



# The Wilkie Way

## NZ Curriculum Screening Assessment

### Teacher Guide & Answers

### Mathematical Number Knowledge & Skills

### Level 3

(show where student is operating between  
Level 2 and Early Level 4)

### Odd Year

- Whole Number
- Addition & Subtraction
- Multiplication & Division
- Fractions
- Decimals & Percentages

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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 will also show up specific weak areas within a level band that will require further teaching and learning experiences.

The areas of mathematics screened in this level 3 knowledge and skills assessment are:

- Whole Numbers** Place value, grouping & sequencing (rounding), large numbers.
- Addition & Subtraction** Basic addition & subtraction facts including using inverse operations. At level 3 students should select an efficient method of carrying out an addition or subtraction which should include both mental strategies and written algorithms. They should be able to make an estimation.
- Multiplication & Division** Basic multiplication and division facts including inverse operations. At level 3 students should be able to complete double digit by single digit multiplication and division using simple multiplicative strategies based on doubling and halving or the distributive property of multiplication.
- Fractions** Fractions of a shape, fractions of a set, comparing, ordering fractions on a number line (including simple equivalents and improper fractions), fractions as operators.
- Decimals & Percentages** Place value, grouping and sequencing, common fraction decimal conversion, common fraction percentage conversion.

This assessment screen can be used to identify groups of students with common weaknesses to create targeted intervention groups. Students scoring in the mid level 2 band may benefit from being re-screened using the level 2 assessment screen. Students scoring in the level 4 band should be re-screened using the Level 4 assessment screen.

	Mid Level 2	Upper Level 2	Early Level 3	Mid Level 3	Upper Level 3	Early Level 4
<b>Overall Score</b>	0 - 12	13 - 34	35 - 56	57 - 80	81 - 94	95 - 100
<b>Whole Number</b>	0 - 7	8 - 11	12 - 14	15 - 16	17 - 19	20
<b>Add/Sub</b>	0 - 8	9 - 11	12 - 13	14 - 16	17 - 19	20
<b>Mult/Div</b>	0 - 8	9 - 11	12 - 13	14 - 16	17 - 19	20
<b>Fractions</b>	0 - 5	6 - 7	8 - 10	11 - 16	17 - 19	20
<b>Decimals</b>	0	1 - 5	6 - 8	9 - 16	17 - 18	19 - 20

## Administering the screening assessment.

This assessment is not timed. Expect students to take around 30 - 60 minutes to complete. Sections can be completed at different times rather than taking the whole assessment screen in one go.

Students with a specific reading difficulty may have a reader. The reader may not explain, only read the words.

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 a score of 20 marks (one mark per correct answer). The even weighting between sections reflects the need for students to be making progress in all aspects to provide a broad foundation for further learning.

If a student scores low on any particular page then this indicates an area of general weakness for this student requiring further teaching and learning experiences.

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 page in this teacher guide. If students make consistent errors then this particular area of knowledge is weak and requires specific targeted teaching and learning practices. For each targeted area of learning, Pearson Mathematics and Wilkie Way resources have been identified for further teaching and learning experiences. Pearson Mathematics is also linked to Figure it Out activities chapter by chapter (see back of the Pearson Mathematics Teacher Guide).

On the addition and subtraction page when a question asked for a solution to be given, the answer should be recorded other than the answer should be made. An estimation method with recording of rounding but no exact calculating should be evidenced. All other questions on the addition and subtraction page and the multiplication and division page should show an efficient strategy which may be the written algorithm.

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 978094749562) - [www.edify.co.nz](http://www.edify.co.nz). It would be expected that students working within level 3 knowledge would be assessed using Section 5 of the assessment tool.

This Wilkie Way Assessment Screen and PMAT are both included in the Beagle suite of assessment tools - a cloud based solution supporting NZ schools to raise student achievement and close the gap, using assessment data to drive instruction and save time in analysing and interpreting results.

