proportions, and functions; and representing mathematical relationships. Lily's Algebra scale score is 8, which corresponds to an age equivalent of 9:5. Her performance on this subtest is considered average for her age.

Geometry

The Geometry subtest measures an individual's ability to analyse, describe, compare, and classify two- and three-dimensional shapes. It also covers topics such as spatial relationships and reasoning, coordinates, symmetry, and geometric modelling. Lily's Geometry scale score is 7, which corresponds to an age equivalent of 8:5. Her performance on this subtest is considered below average for her age.

Measurement

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

The Measurement subtest measures an individual's ability to compare objects on a variety of attributes and to use nonstandard and standard units to measure those attributes. It also covers topics such as measuring angles, sequencing events, estimating and measuring time, counting and working with money (notes and coins), and measuring angles. Lily's Measurement scale score is 10, which corresponds to an age equivalent of 10:4. Her performance on this subtest is considered average for her age.

Data Analysis and Probability

The Data Analysis and Probability subtest measures an individual's ability to collect, display, and interpret data as well as his or her understanding of the concepts associated with chance and probability. Lily's Data Analysis and Probability scale score is 8, which corresponds to an age equivalent of 8:11. Her performance on this subtest is considered average for her age.

Mental Computation and Estimation

The Mental Computation and Estimation subtest measures an individual's ability to mentally compute answers to given maths problems using addition, subtraction, multiplication, and division operations. It covers problems involving one-, two-, and three-digit numbers, fractions, decimals, and percentages. Lily's Mental Computation and Estimation scale score is 7, which corresponds to an age equivalent of 8:8. Her performance on this subtest is considered below average for her age.

Addition and Subtraction

The Addition and Subtraction subtest focuses on written algorithmic procedures and concepts. It measures an individual's ability to add and subtract whole and rational numbers, including two- and three-digit numbers, fractions, mixed numbers, decimal values, and integers. It also measures an individual's ability to solve and/or simplify algebraic expressions involving addition and subtraction. Lily's Addition and Subtraction scale score is 7, which corresponds to an age equivalent of 9:1. Her performance on this subtest is considered below average for her age.

Multiplication and Division

The Multiplication and Division subtest focuses on written algorithmic procedures and concepts. It measures an individual's ability to multiply and divide (using one- and two-digit multipliers and divisors) whole and rational numbers, including fractions, decimal values, and integers. It also measures an individual's ability to solve and/or simplify algebraic expressions involving multiplication and division. Lily's Multiplication and Division scale score is 12, which corresponds to an age equivalent of 11:6. Her performance on this subtest is considered average for her age.

Foundations of Problem Solving

The Foundations of Problem Solving subtest measures an individual's ability to identify the necessary elements, operations, and strategies required to solve maths problems. It places emphasis on the individual's ability to explore the procedural elements that facilitate solutions. Lily's Foundations of Problem Solving scale score is 10, which corresponds to an age equivalent of 10:5. Her performance on this subtest is considered average for her age.

Applied Problem Solving

The Applied Problem Solving subtest measures an individual's ability to interpret problems set in a context and to apply computational skills and conceptual knowledge to produce a solution. Problems address topics included in each of the five KeyMaths–3 DA Basic Concepts subtests. Lily's Applied Problem Solving scale score is 7, which corresponds to an age equivalent of 8:5. Her performance on this subtest is considered below average for her age.

ID#: 88   Age: 10:8   Year: 5   Test Date: 28/02/2010

Item #	NUM	ALG	GEO	MEA	DAP	MCE	A&S	M&D	FPS	APS
1	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)
2	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)
3	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)
4	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)	- (1)
5	- (1)	1	1	- (1)	- (1)	- (1)	- (1)	1	- (1)	- (1)
6	- (1)	1	1	- (1)	- (1)	1	- (1)	1	- (1)	1
7	1	1	1	- (1)	- (1)	1	- (1)	1	- (1)	1
8	1	0	0	- (1)	- (1)	1	- (1)	0	- (1)	1
9	1	0	0	- (1)	- (1)	0	- (1)	0	- (1)	0
10	0	1	0	- (1)	- (1)	0	1	0	- (1)	0
11	1	0	1	- (1)	- (1)	0	1	1	- (1)	0
12	0	0	0	- (1)	- (1)	1	1	0	- (1)	1
13	1	1	0	- (1)	1	0	1	1	1	0
14	0	0	1	- (1)	1	0	1	0	1	0
15	0	0	0	- (1)	1	0	1	0	1	1
16	1	1	1	1	1	1	1	0	1	0
17	0	1	1	1	0	0	1	1	0	0
18	1	1	1	1	0	0	1	1	0	1
19	1	1	1	1	0	1	0	0	0	1
20	1	1	1	1	0	1	0	1	0	1
21	1	1	1	1	- (0)	1	0	1	- (0)	0
22	0	0	0	0	- (0)	0	0	0	- (0)	0
23	0	0	0	0	- (0)	0	- (0)	0	- (0)	0
24	0	0	0	0	- (0)	0	- (0)	1	- (0)	0
25	0	0	0	0	- (0)	0	- (0)	0	- (0)	- (0)
26	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	1	- (0)	- (0)
27	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	0	- (0)	- (0)
28	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	0		- (0)
29	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	0		- (0)
30	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	0		- (0)
31	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)		- (0)
32	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)			- (0)
33	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)			- (0)
34	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)			- (0)
35	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)			- (0)
36	- (0)	- (0)	- (0)	- (0)	- (0)	- (0)				
37	- (0)	- (0)		- (0)	- (0)	- (0)				
38	- (0)	- (0)		- (0)	- (0)	- (0)				
39	- (0)	- (0)		- (0)	- (0)	- (0)				
40	- (0)			- (0)	- (0)	- (0)				
41	- (0)									
42	- (0)									
43	- (0)									
44	- (0)									
45	- (0)									
46	- (0)									
47	- (0)									
48	- (0)									
49	- (0)									

