

*New wave*

# Number and Algebra

This book belongs to:

---

TONY DOYLE



R.I.C. Publications®

## New wave Number and Algebra (Year 3)

Published by R.I.C. Publications® 2013

Copyright© Tony Doyle 2013

ISBN 978-1-922116-27-7

RIC – 6108

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)

All material identified by  is material subject to copyright under the Copyright Act 1968 (Cth) and is owned by the Australian Curriculum, Assessment and Reporting Authority 2013.

**For all Australian Curriculum material except elaborations:** This is an extract from the Australian Curriculum.

**Elaborations:** This may be a modified extract from the Australian Curriculum and may include the work of other authors.

**Disclaimer:** ACARA neither endorses nor verifies the accuracy of the information provided and accepts no responsibility for incomplete or inaccurate information. In particular, ACARA does not endorse or verify that:

- The content descriptions are solely for a particular year and subject;
- All the content descriptions for that year and subject have been used; and
- The author's material aligns with the Australian Curriculum content descriptions for the relevant year and subject.

You can find the unaltered and most up to date version of this material at <http://www.australiancurriculum.edu.au/>

This material is reproduced with the permission of ACARA.

## Copyright Notice

No part of this book may be reproduced in any form or by any means, electronic or mechanical, including photocopying or recording, or by an information retrieval system without written permission from the publisher.



## Internet websites

In some cases, websites or specific URLs may be recommended. While these are checked and rechecked at the time of publication, the publisher has no control over any subsequent changes which may be made to webpages. It is *strongly* recommended that the class teacher checks *all* URLs before allowing students to access them.



# 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 12 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

|  |  |
|--|--|
| <b>Number and place value ..... 2-45</b>       | <b>A busy day at the farm ..... 41</b>             |
| A battle between odd and even ..... 2          | Big equations call for big grids ..... 42          |
| Odds make it count ..... 3                     | More grids to use! ..... 43                        |
| Count and decide ..... 4                       | Calculator or pen? ..... 44                        |
| Decide and draw ..... 5                        | We better face the facts—again ..... 45            |
| The Australian Grand Prix ..... 6              | <b>Fractions and decimals ..... 46-49</b>          |
| Circle like a shark ..... 7                    | Colour these fractions ..... 46                    |
| Odd and even street ..... 8                    | I just want my fair share! ..... 47                |
| Roll and create ..... 9                        | Plot these fractions ..... 48                      |
| Big and small – 1 ..... 10                     | What fraction is coloured here? ..... 49           |
| Big and small – 2 ..... 11                     | <b>Money and financial mathematics ..... 50-62</b> |
| Big numbers, but are they odd? ..... 12        | 11 ways to make \$1.10? ..... 50                   |
| Expand these numbers ..... 13                  | Can you read my mind? – I have 3 coins ..... 51    |
| Expand these, but watch the zeros ..... 14     | Change please! ..... 52                            |
| Match these numbers ..... 15                   | Dollars and cents ..... 53                         |
| Order these close numbers ..... 16             | Four coins – can you guess? ..... 54               |
| Order these numbers ..... 17                   | How many coins in a note? ..... 55                 |
| Words and numbers ..... 18                     | I need change please ..... 56                      |
| Oh dear, these are mixed up ..... 19           | Magic bags of money ..... 57                       |
| One less – and one more ..... 20               | More than one way to make a dollar ..... 58        |
| What's up with 5? ..... 21                     | Six coin totals ..... 59                           |
| Place value using wishball ..... 22            | Six Ways Sam ..... 60                              |
| A big day at school ..... 23                   | The great who am I? ..... 61                       |
| A big day at the beach ..... 24                | Three coins and a note ..... 62                    |
| Can you walk a golf course? ..... 25           | <b>Patterns and algebra ..... 63-74</b>            |
| Four sums from three numbers! ..... 26         | Hold that pattern ..... 63                         |
| These numbers are the best of friends ..... 27 | Hold that pattern again! ..... 64                  |
| Number sentences ..... 28                      | Shapes that build or shrink ..... 65               |
| Bigger numbers but still connected ..... 29    | And the rule is? ..... 66                          |
| Split the numbers ..... 30                     | Aah—I see the patterns! ..... 67                   |
| Make the second line ..... 31                  | Watch the pattern and make it grow! ..... 68       |
| My knowledge of subtraction ..... 32           | Read the rules and let's go ..... 69               |
| Take time to take on 20 ..... 33               | Know the rule! Where did we get to? ..... 70       |
| Mistakes on this grid ..... 34                 | Know the rule! This time take away ..... 71        |
| More mistakes on this grid ..... 35            | Know the rule! How many moves? – 1 ..... 72        |
| A different kind of speed test ..... 36        | Know the rule! How many moves? – 2 ..... 73        |
| The answer is there! ..... 37                  | Who wins the race? ..... 74                        |
| Take me to your leader ..... 38                |  |
| We better face the facts ..... 39              |  |
| A busy day at school ..... 40                  |  |

