New Wave
Number and Algebra

This book belongs to:

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TONY DOYLE

New wave Number and Algebra *(Year 4)*

Titles available in this series:

New wave Number and Algebra *(Foundation)*
New wave Number and Algebra *(Year 1)*
New wave Number and Algebra *(Year 2)*
New wave Number and Algebra *(Year 3)*
New wave Number and Algebra *(Year 4)*
New wave Number and Algebra *(Year 5)*
New wave Number and Algebra *(Year 6)*

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FOREWORD

The Australian Curriculum – Mathematics is organised around three content strands. Number and Algebra is the first strand. This strand is then arranged under four content areas–Number and place value, Fractions and decimals, Money and financial mathematics, and Patterns and algebra. Each content area is organised around a series of content descriptions and the pages of this book reflect these 13 descriptions. Many of the content descriptions are linked to each other and natural relationships between aspects of number will appear. Not all content descriptions are equally represented.

CONTENTS

AUSTRALIAN POSTCODES – EVEN OR ODD?

1. Using the link below, record the first five postcodes alphabetically for each State and territory. <http://www.postcodes-australia.com>. Then complete the table.

		Postcode	Odd/even pattern	The sum of four digits	Odd or Even
Victorian suburb/town	Abbeyard	3737	OOOO	20	even
NSW suburb/town					
QLD suburb/town					
WA suburb/town					

2. Record all the possible odd and even patterns.

EVEN PHONE NUMBERS – OR ARE THEY ODD?

1. Are more of our phone numbers odd or are they even? Find sixteen 8-digit phone numbers and record them like the example below. Write 'O' for odd and 'E' for even. You will end up with 100 further numbers to investigate the odd/even debate.

Phone number		The 1st four digits		Add the 1st four digits		The 2nd four digits		Add the 2nd four digits	
9098 3456	E	9098	E	26	E	3456	E	18	E

2. Now you have all these 'new' numbers what patterns exist?

Content description: Investigate and use the properties of odd and even numbers (ACMNA071)

NUMBER AND PLACE VALUE

FOUR-DIGIT SOUP

1. We have all heard of alphabet soup – now it's time for Four-Digit Soup. Fill one soup bowl below with 20 odd numbers and the other with 20 even numbers– all with four digits. Then you must rank the 20 odd and even numbers from smallest to largest.

Odd numbers

smallest

largest

Even numbers

smallest

largest

2. What outcome do you have when you add the smallest odd and even number and the biggest odd and even number?

WRITE THE 6! AND WRITE THEM IN ORDER!

1. Write the 6 **even** numbers between 13 and 25.

2. Write the 6 **odd** numbers between 192 and 204.

3. Write the 6 **even** numbers between 39 and 51.

4. Write the 6 **odd** numbers between 72 and 84.

5. Write the 6 **even** numbers between 313 and 325.

6. Write the 6 **odd** numbers between 598 and 610.

7. Write the 6 **even** numbers between 1709 and 1721.

8. Write the 6 **odd** numbers between 1206 and 1218.

9. Write the 6 **even** numbers between 9097 and 9109.

10. Write the next 6 **even** numbers after:

    (a)   187, _____, _____, _____, _____, _____, _____

    (b)   2001, _____, _____, _____, _____, _____, _____

    (c)   661, _____, _____, _____, _____, _____, _____

    (d)   263, _____, _____, _____, _____, _____, _____

    (e)   819, _____, _____, _____, _____, _____, _____

    (f)   411, _____, _____, _____, _____, _____, _____

Content description: Investigate and use the properties of odd and even numbers (ACMNA071)

JUST KEEP CIRCLING

1. Circle the even numbers greater than 313.

587   404   518   312   744   300   48

(a) Which number above is 'really out of place'? _____

(b) Why? _____

2. Circle the even numbers less than 773.

775   669   892   444   108   806   28

(a) Which number above is 'really out of place'? _____

(b) Why? _____

3. Circle the odd numbers greater than 188.

866   193   604   558   196   607   53

(a) Which number above is 'really out of place'? _____

(b) Why? _____

4. Circle the odd numbers greater than 822.

587   808   518   312   788   300   881

(a) Which number above is 'really out of place'? _____

(b) Why? _____

5. Circle the odd numbers greater than 118.

96   1455   507   923   577   919   121

(a) Which number above is 'really out of place'? _____

(b) Why? _____

6. Circle the odd numbers less than 492.

587   218   411   281   117   263   95

(a) Which number above is 'really out of place'? _____

(b) Why? _____

Content description: Investigate and use the properties of odd and even numbers (ACMNA071)

PROVE THE RULE!

1. Using numbers under 50, prove the rules listed by providing two examples.

Addition

even + even = even		
odd + odd = even		
odd + even = odd		
even + odd = odd		

Multiplication

even x even = even		
odd x odd = odd		
odd x even = even		
even x odd = even		

Subtraction

even – even = even		
odd – odd = even		
odd – even = odd		
even – odd = odd		

2. What happens if we extend these rules and patterns to division? Does division obey the same kind of rules? Give examples.

FOOTBALL CROWDS

1. At the halfway point of the football season, the average crowd for each of the teams' homeground was put into a table. Rank the teams in order in column 3 from highest average attendance to lowest.

Team	Attendance average	Highest home average attendance	
		Team	Attendance average
Cardinals	36 683		
Leopards	20 491		
Kookaburras	45 994		
Cockatoos	58 410		
Doughnuts	46 735		
Frisbees	33 827		
Surfers	31 609		
Lifeguards	12 775		
Gorillas	13 676		
Hawks	32 634		
Angels	35 444		
Wombats	23 428		
Pirates	20 771		
Pumas	48 724		
Superstars	36 073		
Cygnets	21 497		
Falcons	37 710		
Dinosaurs	23 732		

2. Which 'animal name' team has the highest average crowd figures? _____

3. Which 'human name' team attracts the biggest crowds? _____

4. Which team attracts the smallest numbers? _____

UNLUCKY 13!

1. Some people say 13 is unlucky, but today all the numbers we roll will start with 13 000. Take 3 ten-sided dice and roll them and record the biggest and smallest five digit number you can.

Starting number	Largest number	Smallest number
13		
13		
13		
13		
13		
13		
13		
13		
13		
13		
13		
13		
13		

2. What are the three largest numbers you have rolled?

3. What are the three smallest numbers you have rolled?

NEW POSTCODES

12

1. Roll four dice (either 6- or 10-sided) and record what digits you roll. Then make the smallest and largest postcodes you can make.

Numbers rolled	Smallest postcode	Largest postcode

2. What are the three largest and three smallest postcodes rolled? Use <http://auspost.com.au/apps/postcode.html> to find the town/suburb and State/territory.

	Postcode	Town/Suburb	State/Territory
Largest			
Smallest			

Note: Some towns/suburbs may share a postcode.