New wave

Number and Algebra

This book belongs to:

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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

FUN WITH COMPOSITE NUMBERS

1. What is a composite number?

2. Name the 5 composite numbers from 1 to 10.

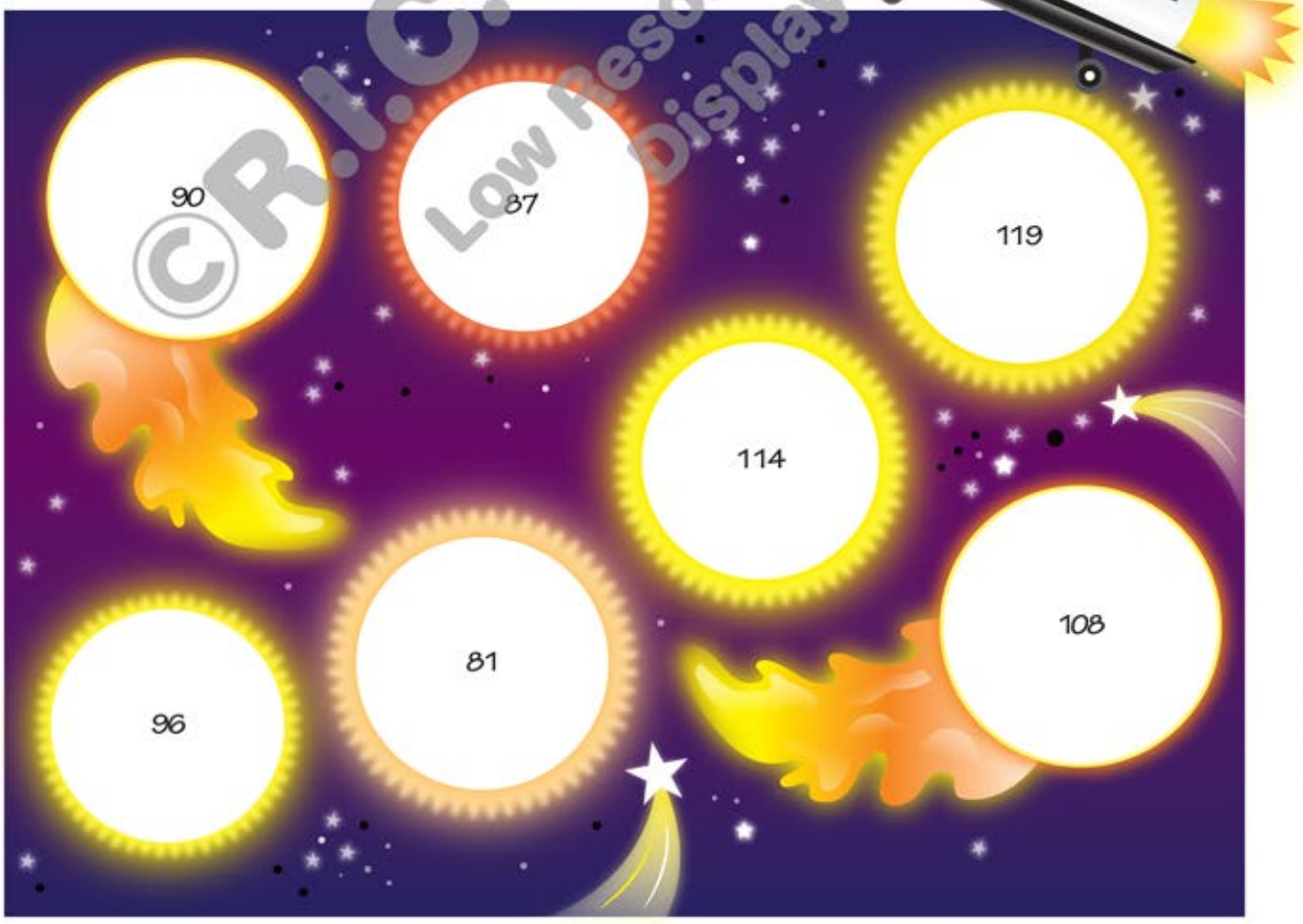
3. Name the 6 composite numbers from 11 to 20.

4. Name the 8 composite numbers from 31 to 40.

5. Name the 7 composite numbers from 41 to 50.

6. Name the 8 composite numbers from 51 to 60.

7. Prove these star numbers are composite numbers writing their factors around the stars.



Content description: Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)