# A BATTLE BETWEEN ODD AND EVEN



1. Fill in all the missing numbers in the grid.
2. Shade all the **even** numbers below 20 in orange.
3. Shade all the **even** number from 20 to 50 in yellow and the remaining **even** numbers in pink.
4. Which numbers did you shade pink? \_\_\_\_\_
5. Put purple stripes on the **odd** numbers from 31 to 61.
6. From 63 to 79, mark the **odd** numbers with dark green stripes.
7. Which **odd** numbers have you not coloured? \_\_\_\_\_


|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
|    | 2  |    |    |    |    |    | 10 |
| 11 |    |    |    | 17 |    |    |    |
|    |    | 24 |    |    | 28 |    |    |
|    |    | 33 |    |    |    | 39 |    |
|    | 42 |    |    |    | 48 |    |    |
|    |    |    |    |    |    |    |    |
| 61 |    |    | 65 |    |    |    |    |
|    |    |    |    |    |    |    | 80 |






# COUNT AND DECIDE

1 Write in the total for each box and circle **odd** or **even**.



Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?




Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?




Total \_\_\_\_\_ **odd** or **even**?




Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?



Total \_\_\_\_\_ **odd** or **even**?

Content description: Investigate the conditions required for a number to be odd or even and identify odd and even numbers (ACMNA051)