A dash indicates that no item score was entered.
Values in parentheses are consistent with basal and ceiling guidelines and are used to calculate the subtest raw score.

Report printed for: KeyMaths3 Australia/New Zealand

Report generated by KeyMaths-3 ASSIST version 5.5

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

This report provides an analysis of Lily's KeyMaths–3 DA item scores by presenting behavioural objectives for items in the functional range and focus items (if applicable) for each subtest administered. It also presents appropriate lessons contained in the KeyMaths–3 Essential Resources (KeyMaths–3 ER) companion programme.

KeyMaths–3 DA items are ordered by difficulty, and the best estimate of an examinee's performance on a given subtest is his or her subtest raw score. As such, an examinee's functional range is composed of items that fall near his or her raw score. Items within the functional range measure concepts and skills the examinee is developing. Such items, particularly those the examinee answered incorrectly, indicate where instruction should occur. Items that fall below the functional range represent maths content that the examinee likely has mastered, and items that fall above the functional range represent content that he or she likely will find excessively challenging.

The KeyMaths–3 DA includes two types of focus items: (a) items to which an examinee responded incorrectly that fall below his or her functional range and (b) items to which an examinee responded correctly that fall above his or her functional range. The first type of focus item may indicate a specific gap in understanding of prerequisite skills and concepts that impact subsequent learning. The second type may indicate an adequate understanding of skills and concepts that fall above the examinee's functional range.

The KeyMaths–3 ER presents a comprehensive series of maths lessons and practice material. Thus, for each item to which Lily provided an incorrect response, this report presents an appropriate KeyMaths–3 ER lesson number and title that correspond to the item's behavioural objective. Practitioners who have not purchased the KeyMaths–3 ER will not be able to access the lesson content but can use the lesson titles to inform instruction/programme development.

In developing an appropriate instructional programme, practitioners should pay particular attention to the items to which Lily provided incorrect responses and attempt to identify the concepts and skills that establish foundation prerequisites for subsequent learning (e.g., place value is a foundation for constructing, comparing, and sequencing two- and three-digit numbers). In addition, practitioners should attempt to identify content patterns among the items Lily answered correctly. Review activities and/or exercises should be administered as appropriate.

ID#: 88   Age: 10:8   Year: 5   Test Date: 28/02/2010

Numeration (Functional Range: items 13-19)

Items Answered Incorrectly

14   Behavioural Objective: The examinee can determine the missing one-digit number that must be added to a given multiple of 10 to equal a given two-digit number in a balance scale depiction.
ER Lesson: Level 1, Cluster 6, Lesson 2: Comparing Two-Digit Numbers

15   Behavioural Objective: The examinee can select small stacks of cubes that combine to a one-digit total.
ER Lesson: Level 1, Cluster 3, Lesson 3: Comparing Numbers 0–9

17   Behavioural Objective: The examinee can use place value clues to identify a three-digit number.
ER Lesson: Level 1, Cluster 8, Lesson 1: Representing and Recording Three-Digit Numbers

Items Answered Correctly

13   Behavioural Objective: The examinee can determine the two-digit number depicted by a set of cube stacks (representing tens) and individual cubes (representing ones).

16   Behavioural Objective: The examinee can start at any given two-digit number and count by tens.

18   Behavioural Objective: The examinee can identify the two-digit numbers in a set that round to a given multiple of 10.

