



OzzieMaths  
Series



# Maths: Year 2



- ✓ number and algebra
- ✓ fractions, decimals and money
- ✓ patterns and algebra
- ✓ shapes and units of measurement
- ✓ location and transformation
- ✓ chance and data

By Anita Green

Sample

# Teachers' Notes

This book is part of a series containing a range of maths activities linked to the Australian Curriculum. Each activity is linked to a content description and elaboration.

Many of the questions and activities in the book are designed to be open-ended, however where appropriate answers or suggested answers are provided. The idea of keeping the questions and activities open-ended is to focus on processes and strategies and allow for greater differentiation. The activities enable all students of different abilities to be working on the same problem but allow students to tackle the problem at different levels. They can approach the task from their level and feel confident in being able to complete it.

To get the most out of these activities reflection time needs to be incorporated into each lesson. This doesn't need to be just at the end of the lesson but can be at various times throughout the lesson too. This gives the students time to share their strategies with the class and see how other students are solving the same problem. It's important for students to see that they all might have the right answer but there are many ways to get to that answer. Offering students this time means they can learn from each other and provides assistance to those students who might be struggling by giving them a strategy to try.

The book is divided into six sections:

- Section 1: Number and Place Value**
- Section 2: Fractions, Decimals and Money**
- Section 3: Patterns and Algebra**
- Section 4: Shapes and units and Measurement**
- Section 5: Location and Transformation**
- Section 6: Chance and Data**

As teachers, the questions we ask can help the students delve deeper and think more critically about their learning. Try using some of these questions in your lessons:

1. Is there another way you could work that out?
2. Have you found every possible answer?
3. What would happen if ... ?
4. Is there a pattern?
5. You and ... have different answers... who is right?
6. You and ... have the same answer but different working out. Share with each other what you did.
7. Can you prove it?

With the help of this book you can ensure you are covering each area of the curriculum and make maths fun and engaging for your students.

# Curriculum Links

## **Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)**

### Elaborations

- developing fluency and confidence with numbers and calculations by saying number sequences
- recognising patterns in number sequences, such as adding 10 always results in the same final digit

## **Recognise, model, represent and order numbers to at least 1000 (ACMNA027)**

### Elaboration

- developing fluency with writing numbers in meaningful contexts

## **Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)**

### Elaborations

- using an abacus to model and represent numbers
- understanding three-digit numbers as comprised of hundreds, tens and ones/hundreds

## **Explore the connection between addition and subtraction (ACMNA029)**

### Elaborations

- becoming fluent with partitioning numbers to understand the connection between addition and subtraction
- using counting on to identify the missing element in an additive problem

## **Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)**

### Elaborations

- becoming fluent with a range of mental strategies for addition and subtraction problems, such as commutativity for addition, building to 10, doubles, 10 facts and adding 10
- modelling and representing simple additive situations using materials such as 10 frames, 20 frames and empty number lines

## **Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031)**

### Elaborations

- representing array problems with available materials and explaining reasoning

- visualising a group of objects as a unit and using this to calculate the number of objects in several identical groups

## **Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)**

### Elaborations

- dividing the class or a collection of objects into equal sizes groups
- identifying the difference between dividing a set of objects into 3 equal groups and dividing the same set of objects into groups of three

## **Recognise and interpret common uses of halves, quarters and eighths of shapes and collections (ACMNA033)**

### Elaborations

- recognising that sets of objects can be partitioned in different ways to demonstrate fractions
- relating the number of parts to the size of a fraction

## **Count and order small collections of Australian coins and notes according to their value (ACMNA034)**

### Elaborations

- identifying equivalent values in collections of coins or notes, such as two five-cent coins having the same value as one 10-cent coin
- counting collections of coins or notes to make up a particular value, such as that shown on a price tag

## **Describe patterns with numbers and identify missing elements (ACMNA035)**

### Elaborations

- describing a pattern created by skip counting and representing the pattern on a number line
- investigating features of number patterns resulting from adding twos, fives or 10s

## **Solve problems by using number sentences for addition or subtraction (ACMNA036)**

### Elaborations

- representing a word problem as a number sentence
- writing a word problem to represent a number sentence

**Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units (ACMMG037)**

Elaborations

- comparing areas using the palm of the hand or a stone
- comparing capacities using a range of containers