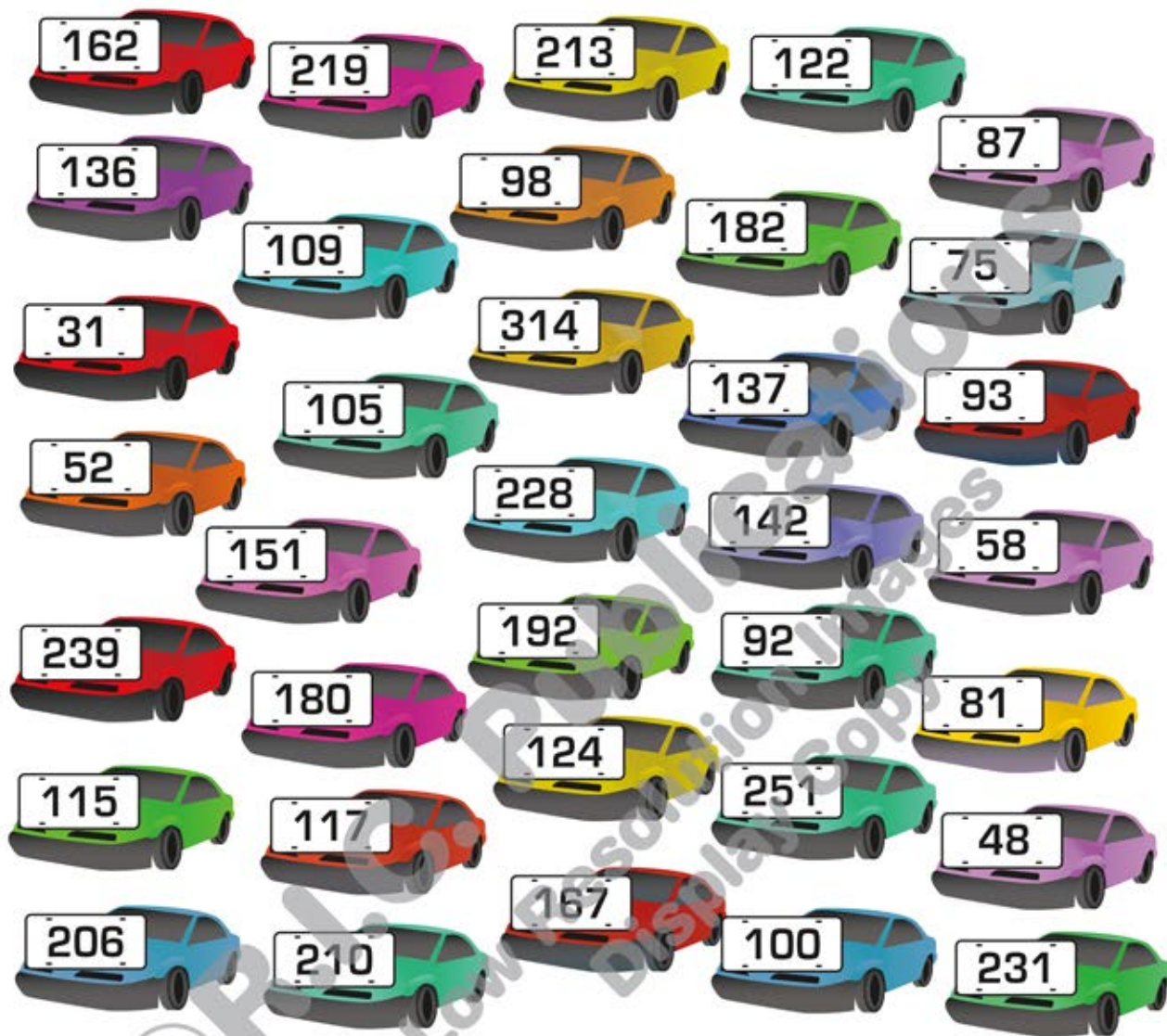
# DECIDE AND DRAW

1 Draw the objects. Write in the total for each and circle **odd** or **even**.

|   |  |
|---|--|
| <p><i>Three pairs of shoes</i></p> <p>Total shoes _____ <b>odd</b> or <b>even</b>?</p>        | <p><i>A dozen eggs</i></p> <p>Total eggs _____ <b>odd</b> or <b>even</b>?</p>                  |
| <p><i>Three octopuses</i></p> <p>Total tentacles _____ <b>odd</b> or <b>even</b>?</p>         | <p><i>Babies—two sets of triplets</i></p> <p>Total babies _____ <b>odd</b> or <b>even</b>?</p> |
| <p><i>3 six-packs of juice boxes</i></p> <p>Total drinks _____ <b>odd</b> or <b>even</b>?</p> | <p><i>5 six-packs of juice boxes</i></p> <p>Total drinks _____ <b>odd</b> or <b>even</b>?</p>  |
| <p><i>Five rectangles</i></p> <p>Total sides _____ <b>odd</b> or <b>even</b>?</p>             | <p><i>Three triangles</i></p> <p>Total sides _____ <b>odd</b> or <b>even</b>?</p>              |
| <p><i>Five gloves</i></p> <p>Total fingers _____ <b>odd</b> or <b>even</b>?</p>               | <p><i>5 pentagons</i></p> <p>Total sides _____ <b>odd</b> or <b>even</b>?</p>                  |

# THE AUSTRALIAN GRAND PRIX

1 There are over 30 numbered cars in this race. Shade the odd-numbered cars green and the even-numbered cars orange.



2 The odd-numbered cars racing are: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 The even-numbered cars racing are: \_\_\_\_\_