[www.beagleinnovations.com](http://www.beagleinnovations.com)

Pearson Mathematics is available from [www.edify.co.nz](http://www.edify.co.nz) or download an order form from [www.thewilkieaway.co.nz](http://www.thewilkieaway.co.nz)

Further copies of this teacher guide can be accessed from the subscription area of [www.thewilkieaway.co.nz](http://www.thewilkieaway.co.nz)

## What do you know about whole numbers?

1. Write the value of the underlined digit in each of these numbers in words.

- a. 6480 **four hundreds**    b. 34 796 **thirty thousands**  
 c. 280 276 **zero thousands**

2. Write the following numbers.

- a. twenty thousand three hundred and forty six    **20 346**  
 b. forty three million six hundred thousand and twenty three    **43 600 023**  
 c. one hundred and two million, sixty eight thousand and four    **102 068 004**

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

- a. 358    **35**    b. 2459    **245**    c. 35 403    **3540**

4. How many whole groups of 100 in each of these numbers?

- a. 3492    **34**    b. 27 450    **274**    c. 63 064    **630**

5. Round these numbers to closest hundred

- a. 734    **700**    b. 843    **800**    c. 255    **300**    d. 627    **600**

6. Round these numbers to the closest ten (decade)

- a. 378    **380**    b. 843    **840**    c. 255    **260**    d. 627    **630**

Maximum Score 20		
<b>Q1</b>	3	Student knows column names and values of whole numbers up to 5 digits.
<b>Q2</b>	3	Student is able to read and write larger numbers and use of zero as a place holder.
<b>Q3&amp;4</b>	6	Student understands the multiplicative structure of the number system, groups of ten repeatedly nesting inside groups of ten.
<b>Q5&amp;6</b>	8	Student is able to round 3 digit numbers to the closest hundred and to the closest decade, knowing the convention of rounding up when the digit is a five.
<p>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 numbers in standard form (using exponents) which makes working with larger numbers feasible.</p> <p>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.</p> <p>Understanding all aspects of place value are required for the development of number sense and the ability to work flexibly with numbers.</p>		

<b>Resources for Teaching and Learning</b>			
		<b>Pearson Mathematics</b>	<b>Wilkie Way</b>
<b>Q1</b>	To know column names and values of whole numbers up to 5 digits.	<b>Book 3a</b> Chapter 3 <b>Book 3b</b> Chapter 1	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapters 3 - 5
<b>Q2</b>	To be able to read and write larger numbers and use of zero as a place holder.	<b>Book 3a</b> Chapter 3 <b>Book 3b</b> Chapter 1	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapters 3 - 5
<b>Q3</b> <b>Q4</b>	To develop an understanding of the multiplicative structure of the number system, groups of ten repeatedly nesting inside groups of ten.	<b>Book 3b</b> Chapter 1, 2	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 8
<b>Q5</b> <b>Q6</b>	To be able to round 3 digit numbers to the closest hundred and to the closest decade, knowing the convention of rounding up when the digit is a five.	<b>Book 3a</b> Chapter 3	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 8

Pearson Mathematics chapters referenced to figure it Out resources in Pearson Mathematics Teacher Guides.

**Available from** [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz) members content area (subscription).

**Problems:** Develop conceptual understanding  
**Knowledge Activities:** Place value worksheets & games  
**Planning & Assessment:** Place value progressions  
**Practice Workbooks:** Aligned to Pearson book chapters

**Teacher Handbook Series: No. & The Number System**  
 is available from the online store [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz)

### **Pearson Mathematics Maintenance Workbooks:**

Each book provides maintenance work for knowledge and skills (across all strands) as well as problem solving.

Level 3a.  
 Level 3b.