19   Behavioural Objective: The examinee can determine the number of sets of 10 in a number between 100 and 200.

Focus Items Below Instructional Range

10   Behavioural Objective: The examinee can determine how many more objects are needed to attain 10.
ER Lesson: Level 1, Cluster 4, Lesson 1: Representing and Recording 10

12   Behavioural Objective: The examinee can identify missing numbers in a partial hundreds chart.
ER Lesson: Level 1, Cluster 5, Lesson 3: Using a Hundreds Chart

Focus Items Above Instructional Range

21   Behavioural Objective: The examinee can identify a four-digit number given its expanded notation.

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

Algebra (Functional Range: items 11-17)

Items Answered Incorrectly

11 Behavioural Objective: The examinee can determine a number that, when added in like amounts, will form a given two-digit sum less than 20.
ER Lesson: Level 1, Cluster 7, Lesson 2: Investigating the Value of Expressions

12 Behavioural Objective: The examinee can continue a simple geometric pattern.
ER Lesson: Level 1, Cluster 5, Lesson 3: Determining Patterns Represented on In/Out Tables

14 Behavioural Objective: The examinee can determine a missing value in an arithmetic sequence involving threes, fours, or fives.
ER Lesson: Level 1, Cluster 5, Lesson 1: Exploring Number Patterns

15 Behavioural Objective: The examinee can work with simple addition and subtraction equations, solving for one missing value and using it to solve a second equation.
ER Lesson: Level 1, Cluster 7, Lesson 3: Exploring Simple Equations

Items Answered Correctly

13 Behavioural Objective: The examinee can interpret a graph depicting addition facts for a given sum to suggest another addition fact for that sum.

16 Behavioural Objective: The examinee can describe an array of objects using both multiplication and repeated addition.

17 Behavioural Objective: The examinee can determine the value of a missing element in a multiplication or division fact.

Focus Items Below Instructional Range

8 Behavioural Objective: The examinee can determine the missing addend in an addition sentence that presents the sum before the equal sign.
ER Lesson: Level 1, Cluster 6, Lesson 2: Determining the Missing Value in an Addition or Subtraction Number Sentence

9 Behavioural Objective: The examinee can identify the next element in a geometric pattern displaying stair-step growth.
ER Lesson: Level 1, Cluster 4, Lesson 3: Describing and Extending Growing and Shrinking Patterns

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

Focus Items Above Instructional Range

21 Behavioural Objective: The examinee can use a weight relationship depicted on a balance scale to identify other balance scale depictions as true or false.

Geometry (Functional Range: items 11-19)

Items Answered Incorrectly

12 Behavioural Objective: The examinee can select the shape that, when rotated and flipped, would fill a gap in another pictured shape.
ER Lesson: Level 1, Cluster 4, Lesson 4: Investigating Transformations

13 Behavioural Objective: The examinee can use row numbers and positions within a row to identify a particular object in a grid.
ER Lesson: Level 1, Cluster 4, Lesson 1: Identifying Points and Paths on a Grid

15 Behavioural Objective: The examinee can correct the incorrect element in the mirror-image display of a set of blocks.
ER Lesson: Level 1, Cluster 4, Lesson 4: Investigating Transformations

Items Answered Correctly

11 Behavioural Objective: The examinee can identify the resulting view of a simple cube structure if cubes were removed or added.

14 Behavioural Objective: The examinee can identify the shape that does not belong in a given set of shapes and can verbalise why it does not belong.

16 Behavioural Objective: The examinee can identify symmetrical shapes in a set.

17 Behavioural Objective: The examinee can identify the rectangular region with the largest area.

18 Behavioural Objective: The examinee can recognise similar and different attributes in a given pair of objects and use this information to identify another pair of objects that have the same similarities and differences.

19 Behavioural Objective: The examinee can identify the top view of a structure of cubes, after having viewed the front of the structure.

Focus Items Below Instructional Range

8 Behavioural Objective: The examinee can select the shape that, when rotated, would fill a gap in another pictured shape.
ER Lesson: Level 1, Cluster 4, Lesson 2: Picturing Parts That Make a Whole

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

Focus Items Above Instructional Range

There are no focus items to report on above the functional level.

Measurement (Functional Range: items 17-25)

Items Answered Incorrectly

22 Behavioural Objective: The examinee can estimate the weight of an object based on pictures of balance scales showing excessive and insufficient numbers of nonstandard units for the weight of the object.
ER Lesson: Level 1, Cluster 3, Lesson 3: Measuring Weight With Nonstandard Units

23 Behavioural Objective: The examinee can determine the interval between the times shown on two analogue clocks.
ER Lesson: Level 2, Cluster 2, Lesson 3: Telling Time to the Minute and Second

24 Behavioural Objective: The examinee can use the fewest possible coins to make given amounts up to one dollar.
ER Lesson: Level 2, Cluster 2, Lesson 1: Combining Coins and Making Change to $1

25 Behavioural Objective: The examinee can determine the coins that are hidden given a picture of the known set of coins, the number of coins in the hidden set, and the total value of the combined set up to five dollars.
ER Lesson: Level 2, Cluster 2, Lesson 2: Using Monetary Values to $100

Items Answered Correctly

17 Behavioural Objective: The examinee can determine the value of two hidden coins [fifties, twenties, tens and fives (AU only)] when shown two coins and given the combined value of the four coins.

