Odd Year

The Wilkie Way Mathematical Number Knowledge & Skills Assessment Screen Four Teacher Guide & Answers

This screening assessment is designed by Charlotte Wilkinson. A private education consultant specialising in the teaching and learning of primary mathematics.
(MOE Accredited ID 654)
The purpose behind the mathematical screening assessment is to find out what your students know to ensure a firm foundation for the building of further mathematical concepts.The screening covers learning statements from year 6 - year 8 of the refreshed curriculum.
The mathematics screened in this assessment are:

The Number System	Writes large numbers, using zero as a place holder. Interprets numbers written as powers of 10. Understands groups of ten in whole numbers. Round to closest 10, 100 or 1000, tenth or hundredth. Understands and uses x10 factor between columns including using powers of 10 (exponents)
Add & Subtract	Uses a mental strategies when appropriate. Uses a standard algorithms for whole number and decimal addition and subtraction. Uses inverse operations. Uses estimation efficiently. Adds and subtracts positive & negative integers.
Multiply & Divide	Knows vocabulary associated with multiplication. Uses a standard algorithm or a cross product array diagram for multi digit multiplication. Uses a standard algorithm for division. Shows remainders as a fraction or a decimal. Uses estimation efficiently. Understands exponents are used to represent repeated multiplication.
Fractions	Can use a benchmark to compare fractions. Finds equivalent fractions and order and compare including mixed numbers and improper fractions. Adds and subtracts fractions with related or unrelated denominators. Finds a fraction of a number and the inverse.
Decimals & Percents	Compares and orders decimals including decimals written in other forms. Estimates addition & subtraction of decimals to the closest whole number. Knows fraction, decimal, percentage conversions. Can find the percentage of a number and the inverse.

This screening assessment can be used to identify groups of students with common weaknesses to create targeted intervention booster groups.

	Mid Level 3	Upper Level 3	Early Level 4	Mid Level 4	Upper level 4	Early Level 5
Overall Score	0 - 5	6 - 25	26 - 60	61 - 79	80 - 94	95 - 100
Whole Number	0 - 1	2 - 6	7 - 15	16 - 19	20- 22	23 -24
Add/Sub	0 - 1	2 - 4	5 - 9	10 - 11	12 -14	
Mult/Div	0 - 1	2 - 5	6 - 10	11 - 14	15 - 18	19 - 20
Fractions	0 - 1	2 - 5	6 - 10	11 - 14	15 - 20	
Decimals %	0 - 1	2 - 6	7 - 12	13 - 16	17 - 20	20 - 22

	Begin Year 7	End Year 7/Begin Year 8	End Year 8
Overall Score	10 - 25	26 - 75	76 - 100
Number System	2 - 6	7 - 20	20 - 24
Add/Sub	2 - 4	5 - 10	11 - 14
Mult/Div	2 - 5	6 - 14	15 - 20
Fractions	2 - 5	6 - 14	15 - 20
Decimals %	2 - 6	7 - 16	17 - 22

Students scoring less than 10% rescreen on Screen 3.

What do you know about the number system?

1. Write the following numbers.

a. forty thousand six hundred and three **40 603**

b. thirty four million nine hundred and seven thousand two hundred and sixty one **34 907 261**

c. five million and twenty **5 000 020**

2. Write the numbers

a. 10^2 **100** **b.** 10^6 **1 000 000** **c.** 10^{-3} **0.001**

3. How many groups of 10 in each of these numbers?

a. 739 **73** **b.** 4857 **485** **c.** 42 585 **4258**

4. Complete the tables by rounding the numbers in the first column.

a. 54 931	**54 930**	**54 900**	**55 000**
b. 36.857	**37**	**36.9**	**36.86**

5. Complete the following:

a. 24.84 x 10 **248.4** **b.** 576 x 100 **57 600** **c.** 6.39 x 1000 **6390**

d. 3000 ÷ 10 **300** **e.** 4396 ÷ 100 **43.96** **f.** 324 ÷ 1000 **0.324**

6. Write the answers

a. 27.8 x 10^2 **2780** **b.** 7.68 x 10^4 **76 800** **c.** 364.7÷ 10^3 **0.3647**