**What do you know about addition and subtraction?  
Complete the following equations.**

- 1a.  $7 + 8 = 15$   
c.  $9 + 7 = 16$   
e.  $6 + 8 = 14$

- b.  $26 + 7 = 33$   
d.  $68 + 6 = 74$   
f.  $35 + 8 = 43$

- 2a.  $17 - 9 = 8$   
c.  $13 - 7 = 6$   
e.  $14 - 5 = 9$

- b.  $62 - 7 = 55$   
d.  $53 - 5 = 48$   
f.  $34 - 7 = 27$

**Solve these equations mentally.** (No marks if any recording other than answer made).

- 3a.  $64 + 29 = 93$                       b.  $75 - 19 = 56$

**Solve the following equations efficiently and show how you arrived at your answer.**

**Solution should show an efficient method as used.**

- 4a.  $58 + 26 = 84$   
 $50 + 20 + 8 + 6$   
 $58 + 2 + 24$

- b.  $268 + 14 = 282$   
 $268 + 32 = 300$   
 $300 + 150 + 18 + 4$

Standard algorithm

- 5a.  $63 - 26 = 37$   
 $63 - 20 = 43$   
 $43 - 6 = 37$

- b.  $352 - 268 = 84$   
 Standard algorithm

**Estimate the answers to the closest hundred.**

- 6a.  $584 + 216 = 800$                       b.  $724 - 278 = 446$

**Maximum Score 20**

<b>Q1&amp;2</b>	12	Student recalls basic addition & subtraction facts including using to add a single digit to a double digit. Understands use of signs & symbols in a linear equation.
<b>Q3</b>	2	Student uses an efficient mental additive strategy with 2 digit numbers. (no score if evidence of recording anything other than the answer).
<b>Q4</b>	2	Student uses efficient strategies for addition that may include a standard algorithm.
<b>Q5</b>	2	Student uses efficient strategies for subtraction that may include a standard algorithm.
<b>Q6</b>	2	Student is able to estimate three digit addition & subtraction to closest 100.

Students should be able to add and subtract a single digit without resorting to counting on or counting back. They should show an understanding of inverse relationships. Students should be able to work mentally with two digit numbers where one of the numbers is close to a tens number (rounding & compensating). When adding and subtracting students should be able to select an efficient method which should also include the standard written algorithm.  
 Students should understand what is meant by estimation and use their rounding knowledge to make an estimation for addition and subtraction. This skill is essential when using a calculator to make calculations.

Resources for Teaching and Learning			
		Pearson Mathematics	Wilkie Way
Q1 Q2	To practice recall of basic addition & subtraction facts including using to add a single digit to a double digit. To show an understanding of signs & symbols in a linear equation.	<b>Book 2a</b> Chapter 11, 15, 16 <b>Book 2b</b> Chapter 1 <b>Book 3a</b> Chapter 1	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 4, 7 <b>Dice &amp; Counter Games: Set 9</b>
Q3	To develop efficient mental strategies for addition and subtraction.	<b>Book 2b</b> Chapter 2, 3 <b>Book 3a</b> Chapter 1, 2	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 12
Q4	To select an efficient strategy including a standard algorithm for addition.	<b>Book 3a</b> Chapter 1, 15 <b>Book 3b</b> Chapter 3 <b>Book 4a</b> Chapter 1	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 2
Q5	To select an efficient strategy including a standard algorithm for subtraction.	<b>Book 3a</b> Chapter 2, 1 <b>Book 3b</b> Chapter 3 <b>Book 4a</b> Chapter 1	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 12
Q6	To be able to estimate an answer to an addition or subtraction problem.	Estimation is promoted in <b>Books 2a - 4b</b>	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 11

Pearson Mathematics chapters referenced to Figure it Out resources in Pearson Mathematics Teacher Guides.

Available from [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz) members content area (subscription):

**Problems:** To develop conceptual understanding.

**Knowledge Activities:** Addition & subtraction games.

**Planning & Assessment:** Addition & subtraction progressions.

**Professional Learning:** PowerPoint - Teaching & Learning Basic Facts.

**Practice Workbooks:** Aligned to Pearson book chapters.

**Teacher Handbook Series: No. & The Number System**

**Dice & Counter Games** are all available from the online store [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz)

**Pearson Mathematics Maintenance Workbooks:**

Each book provides maintenance work for knowledge and skills (across all strands) as well as problem solving.