TRIANGULAR NUMBERS

1. Complete this number pattern below by adding the previous answer to the following equation.

1 + 2 = 3

1 + 2 + 3 = ____

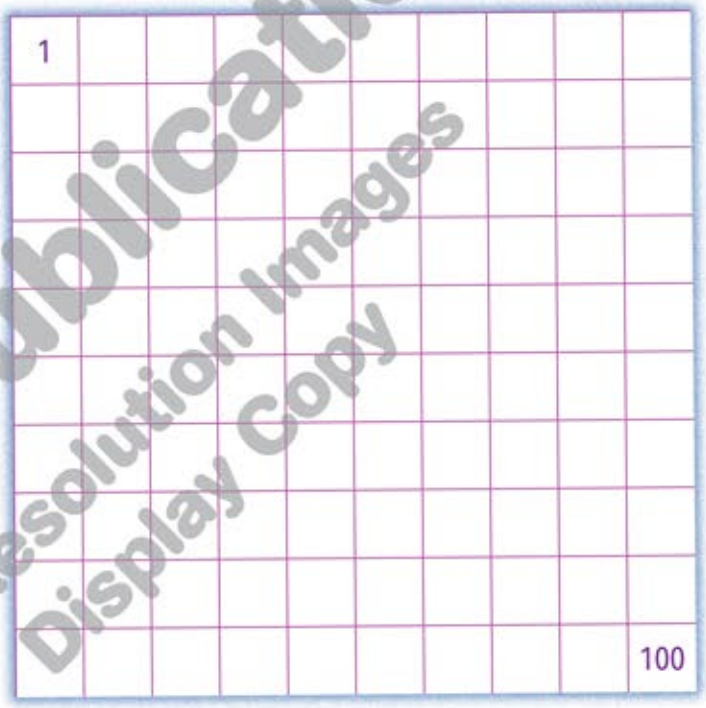
1 + ____ + ____ + ____ = ____

1 + ____ + ____ + ____ + ____ = ____

1 + ____ + ____ + ____ + ____ + ____ = ____

1 + ____ + ____ + ____ + ____ + ____ + ____ = ____

2. Complete this grid and mark as many triangular numbers as possible. Does any pattern stand out and can you explain it?



3. Continue this triangular number pattern by drawing triangles for the next four numbers in the sequence.

Content description: Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)

COLOUR CODE

Colour code the prime, composite, square and triangular numbers and record them in the correct bins. Do any numbers appear more than once?

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THE SEARCH FOR PRIMES

Over 2000 years ago, Eratosthenes, a Greek mathematician, created a way of finding primes that still works today. We call it the Sieve of Eratosthenes.

Firstly, complete this grid as neatly as you can.

1									
81									90
								99	

1. With a red pen or marker cross out all the multiples of 2, which is all the even numbers *except 2*.
2. In green, cross out all the multiples of 3, *except 3*, up to 99.
3. In purple, cross out all the multiples of 5, *except 5*, up to 100.
4. In blue, cross out all the multiples of 7, *except 7*, up to 98.
5. Draw circles around the remaining numbers. These are the prime numbers from 1 to 100.
6. Record these below.

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GOLF ANYONE?

Golf cards contain so many different numbers. Create a colour code for:

Prime numbers Composite Square Triangular

Hole	Metres	Par	Stroke index	Your score	Partner's score
1	410	4	3	5	7
2	359	4	9	3	6
3	173	3	13	7	4
4	323	4	15	6	4
5	451	4	11	5	5
6	424	4	1	4	9
7	441	4	5	7	4
8	129	3	17	9	2
9	501	5	7	5	6
Total		**35**		**51**	**47**

Hole	Metres	Par	Stroke index	Your score	Partner's score
10	166	3	8	4	3
11	431	5	4	9	5
12	288	4	14	4	6
13	220	3	2	5	6
14	301	4	10	6	6
15	153	3	16	7	5
16	297	4	18	3	4
17	289	4	6	4	4
18	419	5	12	8	5
Total		**35**		**46**	**44**

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ADDITION AND SUBTRACTION GO TOGETHER

Complete the following equations without the assistance of a calculator. Show your working in the boxes provided.

667 + 486 =	789 + 396 =	1938 + 495 =
337 + 872 =	593 + 985 =	958 + 730 =
902 - 345 =	1120 - 736 =	1007 - 225 =
1234 - 558 =	912 - 385 =	1289 - 447 =
1010 - 374 =	1194 - 818 =	1310 - 997 =

Content description: Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)

PUMP PRICE DISCOUNTS

Fancy Fuel Inc. offers 4c and 6c a litre petrol discounts for shopping at their Fancy Foods outlets. Using a calculator, work out the missing data below.

Price per litre $	Pump total $	Litres purchased	4c per litre discount =	You pay $
$1.24	$43.40	35 L	$1.40	$42.00
$1.24	$64.48			
$1.24		42 L		
$1.24	$48.36			
$1.24	$59.52		$1.76	
$1.24			$2.00	
$1.24		36 L		
$1.24			$1.84	
$1.24	$84.32			
$1.24			$1.48	

Price per litre $	Pump total $	Litres purchased	6c per litre discount =	You pay $
$1.31	$60.26		$2.76	
$1.31		56L		
$1.31			$2.94	
$1.31	$91.70			
$1.31		61L		
$1.31			$1.02	
$1.31	$37.99			
$1.31		52 L		
$1.31		43L		
$1.31			$3.66	

Content description: Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)

SUBTRACTION WITH ZEROS – DON'T BE HEROES

Content description: Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)

7000 - 5675	6000 - 4787		
10 000 - 7 649	4000 - 1267		
700 000 - 78 605	600 000 - 22 787	100 000 - 84 919	40 100 - 22 658
8100 - 5488	6100 - 3387	10 100 - 3 349	4100 - 1727
7001 - 3542	6001 - 4465	10 001 - 2 765	4001 - 3157
7010 - 3485	6010 - 5697	10 010 - 2 259	4010 - 2637

ADDITION, ADDITION, ADDITION

3999 + 1431	4999 + 4323	19 999 + 3 441	4999 + 1243
37 777 + 32 471	47 777 + 22 323	177 777 + 24 111	4 717 + 22 412
2188 + 1422	5864 + 3323	21 189 + 3 341	4167 + 1323
3991 + 3142	8991 + 4441	13 491 + 2 341	5891 + 3113
22 919 + 3 421	6459 + 1413	21 319 + 2 211	6319 + 2433

Content description: Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)