Maximum Score 24		
Q1	3	Student is able to write large numbers and use zero as a place holder.
Q2	3	Student understands the representation of powers of ten
Q3	3	Student understands the multiplicative structure of the number system
Q4	6	Student is able to round whole numbers and decimals to a given place value
Q5	6	Student is able to use the multiplicative structure of the number system.
Q6	3	Student understands multiplicative notation (standard form).

Understanding the multiplicative structure of the number system and the x10 factor between columns allows students to multiply and divide numbers of any size using place value and the basic multiplication facts. It allows students to work flexibly with numbers in their canonical and non canonical forms (renamed). Understanding the x10 factor between columns allows for the rewriting of larger in standard form which makes working with very large numbers feasible.

The understanding is extended to decimal numbers, the number of tenths and hundredths in numbers. While an understanding of fractions assists students with making sense of decimal numbers, the rules of the whole number system apply to decimal numbers.

Writing decimal numbers in standard form continue the pattern of $10 = 10^1$ and $1 = 10^0$ $0.1 = 10^{-1}$ $0.01 = 10^{-2}$

Students must also see numbers in their sequential position. Rounding numbers is required for estimation and the degree of rounding depends on the approximation required.

Understanding all aspects of place value are required for the development of number sense and the ability to work flexibly with numbers.

Resources for Teaching and Learning			
		Maths Aotearoa	**Wilkie Way Resources**
Q1	Can write large numbers and use zero as a place holder.	**Book 3B** Chapter 3,4 **Book 4A** Chapter 7 **Pearson Maths** **Book 3B** Chapter 1	**Teacher Handbooks** Numbers & The Number System **Maths Aotearoa Practice Workbooks:** **Book 3B** 10. Whole Number Place Value **Book 4A** 5. Base 10 Number System
Q2	Can understand the representation of powers of 10	**Book 4a** Chapter 7	
Q3	Can understand of the multiplicative structure of the number system.	**Book 3B** Chapter 3,4 **Book 4A** Chapter 7 **Pearson Maths** **Book 3B** Chapter 1	
Q4	Can round numbers to a given place value	**Book 3B** Chapter 3,4 **Book 4A** Chapter 7 **Pearson Maths** **Book 3B** Chapter 1	
Q5	Can use the x10 structure of the number system.	**Book 4A** Chapter 7 **Pearson Maths** **Book 4A** Chapter 7	
Q6	Can interpret multiplicative notation (standard form).	**Book 4A** Chapter 7 **Pearson Maths** **Book 4A** Chapter 7	

Teacher Handbooks & **Dice & Counter Games** are available from the online store **www.wilkieway.co.nz**

Maths Aotearoa Practice Workbooks are available along with further resources in the members area of www.wilkieway.co.nz (subscription)

Student Resources Numbers & The Number System Phase Three
Place Value Activities
Place Value Games
Place Value Problems

Teacher Professional Learning
Place Value Progressions
Power Point: Place Value, The Heart of the Number System

Maths Aotearoa is available from www.edify.co.nz

What do you know about addition and subtraction?

Solve these equations mentally.

1a. 345 + 198 = **543** **b.** 673 - 199 = **474**

Use a standard algorithm to solve these equations.

2a. 2548 + 764 = **3312** **b.** 3324 - [illegible] = **2748**

3a. 387 + **245** = 632 **b.** [illegible]42 - **456** = 266

4a. 634.8 + 87.66 = **722.46** **b.** 832.4 - 56.82 = **775.58**

Estimate the answer to the following equations to the closest hundred.