Level 3a.

Level 3b.

## What do you know about multiplication and division?

Complete the following equations.

1a.  $3 \times 6 = 18$

b.  $6 \times 7 = 42$

c.  $4 \times 8 = 32$

d.  $9 \times 6 = 54$

e.  $7 \times 5 = 35$

f.  $8 \times 8 = 64$

2a.  $24 \div 4 = 6$

b.  $48 \div 6 = 8$

c.  $36 \div 4 = 9$

d.  $56 \div 7 = 8$

e.  $24 \div 3 = 8$

f.  $36 \div 6 = 6$

Solve the following equations and show how you arrived at your answer.

3a.  $14 \times 4 = 56$

$7 \times 8$

$(10 \times 4) + (4 \times 4)$

$(14 \times 2) + (14 \times 2)$

b.  $24 \times 5 = 120$

$24 \times 10 \div 2$

$(25 \times 5) - 5$

$(20 \times 5) + (4 \times 5)$

4a.  $99 \times 6 = 594$

$100 \times 6 - 6$

$(90 \times 6) + (9 \times 6)$

b.  $26 \times 2 = 52$

$(25 \times 2) + (1 \times 2)$

$(20 \times 2) + (6 \times 2)$

$(10 \times 2) \times 2$

5a.  $72 \div 4 = 18$

$72 \div 2 \div 2$

$(40 \div 4) + (32 \div 4)$

b.  $84 \div 6 = 14$

$84 \div 2 \div 3$

$(60 \div 6) + (24 \div 6)$

Uses knowledge  $84 \div 12 = 7$

6a.  $670 \div 10 = 67$

$67 \times 10$

b.  $160 \div 5 = 32$

$160 \div 10 \times 2$

Maths Score 20		
Q1	6	Student recalls basic multiplication facts. Student shows an understanding of signs & symbols in a linear equation.
Q2	6	Student understands division as the inverse of multiplication and uses multiplication facts to recall divisions. Student shows an understanding of signs & symbols in a linear equation.
Q3&4	4	Student uses an efficient strategy or a standard algorithm to multiply a double digit number by a single digit number.
Q5&6	4	Student uses an efficient strategy or a standard algorithm to divide a double digit number by a single digit number.

The recall of multiplication facts will affect the range of multiplicative strategies students are able to make use of. Multiplicative strategies require students to understand and use the distributive and associative properties of multiplication including doubling and halving. Irrespective of the size of the number the same strategies are applied and rely on place value knowledge and recall of facts. Limited recall of multiplication facts may limit students to using repeated doubling as a favoured strategy. Rote recall of facts will not necessarily lead to development of multiplicative thinking.

## Resources for Teaching and Learning

		Pearson Mathematics	Wilkie Way
<b>Q1</b>	To practice recall of basic multiplication facts. To show an understanding of signs & symbols in a linear equation.	<b>Book 3a</b> Chapter 4, 5, 6, 15 <b>Book 3a</b> Chapter 26 - <i>in the context of area</i> <b>Book 3b</b> Chapter 4 <b>Book 3b</b> Chapter 17 - <i>in the context of area &amp; volume</i>	<b>Teacher Handbook Series: Arithmetic Operations</b> Chapters 5 & 9 <b>Dice &amp; Counter Games</b> Sets 5, 7, 10, 13
<b>Q2</b>	To develop & use the understanding of division as the inverse of multiplication.	<b>Book 3a</b> Chapter 7, 15 <b>Book 3b</b> Chapter 8	<b>Teacher Handbook Series: Arithmetic Operations</b> Chapters 5 & 9 <b>Dice &amp; Counter Games</b> Sets 8, 11, 14
<b>Q3</b> <b>Q4</b>	To use an efficient strategy or a standard algorithm to multiply a double digit number by a single digit number.	<b>Book 3b</b> Chapter 4, 5, 6, 8 <b>Book 3b</b> Chapter 24 - <i>in the context of length</i> <b>Book 4a</b> Chapter 2	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 13
<b>Q5</b> <b>Q6</b>	To use an efficient strategy or a standard algorithm to divide a double digit number by a single digit number.	<b>Book 3b</b> Chapter 7, 8 <b>Book 4a</b> Chapter 2	<b>Teacher Handbook Series: No. &amp; The Number System</b> Chapter 13