**Compare masses of objects using balance scales (ACMMG038)**

Elaboration

- using balance scales to determine whether the mass of different objects is more, less or about the same, or to find out how many marbles are needed to balance a tub of margarine or a carton of milk

**Tell time to the quarter-hour, using the language of 'past' and 'to' (ACMMG039)**

Elaboration

- describing the characteristics of quarter-past times on an analogue clock, and identifying that the small hand is pointing just past the number and the big hand is pointing to the three

**Name and order months and seasons (ACMMG040)**

Elaborations

- investigating the seasons used by Aboriginal people, comparing them to those used in Western society and recognising the connection to weather patterns

**Describe and draw two dimensional shapes with or without technologies (ACMMG042)**

Elaboration

- identifying key features of squares, rectangles, triangles, kites, rhombuses and circles, such as straight lines or curved lines, and counting the edges and corners

**Describe the features of three dimensional objects (ACMMG043)**

Elaboration

- Identifying geometric features such as the number of faces, corners or edges

**Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)**

Elaboration

- understanding that we use representations of objects and their positions, such as

on maps, to allow us to receive and give directions and to describe place

**Investigate the effect of onestep slides and flips with and without digital technologies (ACMMG045)**

Elaboration:

- understanding that objects can be moved but changing position does not alter an object's size or features

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**Identify and describe half and quarter turns (ACMMG046)**

Elaboration:

- predicting and reproducing a pattern based around half and quarter turns of a shape and sketching the next element in the pattern

**Identify practical activities and everyday events that involve chance. Describe outcomes as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' (ACMSP047)**

Elaboration:

- classifying a list of everyday events according to how likely they are to happen, using the language of chance, and explaining reasoning

**Identify a question of interest based on one categorical variable. Gather data relevant to the question (ACMSP048)**

Elaboration

- determining the variety of birdlife in the playground and using a prepared table to record observations

**Collect, check and classify data (ACMSP049)**

Elaboration

- recognising the usefulness of tally marks

**Create displays of data using lists, table and picture graphs and interpret them (ACMSP050)**

Elaboration

- creating picture graphs to represent data using one to one correspondence

# What's the pattern? 1

Complete the patterns.

1. (75) ( ) (65) ( ) ( ) (50) (45) (40) ( ) ( ) ( )

Explain the pattern: \_\_\_\_\_

2. ( ) (46) (44) ( ) ( ) (38) (36) (34) ( ) ( ) ( )

Explain the pattern: \_\_\_\_\_

3. (140) ( ) ( ) (110) (100) ( ) (80) ( ) ( )

Explain the pattern: \_\_\_\_\_

Choose a number of your own and then create three different patterns going backwards using your number.

My number: \_\_\_\_\_

4. ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

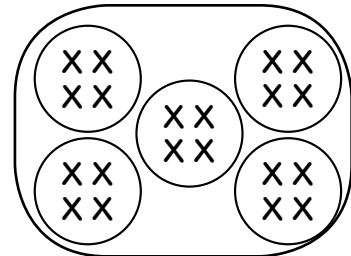
5. ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

6. ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

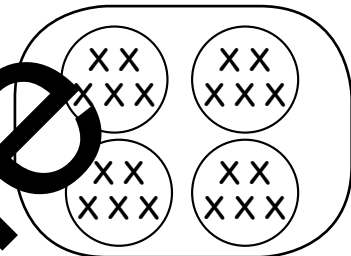
# Division

- 1.** Draw lines to match the word problems to the pictures that show the working out. Write a number sentence for each.

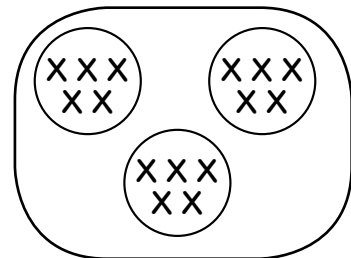
- a.** I shared my 15 lollies between my 3 friends. How many lollies did they each receive?



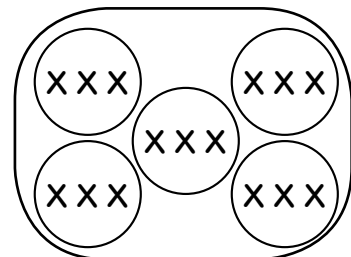
- b.** Tom wants to buy a game for \$20. If he gets \$5 pocket money a week, how many weeks will it take him to save it all?