5a. 5364 + 883 = **6300** **d.** [illegible]787 - 3472 = **6300**

6. Solve the following equations

a. (- 5 + 8) = **3** **b.** - 4 + (-5) = **-9**

c. 5 - (-7) = **12** **d.** (-9) - (-4) = **-5**

Maximum Score 1[illegible]		
Q1	2	Student uses a[illegible] mental strategy for addition and subtraction. (No score if any evidence of recording anything other than the answer).
Q2	2	Student is able to use a standard algorithm efficiently for addition & subtraction of whole numbers.
Q3	2	Student uses the inverse relationship between addition and subtraction to solve a change unknown equation.
Q4	2	Student is able to use a standard algorithm efficiently for decimal numbers showing correct alignment of columns.
Q5	2	Student is able to use estimation for addition and subtraction. (No score if students solve first then make an estimate).
Q6	1	Student is able to add and subtract positive and negative integers.

Students should be flexible in their use of the number system to add and subtract using place value and the recall of basic facts. They should be confident in their use of a standard written algorithm for addition and subtraction but equally confident in their use of estimation. In today's world of technology, the need to estimate is of high importance as most calculating is carried out by technology (a calculator or spreadsheet). The user must be able to estimate inorder to be able to notice errors in the results.
Addition and subtraction is used as a tool across all strands. It should not take up 'thinking space' when used to solve problems.

Resources for Teaching and Learning			
		Maths Aotearoa	**Wilkie Way Resources**
Q1	Can use an efficient mental strategy when adding or subtracting a number close to 100 or a double.	**Book 3B** Chapter 5 **Book 4A** Chapter 1 **Pearson Maths** **Book 4A** Chapter 1	**Teacher Handbook** Number & The Number System Arithmetic Operations Fractions Decimals & Percentages **Maths Aotearoa Practice Workbooks:** **Book 3B** 11. Addition & Subtraction **Book 4A** 1. Addition & Subtraction 4. Decimal Addition & Subtraction
Q2	Can use a standard algorithm efficiently for addition & subtraction of whole numbers.	**Book 3B** Chapter 5 **Book 4A** Chapter 1 **Pearson Maths** **Book 4A** Chapter 1	
Q3	Can use the inverse relationship between addition and subtraction to solve a change unknown equation.	**Book 3B** Chapter 5 **Book 4A** Chapter 1, 9 **Pearson Maths** **Book 4A** Chapter 1	
Q4	Can use a standard algorithm efficiently for addition & subtraction of decimal numbers.	**Book 4A** Chapter 6 **Pearson Maths** **Book 4A** Chapter 7	
Q5	Can use estimation for whole number addition and subtraction.	**Book 4A** Chapter 1 **Pearson Maths** **Book 4A** Chapter 1	
Q6	Can add and subtract positive and negative integers	**Book 4A** Chapter 3 **Book 4B** Chapter 4 **Pearson Maths** **Book 4A** Chapter 3 **Book 4B** Chapter 4	
Addition and Subtraction is used as a tool in many chapters throughout the books.			

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Maths Aotearoa Practice Workbooks are available along with further resources in the members area of www.wilkieway.co.nz (subscription)

Student Resources - Add & Subtract Phase Three
Addition & Subtraction Problems
Addition & Subtraction Games

Teacher Professional Learning
Addition & Subtraction Progressions & Learning Outcomes
Power Point: Teaching & Learning Basic Facts

Maths Aotearoa is available from www.edify.co.nz

What do you know about multiplication and division?