Pearson Mathematics chapters referenced to Figure it Out resources in Pearson Mathematics Teacher Guides

Activities from [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz) members content area (subscription):

**Professions:** To develop conceptual understanding.

**Knowledge Activities:** Multiplication & division games.

**Planning & Assessment:** Multiplication & division progressions.

**Professional Learning:** PowerPoint - Teaching & Learning Basic Facts.

**Practice Workbooks:** Aligned to Pearson book chapters.

**Teacher Handbook Series:** **No. & The Number System.**  
**Arithmetic Operations.**

**Dice & Counter Games** are all available from the online store [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz)

### Pearson Mathematics Maintenance Workbooks:

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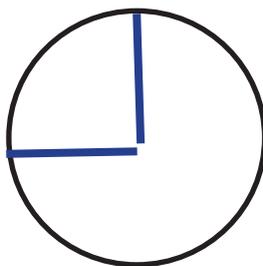
Level 3a.

Level 3b.

## What do you know about fractions?

Show the given fraction by colouring the fraction of the shape or set.

1a. Colour  $\frac{1}{4}$  of the circle



1b. Colour  $\frac{3}{8}$  of the rectangle



2a. Colour  $\frac{1}{4}$  of the counters

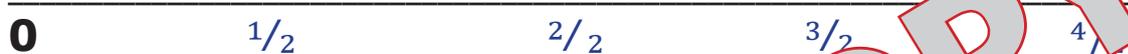


2b. Colour  $\frac{2}{3}$  of the counters

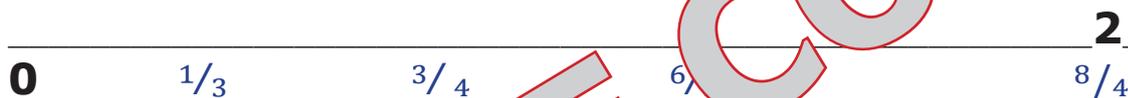


Write these fractions where they belong on the number line

3a.  $\frac{1}{2}$     b.  $\frac{2}{2}$     c.  $\frac{3}{2}$     d.  $\frac{4}{2}$



4a.  $\frac{1}{3}$     b.  $\frac{6}{5}$     c.  $\frac{3}{4}$     d.  $\frac{8}{4}$



Choose the fraction from the table equivalent to the fraction given.

5a.  $\frac{3}{4}$      $\frac{6}{8}$     b.  $\frac{2}{3}$     c.  $\frac{5}{8}$      $\frac{15}{24}$     d.  $\frac{4}{5}$      $\frac{12}{15}$

Answer the following questions.

6a. What is  $\frac{1}{6}$  of 24    b. What is  $\frac{3}{4}$  of 32    **24**

c. What is  $\frac{1}{5}$  of 50    **10**    d. What is  $\frac{4}{7}$  of 56    **32**

Maximum score: 20

Q1    2    Student represents a unit fraction & non unit fraction of a region (continuous representation).

Q2    2    Student represents a unit fraction & non unit fraction of a set of objects (discrete representation).

Q3    4    Student is able to order halves on a number line.

Q4    4    Student is able to benchmark common fractions and position them on a number line.

Q5    4    Student is able to identify equivalent fractions.

Q6    4    Student is able to use multiplication & division to find a fraction of a number.

Students understanding of fractions should have developed into an understanding of the numerator and denominator functions in a written fraction in both a continuous and discrete representation. Students should understand fractions as an extension to the whole number system on their way to developing a full understanding of rational numbers. Understanding rational numbers means students understand there are an infinite number of numbers between numbers and every number has multiple names. Students need to see and use the relationship between multiplication, division and fractions in order to develop proportional reasoning. Students need to be able to use their multiplication facts to make proportional adjustments to make equivalent fractions.