- c.** My mum gives me 20 new books packed into 5 small boxes. How many books are in each box?



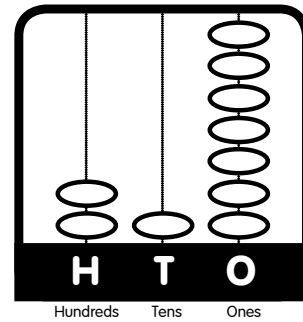
- d.** The man at the fruit shop is putting apples into bags of 3. If he has 15 apples, how many bags does he need?



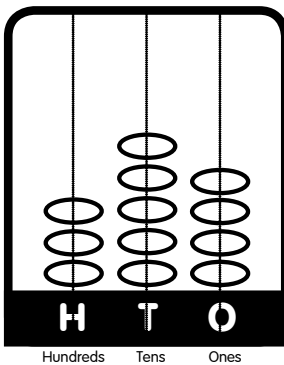
- 2.** Write your own word problem that involves sharing. Then draw a picture that you could use to help solve it.

# Using an abacus

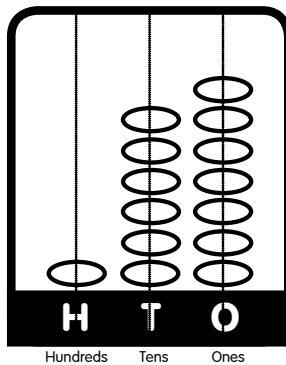
An abacus can be used to represent a number and show how many hundreds, tens and ones make up the number. For example, the abacus (right) represents the number 217. In this number, there are 2 hundreds, 1 ten and 7 ones.



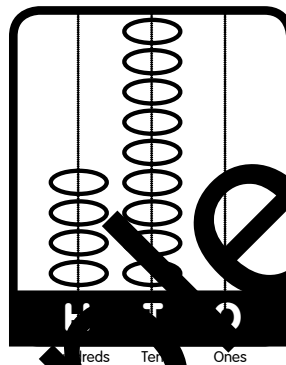
What numbers are represented on these abacuses?



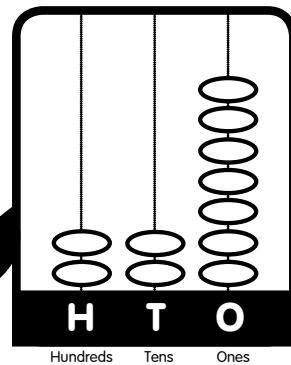
a.



b.

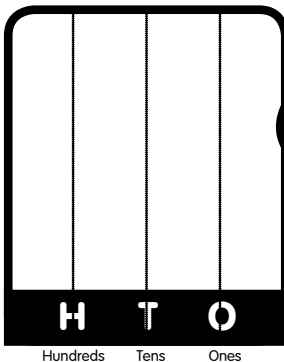


c.

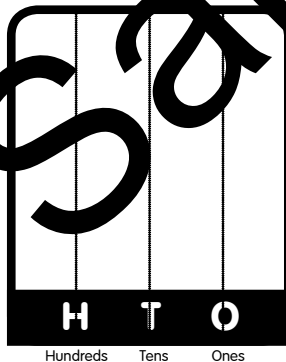


d.

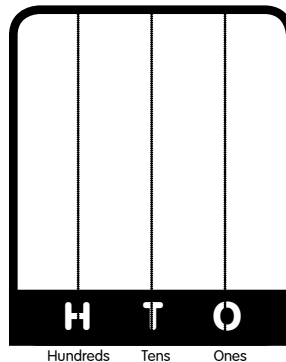
Draw to make the numbers on the abacuses.



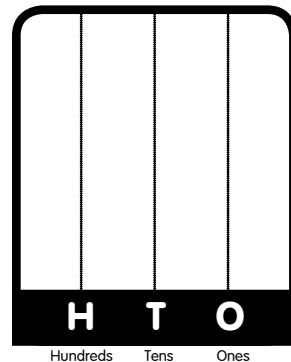
e.



f.



g.







h.