1a. Write all the factors of 32 **1,2,4,8,16,32**
b. Circle all of the square numbers **24** **(25)** **40** **(64)** **72** **81**
c. What is the lowest common multiple of 2, 4 and 7 **28**
d. What is the square root of 36 **6**
e. What is the hightest common factor of 48 and 72 **8**
f. Circle the prime number 8 18 27 **(37)** 46 63

Solve the following equations and show how you arrived at your answer.
2a. 138 x 24 = **3312** **b.** 257 x 146 = **37 522**
Students may use a standard algorithm or a cross product array diagram.
3a. 446 ÷ 7 = **63 r5** **b.** 2562 ÷ 8 = **320 r3**
Students should be able to use a standard algorithm
4a. 6 x 0.45 = **2.7** **b.** 0.8 x 6.34 = **5.072**

5. Show the remainder as a fraction or decimal
a. 6435 ÷ 6 = **1072.5 1072½** **b.** 2367 ÷ 4 = **591.75 591¾**

Estimate the answer to the following equations to the closest hundred.
6a. 473 x 6 = **3000** **b.** 821 x 9 = **7200**

7a. 576 ÷ 3 = **200** **b.** 2417 ÷ 6 = **400**

Write the answers
8a. 2^3 **8** c. 3^4 **81**

Maximum Score 20		
Q1	6	Student understands the vocabulary factors and multiples , squares, square roots & primes
Q2 **Q3** **Q4**	6	Student uses an efficient strategy, which may include a standard algorithm or a cross product array for multiplication and either a short or long division method
Q5	2	Student understands the remainder in a division can be expressed as a fraction or a decimal
Q6 **Q7**	4	Student is able to use the number system and basic facts to make estimates of multiplication and division.
Q8	2	Student understands exponent notation.

There is considerable language associated with multiplication and division and it is essential students understand and can use the language in order to be able to make sense of the mathematics being asked.Multiplicative strategies require students to understand and use the distributive and associative properties of multiplication. Irrespective of the size of the number the same strategies are applied and rely on place value knowledge and recall of facts. In today's world of technology, the need to estimate is of high importance as most calculating is carried out by technology (a calculator or spreadsheet). The user must be able to estimate in order to be able to notice errors in the results.
Exponents are used to show repeated multiplication in the same way as powers of 10 in place value.

Resources for Teaching and Learning			
		Maths Aotearoa	**Wilkie Way Resources**
Q1	Can demonstrate an understanding of the vocabulary factors and multiples,squares, square roots, prime	**Book 3B** Chapter 8 **Book 4B** Chapter 2 & 3 **Pearson Maths** **Book 3B** Chapter 8 **Book 4B** Chapter 1	**Teacher Handbooks** Arithmetic Operations Numbers & The Number System **Maths Aotearoa Practice Workbooks:** **Book 3B** 12. Extending Multiplication 13. Extending Division. Multiples & Factors **Book 4A** 2. Multiplication & Division **Book 4B** 7. Multiples & Factors 9. Decimal Operations
Q2 **Q3** **Q4**	Can use efficient strategies, including a standard algorithm or a cross product array for multiplication and division	**Book 4A** Chapter 2 & 8 **Pearson Maths** **Book 4A** Chapter 2	
Q5	Understands a remainder can be expressed as a fraction or a decimal.	**Book 3B** Chapter 9 **Book 4A** Chapter 2 **Book 4B** Chapter 6 **Pearson Maths** **Book 3B** Chapter 6, 7 **Book 4A** Chapter 2	
Q6 **Q7**	Can estimate with whole number multiplication and division.	**Book 4A** Chapter 2 **Pearson Maths** **Book 4A** Chapter 2	
Q8	Can demonstrate an understanding of exponent notation.	**Book 4A** Chapter 4 **Book 4B** Chapter 2 **Pearson Maths** **Book 4A** Chapter 4	

Teacher Handbooks & **Dice & Counter Games** are available from the online store **www.wilkieway.co.nz**

Maths Aotearoa Practice Workbooks are available along with further resources in the members area of www.wilkieway.co.nz (subscription)

Student Resources - Multiply & Divide Phase Three
Multiplication & Division Problems
Multiplication & Division Games
Maths Gym - Teaching & Learning Multiplication Tables

Teacher Professional Learning
Multiplication & Division Progressions & Learning Outcomes
Power Point: Teaching & Learning Basic Facts

What do you know about fractions?