## Resources for Teaching and Learning

		Pearson Mathematics	Wilkie Way
<b>Q1</b>	To represent a unit fraction & non unit fraction of a region (continuous representation).	<b>Book 2b</b> Chapter 12 <b>Book 3a</b> Chapter 8	<b>Teacher Handbook: Fractions Decimals &amp; Percentages.</b> Chapter 5 & 6 <b>Dice &amp; Counter Games:</b> Set 6
<b>Q2</b>	To represent a unit fraction & non unit fraction of a set of objects (discrete representation).	<b>Book 2b</b> Chapter 12 <b>Book 3a</b> Chapter 8 <b>Book 3b</b> Chapter 7	<b>Teacher Handbook: Fractions Decimals &amp; Percentages.</b> Chapter 5 & 6 <b>Dice &amp; Counter Games:</b> Set 12
<b>Q3</b>	To be able to order halves on a number line	<b>Book 2a</b> Chapter 13 <b>Book 3b</b> Chapter 9	<b>Teacher Handbook: Fractions Decimals &amp; Percentages.</b> Chapter 7 <b>Dice &amp; Counter Games:</b> Sets 6, 12
<b>Q4</b>	To be able to benchmark common fractions and position them on a number line.	<b>Book 3b</b> Chapter 9	<b>Teacher Handbook: Fractions Decimals &amp; Percentages.</b> Chapter 7 <b>Dice &amp; Counter Games:</b> Set 6
<b>Q5</b>	To be able to identify equivalent fractions.	<b>Book 3b</b> Chapter 9	<b>Teacher Handbook: Fractions Decimals &amp; Percentages.</b> Chapter 9 <b>Dice &amp; Counter Games:</b> Set 12
<b>Q6</b>	To be able to use multiplication & division to find a fraction of a number.	<b>Book 3b</b> Chapter 9 <b>Book 4a</b> Chapter 5	<b>Teacher Handbook: Fractions Decimals &amp; Percentages.</b> Chapter 9, 11, <b>Dice &amp; Counter Games:</b> Sets 12, 15

Pearson Mathematics chapters referenced to Figure it Out resources in Pearson Mathematics Teacher Guides.

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**Problems:** To develop conceptual understanding.

**Knowledge Activities:** Multiplication & division games.

**Planning & Assessment:** Multiplication & division progressions.

**Professional Learning:** PowerPoint - Teaching & Learning Basic Facts.

**Practice Workbooks:** Aligned to Pearson book chapters.

**Teacher Handbook Series: Fractions Decimals & Percentages.**

**Dice & Counter Games** are all available from the online store [www.thewilkieway.co.nz](http://www.thewilkieway.co.nz)

**Pearson Mathematics Maintenance Workbooks:**

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Level 3a.

Level 3b.

## What do you know about decimals and percentages?

1. Write the value of the underlined digit in each of these numbers in words.

- a. 2.3 **three tenths**                      b. 3.86 **eight tenths**  
 c. 25.78 **eight hundredths**              d. 2.236 **six thousandths**

2. Write these numbers in sequence from smallest to largest.

- a. 0.3    0.26    0.6    0.07    0.45  
**0.07    0.26    0.3    0.45    0.6**  
 b. 0.65    0.543    0.8    0.756    0.005  
**0.005    0.543    0.65    0.756    0.8**

3. How many tenths in each of these numbers?

- a. 0.62 **6**                      b. 3.4 **34**                      c. 6.7 **67**

4. How many hundredths in each of these numbers?

- a. 0.35 **35**                      b. 0.1 **10**                      c. 3.6 **360**

5. Write these fractions as decimal numbers.

- a.  $\frac{1}{2}$  **0.5**                      b.  $\frac{1}{4}$  **0.25**                      c.  $\frac{1}{5}$  **0.2**                      d.  $\frac{15}{10}$  **1.5**