## Extension

1. Draw an abacus on the back of this sheet with a number represented on it and see if someone can work out what number it is. Give a friend a number and see if they can represent it on an abacus.
2. My friend Tom has drawn an abacus with 2 beads on the hundreds, 11 on the tens and 5 on the ones. My teacher said he has actually represented 315. How? What has he done wrong? Can you fix it?

# How much?

1. How quickly can you count up the coins in each box below?

<p>a.</p>  <p>Total: _____</p>	<p>b.</p>  <p>Total: _____</p>
<p>c.</p>  <p>Total: _____</p>	<p>d.</p>  <p>Total: _____</p>

2. Draw coins for the prices shown below.

<p>a. \$1.25</p>	<p>b. \$3.85</p>
<p>c. \$5.30</p>	<p>d. \$6.60</p>



# Number sentences

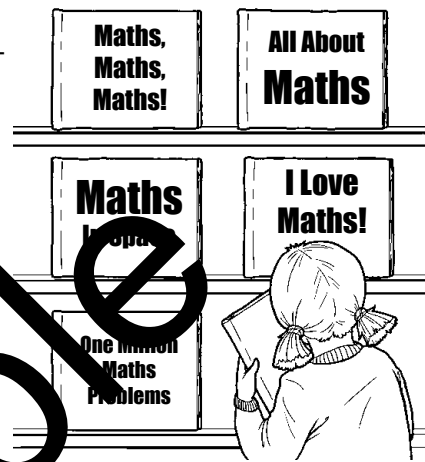
1. There are 14 books on a bookshelf and the librarian places 12 more books on the bookshelf. How many books are on the shelf now?

\_\_\_\_\_

Write the number sentence for this word problem:

\_\_\_\_\_

Show your working out:



2. Write a word problem of your own for this number sentence:

$$15 + 18 =$$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



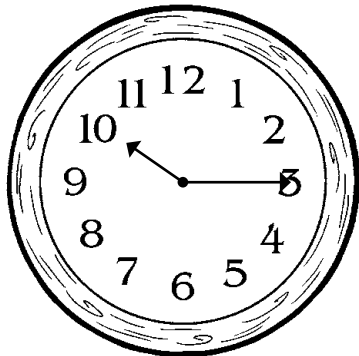
## Extension

Write some more of your own word problems on the back of this sheet and see if a friend can solve them.

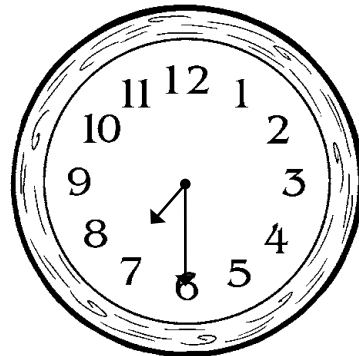
# Telling time 1

1. What time is it on these clocks?

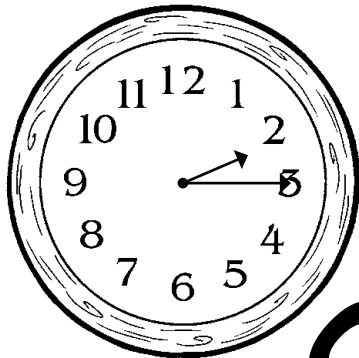
a.



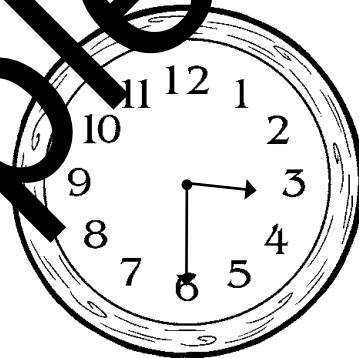
b.



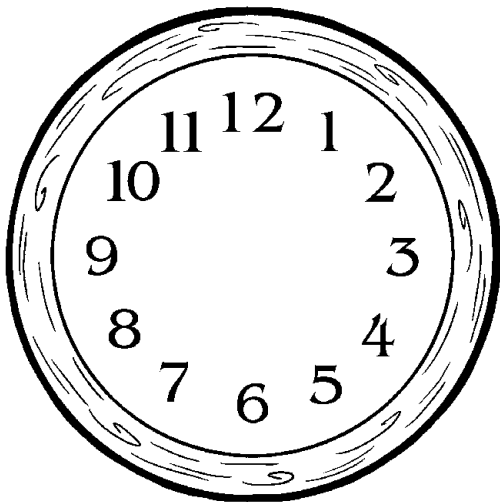
c.



d.