1. Circle the fractions grater than ½ $\frac{5}{8}$ $\frac{3}{7}$ $\frac{14}{20}$ $\frac{21}{44}$

2. Choose the correct equivalent fraction

a. $\frac{2}{3}$ $\frac{12}{18}$ **b.** $2\frac{1}{3}$ $\frac{14}{6}$ **c.** $\frac{5}{8}$ $\frac{15}{24}$ **d.** $\frac{7}{4}$ $\frac{21}{12}$

Write these fractions where they belong on the number line.

3a.

4. Add these fractions and write answer in simplest form.

a. $\frac{3}{4} + \frac{3}{8} = 1\frac{1}{8}$ **b.** $\frac{2}{5} + \frac{4}{15} = \frac{2}{3}$ **c.** $\frac{3}{8} + \frac{5}{6} = \frac{15}{24}$

5. Subtract these fractions and write the answer in simplest form.

a. $\frac{4}{5} - \frac{3}{10} = \frac{1}{2}$ **b.** $2\frac{2}{3} - \frac{5}{6} = \frac{15}{6}$ **c.** $\frac{3}{4} - \frac{4}{7} = \frac{5}{28}$

6a. $\frac{3}{4}$ of 32 = **24** **b.** $\frac{5}{8}$ of 64 = **40**

c. $\frac{7}{5}$ of 40 = **56** **d.** $\frac{3}{5}$ of **30** = 18

Maximum Score 20		
Q1	2	Students can use a benchmark to estimate the size of a fraction
Q2	4	Student is able to use proportional adjustments to recognise an equivalent fraction including mixed numbers and improper fractions.
Q3	4	Student is able to order and place fractions with related denominators on a number line.
Q4 Q5	6	Student is able to add and subtraction fractions with related and unrelated denominators and give answers in simplest form.
Q6	4	Student is able to use multiplication and division to find a fraction of a number or the whole number given the fraction.

Students understanding of fractions should have encompassed both continuous and discrete models. They should understand that fractions are numbers that can be compared and ordered and have multiple names. (Understanding of rational numbers).
Working with fractions at this level is reliant on recall of multiplication and division facts and an understanding of multiplicative comparisons for making proportional adjustments.
Special equivalent fractions with a denominator based on groups of ten can be re written as a decimal number obeying the same rules of the number system as whole numbers.
Decimal numbers were invented 1500 years after the whole number system, (as a business tool) because fractions were hard to work with.

Resources for Teaching and Learning			
		Maths Aotearoa	**Wilkie Way Resources**
Q1	Can benchmark fractions to estimate the size of the fraction	**Book 4A** Chapter 5 **Pearson Maths** **Book 4A** Chapter 5	**Teacher Handbook** Fractions Decimals & Percentages **Dice & Counter Games:** Set 12 Fractions Set 15 Fractions ,Decimals & Percentages **Maths Aotearoa Practice Workbooks:** **Book 3B** 14. Fractions **Book 4A** 3. Fractions, Decimals and Percentages **Book 4B** 8. Fractions, Decimals & Percentages 10. Proportions & Ratios
Q2	Can make proportional adjustments to recognise an equivalent fraction.	**Book 3B** Chapter 9 **Book 4A** Chapter 5 **Pearson Maths** **Book 4B** Chapter 3, 22	
Q3	Can compare and order related denominator fraction on a number line.	**Book 4A** Chapter 5 **Pearson Maths** **Book 4A** Chapter 5	
Q4 **Q5**	Can add and subtract fractions with related and unrelated denominators	**Book 4B** Chapter 5,7 **Pearson Maths** **Book 4B** Chapter 3	
Q6	Can use multiplication and division to find a fraction of a number or the reverse	**Book 3B** Chapter 9 **Book 4A** Chapter 5 **Pearson Maths** **Book 4A** Chapter 5	

Teacher Handbooks & **Dice & Counter Games** are available from the online store **www.wilkieway.co.nz**

Maths Aotearoa Practice Workbooks are available along with further resources in the members area of www.wilkieway.co.nz (subscription)

Student Resources - Fractions Decimals & Percentages Phase Three
Fraction Cards
Fraction Posters - Understanding Fractions
Fraction Problems

Teacher Professional Learning
Fractions Progressions & Learning Outcomes (included in Multiplication & Division)
Power Point: Fractions & The Learning Progressions

Maths Aotearoa is available from www.edify.co.nz

What do you know about decimals and percentages?