6. Write these fractions as a percentage.

- a.  $\frac{1}{2}$  **50%**                      b.  $\frac{3}{4}$  **75%**                      c.  $\frac{3}{10}$  **30%**                      d.  $\frac{8}{20}$  **40%**

Maximum Score 20		
Q1	4	Student is able to name decimal columns up to 3 decimal places.
Q2	2	Student is able to order decimal numbers up to 3 place decimals.
Q3&4	6	Student understand the multiplicative structure of decimals.
Q5	4	Student is able to convert common fractions to decimals.
Q6	4	Student is able convert fractions to simple percentages.
<p>Naming the columns is a linguistic understanding which is a foundation requirement requiring an understanding of fraction names. When ordering decimals students require an understanding of the fractional equivalence of the place value. The most common mistake is the use of whole number thinking where the number of digits makes a number bigger. Decimals are equivalent fractions based on groups of ten and contribute to a student's developing understanding of rational numbers.</p> <p>Common conversions between fractions, decimals and percentages shows knowledge but not necessarily understanding.</p>		

Resources for Teaching and Learning			
		<b>Pearson Mathematics</b>	<b>Wilkie Way</b>
<b>Q1</b>	To be able to name decimal columns up to 3 decimal places.	<b>Book 3a</b> Chapters 10, 11 <b>Book 3b</b> Chapter 10, 11, 13, 14	<b>Teacher Handbook Series: No. &amp; The Number System.</b> Chapter 15
<b>Q2</b>	To be able to order decimal numbers up to 3 place decimals.	<b>Book 3a</b> Chapters 10 <b>Book 3b</b> Chapter 10, 11, 13	<b>Teacher Handbook Series: No &amp; The Number System.</b> Chapter 15
<b>Q3</b> <b>Q4</b>	To develop an understanding of the multiplicative structure of decimals.	<b>Book 3a</b> Chapter 9 - <i>in the context of measurement</i> <b>Book 3b</b> Chapter 23 - <i>in the context of measurement</i> <b>Book 3b</b> Chapter 24 - <i>in the context of length</i>	<b>Teacher Handbook Series: Fractions Decimals &amp; Percentages.</b> Chapter 8
<b>Q5</b>	To be able to convert common fractions to decimals.	<b>Book 3a</b> Chapter 9 - <i>in the context of measurement</i> <b>Book 3b</b> Chapter 10, 11, 13 <b>Book 4a</b> Chapter 5	<b>Teacher Handbook Series: Fractions Decimals &amp; Percentages.</b> Chapter 8 <b>Dice &amp; Counter Games:</b> Set 15
<b>Q6</b>	To be able to convert fractions to simple percentages.	<b>Book 3b</b> Chapter 10, 11, 13 <b>Book 4a</b> Chapter 5	<b>Teacher Handbook Series: Fractions Decimals &amp; Percentages.</b> Chapter 10 <b>Dice &amp; Counter Games:</b> Set 15

Pearson Mathematics chapters referenced to Figure it Out resources in Pearson Mathematics Teacher Guides.

Available from [www.thewilkieWAY.co.nz](http://www.thewilkieWAY.co.nz) members content area (subscription):

**Problems:** To develop conceptual understanding.

**Knowledge Activities:** Multiplication & division games.

**Planning & Assessment:** Multiplication & division progressions.

**Professional Learning:** PowerPoint - Teaching & Learning Basic Facts.

**Practice Workbooks:** Aligned to Pearson book chapters.

**Teacher Handbook Series: No. & The Number System**

**Fractions Decimals & Percentages.**

**Dice & Counter Games** are all available from the online store [www.thewilkieWAY.co.nz](http://www.thewilkieWAY.co.nz)

**Pearson Mathematics Maintenance Workbooks:**

Each book provides maintenance work for knowledge and skills (across all strands) as well as problem solving.

Level 3a.

Level 3b.