\_\_\_\_\_

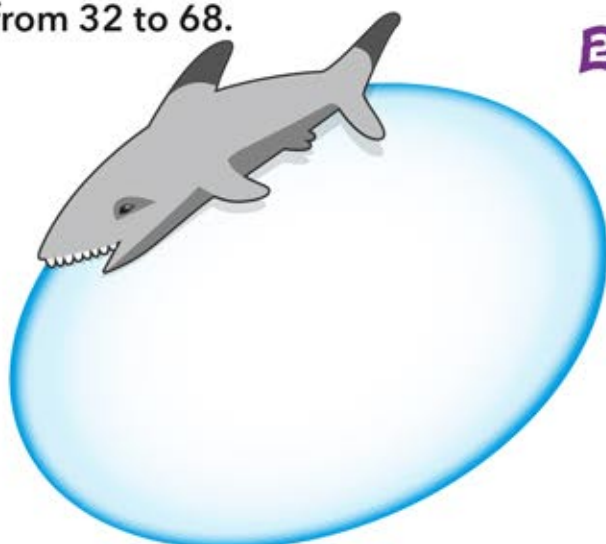
\_\_\_\_\_

4 How do you know the cars you have coloured orange are all even-numbered cars? \_\_\_\_\_

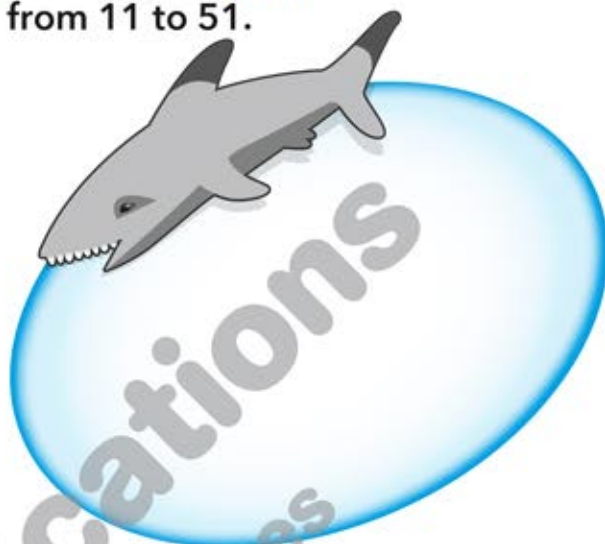


# CIRCLE LIKE A SHARK

- 1 Write all the **odd** numbers from 32 to 68.



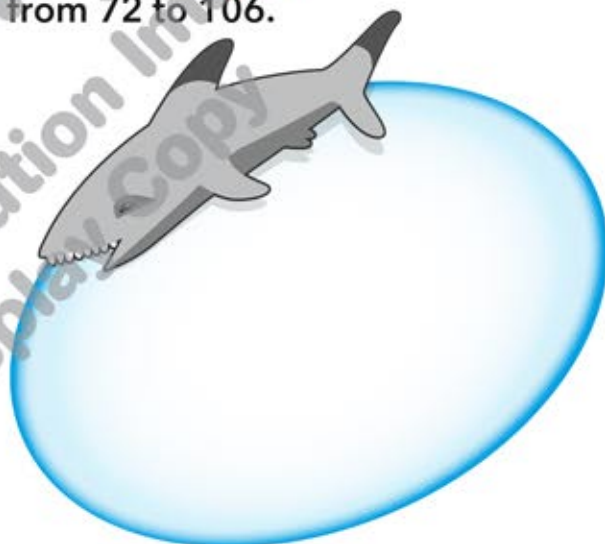
- 2 Write all the **even** numbers from 11 to 51.



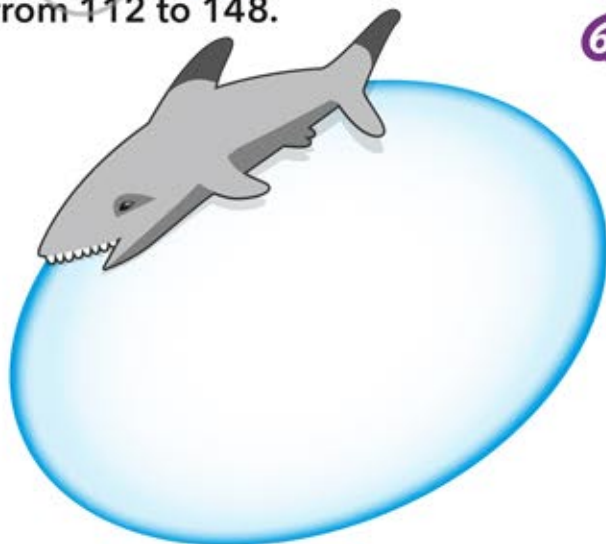
- 3 Write all the **even** numbers from 63 to 99.