1. Write these numbers in order from smallest to largest.

a. 0.35 0.276 0.5 0.068 0.91 **0.068 0.276 0.35 0.5 0.9**

b. 4.5 4.54 4.054 4.504 4.45 **4.054 4.45 4.5 4.504 4.54**

c. 0.31 $^{3}/_{10}$ 3 x 10^{-2} **3 x 10^{-2} $^{3}/_{10}$ 0.31**

d. ¾ 60% 0.8 7 x 10^{-1} **60% 7 x 10^{-1} ¾ 0.8**

2. Estimate the answer to the closest whole number

a. 34.6+ 24.7 = **60** **b.** 42.86 + 34.99 = **78**

c. 79.22 - 34.9 = **44** **d.** 68.76 - 21.99 = **47**

3. Write these fractions as decimal numbers

a. $^{3}/_{5}$ **0.6** **b.** $^{5}/_{20}$ **0.25** **c.** $^{25}/_{4}$ **6.25** **d.** ⅝ **0.625**

4. Write these fractions as a percentage.

a. ⅛ **12.5%** **b.** ⅘ **80%** **c.** $^{13}/_{25}$ **52%** **d.** $^{9}/_{20}$ **45%**

5. Find

a. 20% of 142 **28.4** **b.** 60% of 242 **145.2** **c.** 25% of 96 **= 24**

6. What is the whole amount?

a. 25% of **240** = 60 **b.** 75% of **18** = 36 **c.** 20% of **300** = 60

Maximum Score 22		
Q1	4	Student is able to compare decimal numbers up to three decimal places and compare decimals written in different forms.
Q2	4	Student is able to estimate decimal addition and subtraction to the closest whole number.
Q3	4	Student is able to convert fractions to decimals.
Q4	4	Student is able to convert fractions to percentages.
Q5	3	Student is able to find a percentage of a quantity using fractions and place value knowledge.
Q6	3	Student can find the whole amount given the percentage amount.

Decimals are invented as special fractionswith denominators a power of 10. They can be written and operated on following the same rules as the whole number system. Students need to understand decimal can be written in equivalent forms - fractions, percentages and expressed as negative powers of 10.

To make sense of decimal numbers students need to have extended their knowledge of whole number place value into a situation that requires an understanding of fractions as rational numbers that can be compared and ordered.

Using fractions and decimals in the context of measurement provides a meaningful context for students to see fractions in a continuous model.

Percentages use fractions as a representation of a proportion. Percent means out of one hundred. The equivalent fraction must be able to have a denominator of one hundred. They are used to express frequency and probability.

Students need to become flexible in their use of fractions, decimals and percentages choosing whichever version is the most efficient for the problem solution.