18 Behavioural Objective: The examinee can read digital and analogue clocks to the nearest five minutes and can put the times in order.

19 Behavioural Objective: The examinee can determine the combined value of notes and coins in amounts up to 25 dollars.

20 Behavioural Objective: The examinee can determine the number of cubes that form a given rectangular prism.

21 Behavioural Objective: The examinee can determine the number of fifty-cent coins that would equal the value of a given number of twenty-cent coins.

Focus Items Below Instructional Range

There are no focus items to report on below the functional level.

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

Focus Items Above Instructional Range

There are no focus items to report on above the functional level.

Data Analysis and Probability (Functional Range: items 12-19)

Items Answered Incorrectly

17 Behavioural Objective: The examinee can view a graph of children's responses and identify which question they were asked.
ER Lesson: Level 1, Cluster 3, Lesson 3: Constructing and Interpreting Bar Graphs

18 Behavioural Objective: The examinee can identify which survey strategy will yield the most representative data for a given population.
ER Lesson: Level 2, Cluster 3, Lesson 1: Associating Questions and Data Displays

19 Behavioural Objective: The examinee can interpret a three-by-three number chart to compare the frequency of elements.
ER Lesson: Level 2, Cluster 1, Lesson 1: Constructing and Interpreting Charts and Tables

Items Answered Correctly

12 Behavioural Objective: The examinee can correctly read and interpret a bar graph involving one-digit numbers.

13 Behavioural Objective: The examinee can interpret a chart with two columns and three rows of numerical two-digit data to determine a specified subtotal.

14 Behavioural Objective: The examinee can interpret a simple bar graph to estimate the combined cost of several elements.

15 Behavioural Objective: The examinee can determine the contents of another column in a two-by-two numbered chart given a partial transfer of data from a tally chart.

16 Behavioural Objective: The examinee can interpret a simple picture graph with a key to determine the frequency of a particular element.

Focus Items Below Instructional Range

There are no focus items to report on below the functional level.

Focus Items Above Instructional Range

There are no focus items to report on above the functional level.

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

Mental Computation and Estimation (Functional Range: items 10-15)

Items Answered Incorrectly

10 Behavioural Objective: The examinee can mentally determine the difference when the subtraction of two two-digit numbers that share the same ones digit is presented visually.
ER Lesson: Level 1, Cluster 2, Lesson 2: Using Strategies to Mentally Compute Two-Digit Differences

11 Behavioural Objective: The examinee can mentally add a sequence of three orally presented numbers that are multiples of 4, 5, or 10.
ER Lesson: Level 1, Cluster 2, Lesson 4: Exploring Computation Chains Involving Two-Digit Numbers

13 Behavioural Objective: The examinee can mentally determine the sum when the addition of two two-digit numbers is presented visually.
ER Lesson: Level 1, Cluster 2, Lesson 1: Using Strategies to Mentally Compute Two-Digit Sums

14 Behavioural Objective: The examinee can mentally determine the difference when a multiple of 10 is subtracted from a three-digit number.
ER Lesson: Level 2, Cluster 3, Lesson 1: Using Strategies to Mentally Add and Subtract

15 Behavioural Objective: The examinee can mentally determine the sum when presented with three numbers, two of which sum to a multiple of 10.
ER Lesson: Level 2, Cluster 2, Lesson 1: Adding and Subtracting With Numbers Ending in Zeros

Items Answered Correctly

12 Behavioural Objective: The examinee can mentally determine the difference when presented a two-digit number and a smaller multiple of 10.

Focus Items Below Instructional Range

9 Behavioural Objective: The examinee can mentally add a multiple of 10 and another two-digit number.
ER Lesson: Level 1, Cluster 2, Lesson 1: Using Strategies to Mentally Compute Two-Digit Sums

Focus Items Above Instructional Range

19 Behavioural Objective: The examinee can mentally determine the sum of a three-digit number and a two-digit number that approximate multiples of 25 (quarters of 100).

20 Behavioural Objective: The examinee can select the most reasonable estimate of the difference resulting from the subtraction of a three-digit number from a multiple of 100.

21 Behavioural Objective: The examinee can select the most reasonable estimate of the difference resulting from the subtraction of a two-digit number near 100 from a three-digit number.