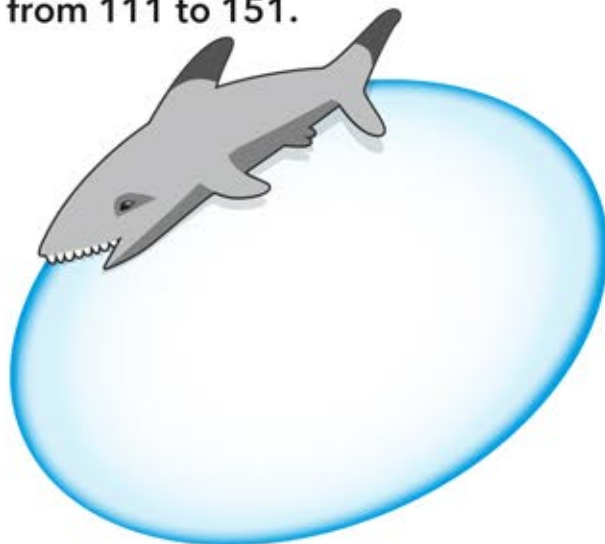
- 4 Write all the **odd** numbers from 72 to 106.



- 5 Write all the **odd** numbers from 112 to 148.



- 6 Write all the **even** numbers from 111 to 151.

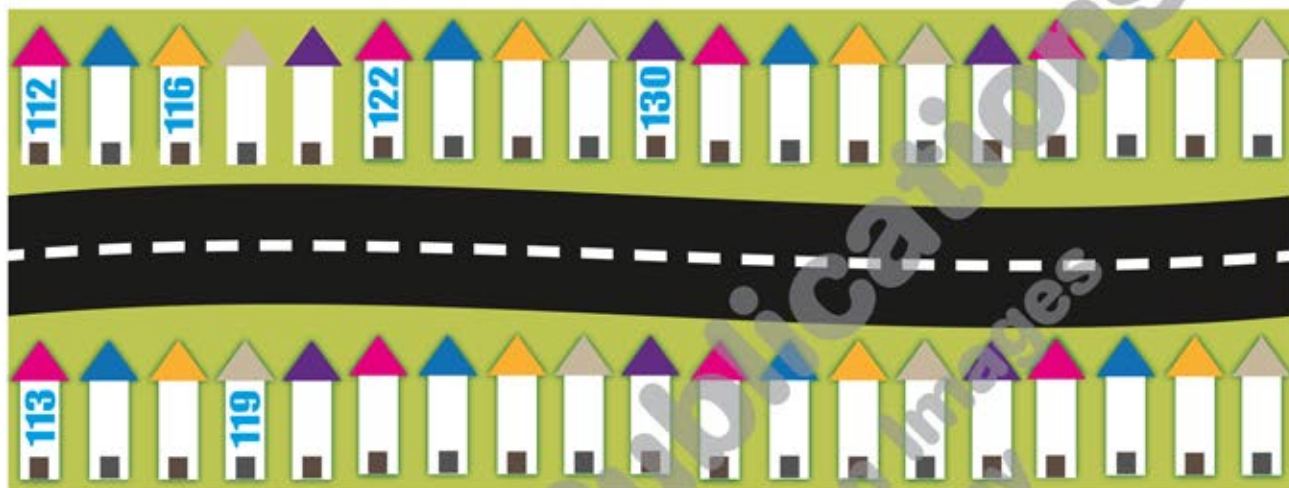


# ODD AND EVEN STREET

**1** Below is a map of Quiet Street, Peacefulville. Write in all the missing house numbers and then complete the following:

- (a) The last odd-numbered house on the map is \_\_\_\_\_.
- (b) The last even-numbered house is \_\_\_\_\_.