Resources for Teaching and Learning			
		Maths Aotearoa	**Wilkie Way Resources**
Q1	Can compare and order decimals up to three decimal places. including decimals written in different forms.	**Book 3B** Chapters 10, 11 **Book 4A** Chapter 7 **Pearson Maths** **Book 3B** Chapter11,13 **Book 4A** Chapter 17 - *in the context of mass*	**Teacher Handbooks** Numbers & The Number System Fractions Decimals & Percentages **Dice & Counter Games:** Set 15 Fractions, Decimals & Percentages **Maths Aotearoa Practice Workbooks:** **Book 3B** 15. Decimal Fractions **Book 4A** 3. Fractions, Decimals & Percentages 4. Decimal Addition & Subtraction **Book 4B** 8. Fractions Decimals & Percentages 9. Decimal Operations
Q2	Can use estimation when adding and subtracting decimal numbers.	**Book 3B** Chapter 12 **Book 4A** Chapter 6 **Pearson Maths** **Book 3B** Chapter14 **Book 4A** Chapter 6, 17 - *in the context of mass*	
Q3	Can convert fractions to decimals.	**Book 4A** Chapter 5 **Book 4B** Chapter 5 **Pearson Maths** **Book 4A** Chapter 5 **Book 4B** Chapter 4	
Q4	Can convert fractions to percentages.	**Book 4A** Chapter 5 **Book 4B** Chapter 5 **Pearson Maths** **Book 4A** Chapter 5 **Book 4B** Chapter 5	
Q5	Can find a percentage of a quantity using fractions and place value knowledge.	**Book 4A** Chapter 5 **Book 4B** Chapter 5 **Pearson Maths** **Book 4A** Chapter 5 **Book 4B** Chapter 3	
Q6	Can find the whole amount given the percentage	**Book 4B** Chapter 5	

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Student Resources - Fractions Decimals & Percentages Phase Three
Fraction Cards
Decimats
Fraction Posters - Understanding Fractions
Fraction Decimals & Percentage Problems

Teacher Professional Learning
Fractions Progressions & Learning Outcomes (included in Multiplication & Division)
Place Value Progressions
Power Point: Fractions & The Learning Progressions

Administering the screening assessment.

This assessment is not timed. Sections can be completed at different times rather than taking the whole assessment screen in one go. Use in term 1 and repeat in term 4 (use same booklet and a different colour pen), to show knowledge built over the year.

This screen covers the expectations of students working in year 7 and 8 of the refreshed curriculum. Progress in building the knowledge and skills for continued progress in year 9 can be assessed using this screen.

An expected score for beginning and end of year 7 and 8 is shown on the front of this teacher guide.
Curriculum levels are currently shown to allow for continuity in data comparison as schools transistion to year comparisons rather than level comparison.

Students with a specific reading difficulty may have a reader to ensure they understand the question. Students with a specific writing difficulty may have a writer. A writer records exactly what a student says.

Each page of the assessment screens for a particular area of mathematical knowledge. Each page has specific marks (one mark per correct answer). The lowest weighting on the addition & subtraction section reflects the need to be working multiplicatively most of the time in level 4 topics.

Within each page, the questions target smaller items of knowledge or skills within the particular area of mathematical knowledge. Information on each set of questions is given at the end of each section in this teacher guide. If students make consistent errors then this particular area of knowledge is weak or has not yet been met in the classroom programme and requires specific targeted teaching and learning experiences.

Maths Aotearoa and Wilkie Way resources have been identified for further teaching and learning experiences. A single chapter often covers multiple areas as areas should not be taught in isolation but as connected knowledge. (Pearson Maths links have been included but this series of books have been replaced with Maths Aotearoa)
Book Chapters are referenced to MOE 'Figure it Out' books in the Pearson Mathematics and Maths Aotearoa Teacher Guides.

Throughout the series use of the number knowledge will be found in chapters in measurement, algebra, geometry, statisitics and probability.

An estimation may show a recording of rounding but no calculating and then rounding the answer should be evident. Students may need extra paper or use the inside front cover or back cover to complete calculations showing their workings.

To find out more information on the application of additive and multiplicative thinking to solve problems use the Primary Maths Assessment Tool (PMAT) published by Edify. (ISBN 9780947496562) It would be expected students working at the end of year 7 or 8 knowledge would be assessed using Section 6 of this problem solving assessment tool. Beginning Year 7, section 5 may be more appropriate.

These assessments are primarily for use in identifying next teaching and learning steps and do not necessarily need to be matched to curriculum levels except if used for reporting purposes.

Maths Aotearoa and PMAT are available from www.edify.co.nz