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

Addition and Subtraction (Functional Range: items 15-21)

Items Answered Incorrectly

19 Behavioural Objective: The examinee can add two-digit and three-digit numbers in a vertical format and regroup more than one set of 10 ones.
ER Lesson: Level 2, Cluster 1, Lesson 1: Adding Three- and Four-Digit Numbers

20 Behavioural Objective: The examinee can subtract a three-digit number from a multiple of 100.
ER Lesson: Level 2, Cluster 1, Lesson 3: Subtracting From Three- and Four-Digit Numbers

21 Behavioural Objective: The examinee can add decimal values with varying numbers of decimal places.
ER Lesson: Level 2, Cluster 3, Lesson 1: Adding Decimals With Unlike Place Values

Items Answered Correctly

15 Behavioural Objective: The examinee can add a three-digit number and a two-digit number.

16 Behavioural Objective: The examinee can subtract a two-digit number from a multiple of 10.

17 Behavioural Objective: The examinee can subtract two two-digit numbers.

18 Behavioural Objective: The examinee can subtract a two-digit number from a three-digit number when regrouping is required in two place values.

Focus Items Below Instructional Range

There are no focus items to report on below the functional level.

Focus Items Above Instructional Range

There are no focus items to report on above the functional level.

Multiplication and Division (Functional Range: items 12-18)

Items Answered Incorrectly

12 Behavioural Objective: The examinee can divide a three-digit number by a one-digit number.
ER Lesson: Level 2, Cluster 4, Lesson 2: Dividing Up to Four-Digit Numbers With One-Digit Divisors

14 Behavioural Objective: The examinee can multiply a two-digit number by a multiple of 10.
ER Lesson: Level 2, Cluster 5, Lesson 1: Multiplying and Dividing by Tens

15 Behavioural Objective: The examinee can multiply two two-digit numbers.
ER Lesson: Level 2, Cluster 5, Lesson 2:Multiplying by Two-Digit Numbers Other Than a Tens

16 Behavioural Objective: The examinee can multiply fractions when simplification is not required.
ER Lesson: Activities that have students multiply fractions.

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

Items Answered Correctly

13 Behavioural Objective: The examinee can divide a three-digit number by a one-digit number when the quotient's middle digit is zero.

17 Behavioural Objective: The examinee can divide a monetary value by a one-digit number.

18 Behavioural Objective: The examinee can divide a multidigit number by a multiple of 10 for a whole-number quotient.

Focus Items Below Instructional Range

8 Behavioural Objective: The examinee can multiply two one-digit numbers for a product greater than 30.
ER Lesson: Level 2, Cluster 2, Lesson 1: Representing and Completing Multiplication Facts

9 Behavioural Objective: The examinee can multiply a multiple of 10 by a one-digit number.
ER Lesson: Level 2, Cluster 3, Lesson 1: Multiplying Two- and Three-Digit Numbers by One-Digit Numbers

Focus Items Above Instructional Range

21 Behavioural Objective: The examinee can divide a whole number by a one-digit number to yield a decimal number quotient to hundredths.

24 Behavioural Objective: The examinee can divide a decimal mixed number by a decimal fraction.

26 Behavioural Objective: The examinee can divide one fraction by another fraction and simplify the answer to lowest terms.

Foundations of Problem Solving (Functional Range: items 12-20)

Items Answered Incorrectly

17 Behavioural Objective: The examinee can identify the missing information that is needed to answer a given word problem involving time and distance.
ER Lesson: Level 2, Cluster 2, Lesson 2: Reading Word Problems for Missing Information

18 Behavioural Objective: The examinee can select the multiplication or division sentence needed to answer a given word problem.
ER Lesson: Level 2, Cluster 2, Lesson 1: Exploring Word Problems

19 Behavioural Objective: The examinee can identify the missing information that is needed to answer a given word problem that involves time and distance and requires the examinee to work backward for a solution.
ER Lesson: Level 2, Cluster 2, Lesson 2: Reading Word Problems for Missing Information

20 Behavioural Objective: The examinee can select "Work backwards" as the most appropriate strategy for solving a given word problem.
ER Lesson: Level 2, Cluster 1, Lesson 3: Using Make-it-Simpler and Work-Backwards Problem-Solving Strategies

| ID#: 88 | Age: 10:8 | Year: 5 | Test Date: 28/02/2010 |

Items Answered Correctly

12 Behavioural Objective: The examinee can explain how multiplication could be used in a real-life context.

13 Behavioural Objective: The examinee can select "Look for a pattern" as the most appropriate strategy for solving a given word problem.

14 Behavioural Objective: The examinee can explain how division could be used in a real-life context.

15 Behavioural Objective: The examinee can select "Draw a picture" as the most appropriate strategy for solving a given word problem.

16 Behavioural Objective: The examinee can select "Make a list" as the most appropriate strategy for solving a given word problem.

Focus Items Below Instructional Range

There are no focus items to report on below the functional level.

Focus Items Above Instructional Range

There are no focus items to report on above the functional level.