2. Draw a 'quarter past' time on the clock below. What do you usually do at this time of the day?



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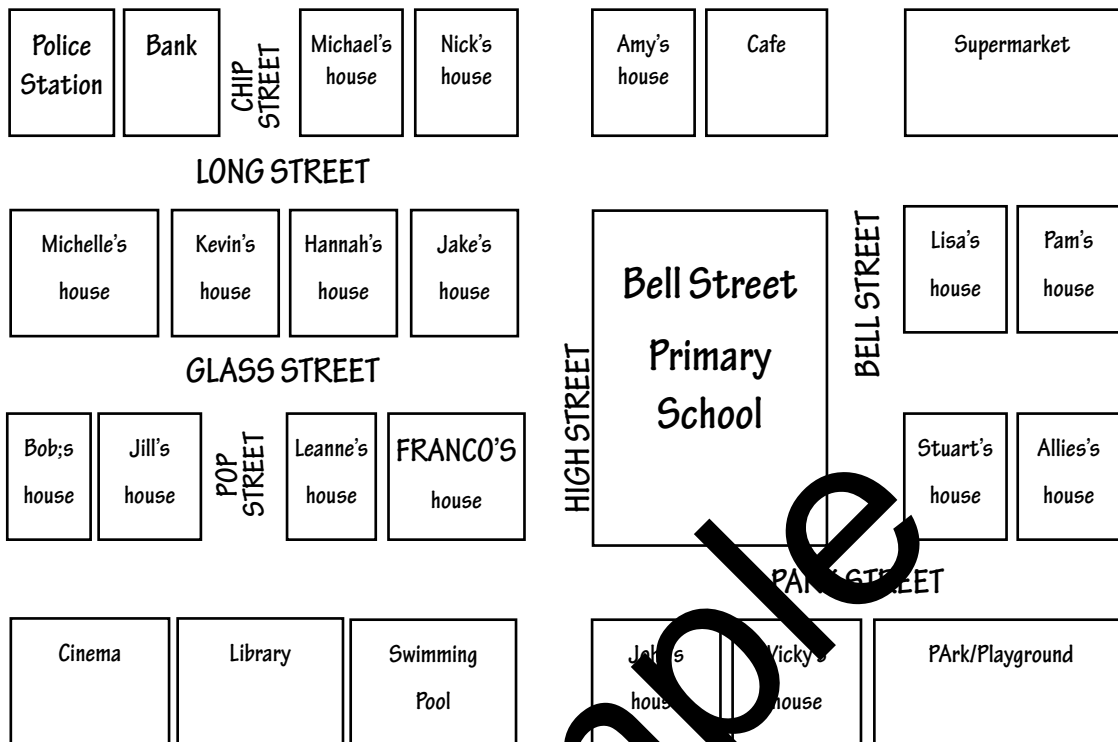
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# Mapping 1

Below is a map of the streets around Franco's house.



Read about Franco's movements below.

*Franco leaves the cinema in the direction of the library and takes his first left. He turns right at the end of that street then his first left. He takes the next left and then the first right and his destination will be on the left.*

Where did Franco end up?

## Extension

Using the map above write your own set of directions to a place on the map. Have a friend follow them and see if he/she ends up in the right place.



## What's the chance?

- When we talk about chance we talk about the likelihood of something happening. We can use words like 'possible', 'impossible' and 'certain'.

Write something that is **certain** to happen today.

---

Write something that can not **possibly** happen today.

---

- Use the bolded words to describe the chance of the events below happening.

**certain, impossible, likely, possible, unlikely**

1. It is going to rain today. \_\_\_\_\_
2. Your favourite footy team will win on the weekend. \_\_\_\_\_
3. You will get to visit space one day. \_\_\_\_\_
4. If you flip a coin it will land on heads. \_\_\_\_\_
5. You will have dinner tonight. \_\_\_\_\_
6. A giant beanstalk will grow in your backyard. \_\_\_\_\_
7. If you roll a dice it will land on 6. \_\_\_\_\_
8. You will go to school tomorrow. \_\_\_\_\_

### Extra

Make up some chance events of your own on the back of this sheet and use words to describe the likelihood of each event happening.

**Chance  
Events**