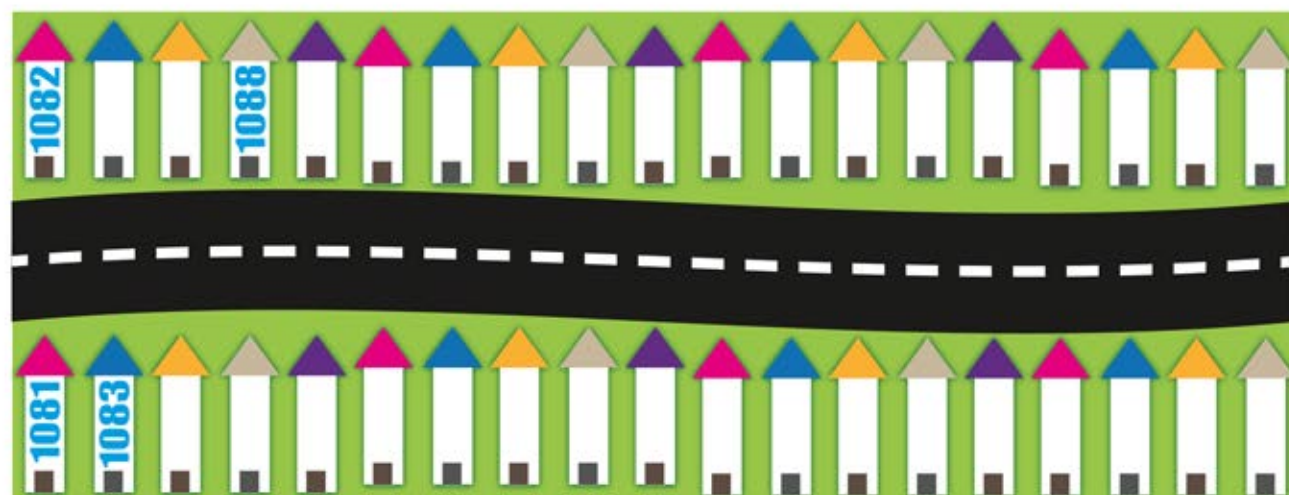
**2** Colour number 134 orange, 123 green, 142 purple and 131 grey.



**3** Below is a map of Busy Road, Rowdyville. Write in all the missing house numbers and then complete the following:

- (a) The last odd-numbered house on the map is \_\_\_\_\_.
- (b) The last even-numbered house is \_\_\_\_\_.
- (c) The fourth last odd-numbered house on the map is \_\_\_\_\_.
- (d) The fourth last even-numbered house is \_\_\_\_\_.

**4** Colour number 1094 orange, 1088 green, 1104 purple and 1101 grey.





# ROLL AND CREATE

1 I rolled 4 dice and the numbers on the top were these:



(a) How many odd numbers can you make with all the four dice?  
For example: 6213.

(b) How many even numbers can you make with all the four dice?

2 I rolled 4 dice and the numbers on the top were these:



(a) How many odd numbers can you make with all the four dice?

(b) How many even numbers can you make with all the four dice?



# BIG AND SMALL - 1

1. Make the largest and smallest numbers you can with the digits given.

| Digits provided | Largest number | Smallest number |
|-----------------|----------------|-----------------|
| 2,1,6,5         |                |                 |
| 4,2,7,9         |                |                 |
| 9,0,2,7         |                |                 |
| 1,5,6,1         |                |                 |
| 2,4,9,5         |                |                 |
| 9,3,7,8         |                |                 |
| 5,5,0,1         |                |                 |
| 3,7,1,9         |                |                 |
| 8,8,2,9         |                |                 |
| 3,6,2,7         |                |                 |



2. In the table below, the students working on this have made several errors. Tick or cross their work and make corrections where needed.

| Digits provided | Largest number | Smallest number |
|-----------------|----------------|-----------------|
| 3,5,1,9         | 9531           | 3159            |
| 2,7,1,8         | 8271           | 1278            |
| 3,6,9,2         | 9632           | 3269            |
| 1,5,7,2         | 7521           | 1257            |
| 3,9,5,8         | 5893           | 3589            |
| 4,7,9,1         | 4971           | 1479            |
| 5,5,0,3         | 5530           | 3055            |
| 6,1,1,9         | 9116           | 1169            |
| 5,7,9,2         | 9725           | 5279            |
| 6,5,4,8         | 8645           | 4568            |