Applied Problem Solving (Functional Range: items 10-15)

Items Answered Incorrectly

10 Behavioural Objective: The examinee can determine all possible combinations of two tiles that would make a given sum, using a pictured set of one-digit-number tiles.
ER Lesson: Algebra, Level 1, Cluster 6, Lesson 1: Identifying Numbers That Yield a Given Sum or Difference

11 Behavioural Objective: The examinee can determine the total value of a given word based on a chart that assigns one-digit values to letters in the alphabet.
ER Lesson: DAP, Level 1, Cluster 2, Lesson 1: Introducing Simple Charts and Tables

13 Behavioural Objective: The examinee can determine an object's weight given two larger weight values: one that includes the object and one that does not.
ER Lesson: Measurement, Level 2, Cluster 1, Lesson 4: Estimating and Measuring Weight

14 Behavioural Objective: The examinee can use a given balance display to determine how many objects would maintain the balance on a second balance display.
ER Lesson: Measurement, Level 1, Cluster 3, Lesson 3: Measuring Weight With Non-standard Units

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

Items Answered Correctly

12 Behavioural Objective: The examinee can follow a directional arrow path to find a specific location on a lettered dot matrix map.

15 Behavioural Objective: The examinee can determine the total value for a set of objects given a chart that assigns simple dollar values to each object.

Focus Items Below Instructional Range

There are no focus items to report on below the functional level.

Focus Items Above Instructional Range

18 Behavioural Objective: The examinee can separate a set with 10 or fewer members into two subsets that have a given difference.

19 Behavioural Objective: The examinee can use data from a simple distance chart to determine the total distance travelled over the course of two trips or trip segments.

20 Behavioural Objective: The examinee can determine the total output expected for a specific length of time given the output for one hour.

ID#: 88   Age: 10:8   Year: 5   Test Date: 28/02/2010

This report presents the Instructional Sequence of suggested KeyMaths–3 ER lessons based on incorrect scores of KeyMaths–3 DA items in the functional range and focus items below the functional range. The report lists the Instructional Sequence, KeyMaths–3 ER lesson, level, cluster, and lesson with the linked KeyMaths–3 DA item appearing below each lesson.

The Instructional Sequence for each level lists the recommended teaching order of Concept Clusters across instructional strands, based on the prerequisite mathematical knowledge and skills for each cluster. The sequence is designed to maximise opportunities for students to integrate and apply concepts and skills.

Some KeyMaths–3 DA items present concepts that fall outside the scope of the KeyMaths–3 ER programme. These activities are not included in the Instructional Sequence Analysis, and therefore, do not appear in this report.

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

Items Answered Incorrectly

3a ER Lesson: Level 1, Cluster 3, Lesson 3: Comparing Numbers 0–9
Numeration Item #15
The examinee can select small stacks of cubes that combine to a one-digit total.

5b ER Lesson: DAP, Level 1, Cluster 2, Lesson 1: Introducing Simple Charts and Tables
Applied Problem Solving Item #11
The examinee can determine the total value of a given word based on a chart that assigns one-digit values to letters in the alphabet.

5e ER Lesson: Level 1, Cluster 3, Lesson 3: Measuring Weight With Nonstandard Units
Measurement Item #22
The examinee can estimate the weight of an object based on pictures of balance scales showing excessive and insufficient numbers of nonstandard units for the weight of the object.

5e ER Lesson: Measurement, Level 1, Cluster 3, Lesson 3: Measuring Weight With Non-standard Units
Applied Problem Solving Item #14
The examinee can use a given balance display to determine how many objects would maintain the balance on a second balance display.

6b ER Lesson: Level 1, Cluster 6, Lesson 2: Comparing Two-Digit Numbers
Numeration Item #14
The examinee can determine the missing one-digit number that must be added to a given multiple of 10 to equal a given two-digit number in a balance scale depiction.

6d ER Lesson: Level 1, Cluster 3, Lesson 3: Constructing and Interpreting Bar Graphs
Data Analysis and Probability Item #17
The examinee can view a graph of children's responses and identify which question they were asked.

7c ER Lesson: Level 1, Cluster 8, Lesson 1: Representing and Recording Three-Digit Numbers
Numeration Item #17
The examinee can use place value clues to identify a three-digit number.

7h ER Lesson: Level 1, Cluster 5, Lesson 1: Exploring Number Patterns
Algebra Item #14
The examinee can determine a missing value in an arithmetic sequence involving threes, fours, or fives.

7h ER Lesson: Level 1, Cluster 5, Lesson 3: Determining Patterns Represented on In/Out Tables
Algebra Item #12
The examinee can continue a simple geometric pattern.

7i   ER Lesson: Level 1, Cluster 4, Lesson 1: Identifying Points and Paths on a Grid
Geometry Item #13
The examinee can use row numbers and positions within a row to identify a particular object in a grid.

7i   ER Lesson: Level 1, Cluster 4, Lesson 4: Investigating Transformations
Geometry Item #12
The examinee can select the shape that, when rotated and flipped, would fill a gap in another pictured shape.
Geometry Item #15
The examinee can correct the incorrect element in the mirror-image display of a set of blocks.

8a   ER Lesson: Level 1, Cluster 2, Lesson 1: Using Strategies to Mentally Compute Two-Digit Sums
Mental Computation and Estimation Item #13
The examinee can mentally determine the sum when the addition of two two-digit numbers is presented visually.

8a   ER Lesson: Level 1, Cluster 2, Lesson 2: Using Strategies to Mentally Compute Two-Digit Differences
Mental Computation and Estimation Item #10
The examinee can mentally determine the difference when the subtraction of two two-digit numbers that share the same ones digit is presented visually.

8a   ER Lesson: Level 1, Cluster 2, Lesson 4: Exploring Computation Chains Involving Two-Digit Numbers
Mental Computation and Estimation Item #11
The examinee can mentally add a sequence of three orally presented numbers that are multiples of 4, 5, or 10.

8e   ER Lesson: Algebra, Level 1, Cluster 6, Lesson 1: Identifying Numbers That Yield a Given Sum or Difference
Applied Problem Solving Item #10
The examinee can determine all possible combinations of two tiles that would make a given sum, using a pictured set of one-digit-number tiles.

8f   ER Lesson: Level 1, Cluster 7, Lesson 2: Investigating the Value of Expressions
Algebra Item #11
The examinee can determine a number that, when added in like amounts, will form a given two-digit sum less than 20.

8f   ER Lesson: Level 1, Cluster 7, Lesson 3: Exploring Simple Equations
Algebra Item #15
The examinee can work with simple addition and subtraction equations, solving for one missing value and using it to solve a second equation.

1f   ER Lesson: Level 2, Cluster 1, Lesson 3: Using Make-it-Simpler and Work-Backwards Problem-Solving Strategies
Foundations of Problem Solving Item #20
The examinee can select "Work backwards" as the most appropriate strategy for solving a given word problem.

ID#: 88	Age: 10:8	Year: 5	Test Date: 28/02/2010

1g   ER Lesson: Level 2, Cluster 1, Lesson 1: Constructing and Interpreting Charts and Tables
         Data Analysis and Probability Item #19
         The examinee can interpret a three-by-three number chart to compare the frequency of elements.

2c   ER Lesson: Measurement, Level 2, Cluster 1, Lesson 4: Estimating and Measuring Weight
         Applied Problem Solving Item #13
         The examinee can determine an object's weight given two larger weight values: one that includes the object and one that does not.

3b   ER Lesson: Level 2, Cluster 1, Lesson 1: Adding Three- and Four-Digit Numbers
         Addition and Subtraction Item #19
         The examinee can add two-digit and three-digit numbers in a vertical format and regroup more than one set of 10 ones.

3b   ER Lesson: Level 2, Cluster 1, Lesson 3: Subtracting From Three- and Four-Digit Numbers
         Addition and Subtraction Item #20
         The examinee can subtract a three-digit number from a multiple of 100.

3d   ER Lesson: Level 2, Cluster 4, Lesson 2: Dividing Up to Four-Digit Numbers With One-Digit Divisors
         Multiplication and Division Item #12
         The examinee can divide a three-digit number by a one-digit number.

4d   ER Lesson: Level 2, Cluster 2, Lesson 1: Combining Coins and Making Change to $1
         Measurement Item #24
         The examinee can use the fewest possible coins to make given amounts up to one dollar.

4d   ER Lesson: Level 2, Cluster 2, Lesson 2: Using Monetary Values to $100
         Measurement Item #25
         The examinee can determine the coins that are hidden given a picture of the known set of coins, the number of coins in the hidden set, and the total value of the combined set up to five dollars.

4d   ER Lesson: Level 2, Cluster 2, Lesson 3: Telling Time to the Minute and Second
         Measurement Item #23
         The examinee can determine the interval between the times shown on two analogue clocks.

4g   ER Lesson: Level 2, Cluster 2, Lesson 1: Adding and Subtracting With Numbers Ending in Zeros
         Mental Computation and Estimation Item #15
         The examinee can mentally determine the sum when presented with three numbers, two of which sum to a multiple of 10.

4h   ER Lesson: Level 2, Cluster 2, Lesson 1: Exploring Word Problems
         Foundations of Problem Solving Item #18
         The examinee can select the multiplication or division sentence needed to answer a given word problem.

ID#: 88 Age: 10:8 Year: 5 Test Date: 28/02/2010

4h ER Lesson: Level 2, Cluster 2, Lesson 2: Reading Word Problems for Missing Information
Foundations of Problem Solving Item #17
The examinee can identify the missing information that is needed to answer a given word problem involving time and distance.
Foundations of Problem Solving Item #19
The examinee can identify the missing information that is needed to answer a given word problem that involves time and distance and requires the examinee to work backward for a solution.

5h ER Lesson: Level 2, Cluster 3, Lesson 1: Associating Questions and Data Displays
Data Analysis and Probability Item #18
The examinee can identify which survey strategy will yield the most representative data for a given population.

6a ER Lesson: Level 2, Cluster 3, Lesson 1: Using Strategies to Mentally Add and Subtract
Mental Computation and Estimation Item #14
The examinee can mentally determine the difference when a multiple of 10 is subtracted from a three-digit number.

6b ER Lesson: Level 2, Cluster 5, Lesson 1: Multiplying and Dividing by Tens
Multiplication and Division Item #14
The examinee can multiply a two-digit number by a multiple of 10.

6b ER Lesson: Level 2, Cluster 5, Lesson 2:Multiplying by Two-Digit Numbers Other Than a Tens
Multiplication and Division Item #15
The examinee can multiply two two-digit numbers.

6f ER Lesson: Level 2, Cluster 3, Lesson 1: Adding Decimals With Unlike Place Values
Addition and Subtraction Item #21
The examinee can add decimal values with varying numbers of decimal places.

Focus Items Below Instructional Range

5a ER Lesson: Level 1, Cluster 4, Lesson 1: Representing and Recording 10
Numeration Item #10
The examinee can determine how many more objects are needed to attain 10.

6a ER Lesson: Level 1, Cluster 5, Lesson 3: Using a Hundreds Chart
Numeration Item #12
The examinee can identify missing numbers in a partial hundreds chart.

6f ER Lesson: Level 1, Cluster 4, Lesson 3: Describing and Extending Growing and Shrinking Patterns
Algebra Item #9
The examinee can identify the next element in a geometric pattern displaying stair-step growth.

ID#: 88   Age: 10:8   Year: 5   Test Date: 28/02/2010

7i   ER Lesson: Level 1, Cluster 4, Lesson 2: Picturing Parts That Make a Whole
        Geometry Item #8
        The examinee can select the shape that, when rotated, would fill a gap in another pictured shape.

8a   ER Lesson: Level 1, Cluster 2, Lesson 1: Using Strategies to Mentally Compute Two-Digit Sums
        Mental Computation and Estimation Item #9
        The examinee can mentally add a multiple of 10 and another two-digit number.

8e   ER Lesson: Level 1, Cluster 6, Lesson 2: Determining the Missing Value in an Addition or Subtraction
        Number Sentence
        Algebra Item #8
        The examinee can determine the missing addend in an addition sentence that presents the sum before the equal
        sign.

1d   ER Lesson: Level 2, Cluster 2, Lesson 1: Representing and Completing Multiplication Facts
        Multiplication and Division Item #8
        The examinee can multiply two one-digit numbers for a product greater than 30.

3c   ER Lesson: Level 2, Cluster 3, Lesson 1: Multiplying Two- and Three-Digit Numbers by One-Digit
        Numbers
        Multiplication and Division Item #9
        The examinee can multiply a multiple of 10 by a one-digit number.

Dear Parent/Caregiver,

On 28/02/2010, Lily completed the KeyMaths–3 Diagnostic Assessment - Australian and New Zealand Language Adapted Edition (KeyMaths–3 DA). The KeyMaths–3 DA measures essential mathematical concepts and skills and is intended for individuals aged 4½ through to 21 years. It covers three general maths areas: Basic Concepts, Operations, and Applications. Although the KeyMaths–3 DA includes concepts and skills from simple counting through to Algebra, Lily was assessed on only those items that correspond to her level of functioning.

The Basic Concepts area measures Lily's understanding of
   • numbers, place value, fractions, decimals, and percentages;
   • patterns, equations, and algebraic expressions;
   • shapes, angles, and visual representations;
   • time, money, area, and volume (using the metric system of measurement); and
   • data tables, graphs, charts, probability, and statistics.

The Operations area measures Lily's skill at adding, subtracting, multiplying, and dividing, both with and without pencil and paper. The Applications area measures Lily's skill at solving maths problems and identifying the strategies and operations needed to solve maths problems. Results are used to identify Lily's level of functioning in each area so that a maths instructional programme can be tailored to maximise learning.

Lily's performance in each of the KeyMaths–3 DA areas is described here by comparing her scores with the scores of a large representative sample of individuals in her age group. Results are presented in terms of percentile ranks. A percentile rank indicates the percentage of individuals who scored at or below a particular score. For example, Lily's percentile rank of 19 in the Basic Concepts area indicates that she scored as high as or higher than 19% of the individuals in her age group.

The table below shows Lily's percentile rank and descriptive category corresponding to each of the three KeyMaths–3 DA areas and the Total Test. Information about Lily's performance on essential maths skills and concepts can be helpful in adapting instruction to improve learning.

Area and Total Test	Percentile Rank	Descriptive Category
Basic Concepts	19	average
Operations	27	average
Applications	25	average
Total Test Composite	21	average

Note: NA = not available.

If you have any questions or concerns about the results presented in this letter, please consult the school or organisation that conducted the testing.

Sincerely,