



KiwiMaths
Series



Maths: Year 3

- ✓ number and algebra
- ✓ measurement and geometry
- ✓ statistics and probability

By Lisa Craig

Teachers' Notes

The activities in this book have been designed to develop mathematical skills and reasoning in a creative way that is often connected to solving problems in real-life contexts. Students will be asked to reflect upon the strategies used to problem-solve effectively in familiar situations and expand their ideas to realise that mathematical understanding has an important role in other subject areas. Answers and additional teaching information are included at the back of the book. This book is divided into three sections as detailed below.

Section One: Number and Algebra

In this section, students will engage in a variety of activities that require them to demonstrate ever-increasing capability using mental and written strategies to explore number relationships and patterns. Tasks include: identifying the attributes of even and odd numbers using students' own examples; having a race against the clock counting back in a designated number; conquering division facts in the fish tank and solving and creating problems involving wonders of the natural world.

Section Two: Measurement and Geometry

This section draws students' attention to the value and beauty of mathematics in the world around them. Students will be asked to consider symmetry in the natural and built environment through observing marine life, Australian indigenous art and the façade of Luna Park. Following an intrepid explorer across an island will help students understand the use of grid reference and scale. The importance of using standard units of measurement is explored through activities such as: estimating the mass of iconic Australian wildlife, making up milk formulae for bush babies and applying measurement in our daily lives.

Section Three: Statistics and Probability

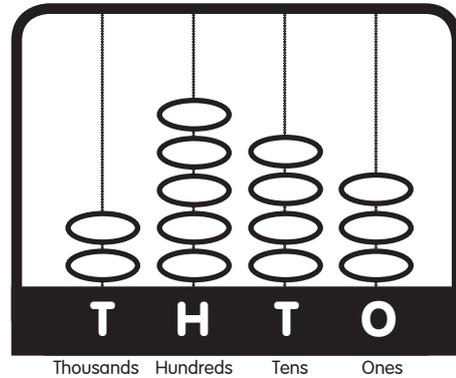
Students will develop skills in collecting, organising and representing data in this section. Students will categorise images of Great Barrier Reef marine life and label a column graph based on their decisions. The concept of probability is explained through activities ranking the likeliness of events occurring and carrying out a chance experiment with a deck of cards to test predictions and discuss variability in results.

Abacus fun

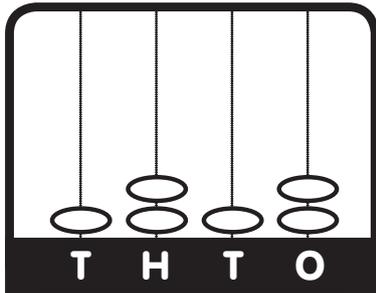
MISCHIEVOUS MONKEY



The abacus below represents the number 2543 (two thousand five hundred and forty-three).

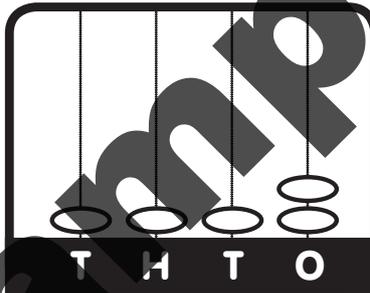


1. The mischievous monkey has taken some of the beads from the abacuses below! Can you draw the missing beads in each abacus so that it represents the same number in the box underneath? Colour the beads that you have added.



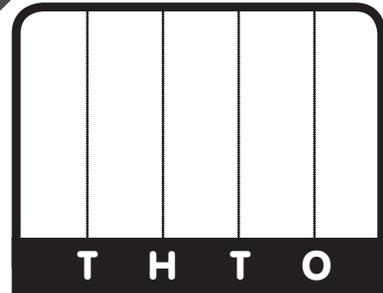
a.

4263



b.

2155



c.

1402

2. Write the numbers below in order from smallest to largest.

3190

4658

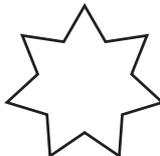
1179

1091

4925

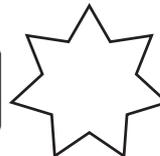
3. Put a < (smaller than) or > (greater than) sign in the stars.

a. **1742**



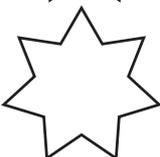
1752

b. **5020**



5030

c. **875**



885

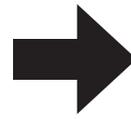
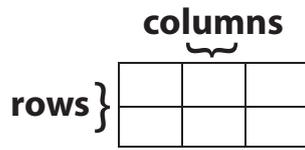
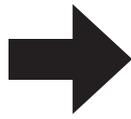
d. **634**



614

Arrays 1

An array is a set that shows equal groups in rows and columns. In the picture you can see eggs in a carton arranged into columns and rows:



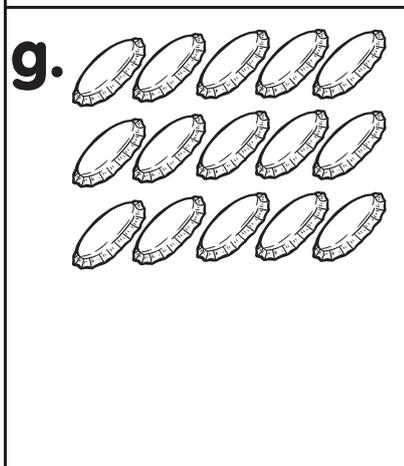
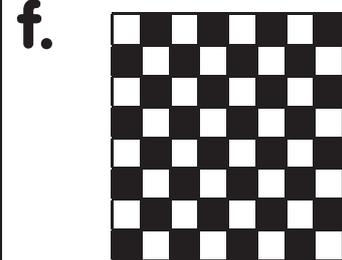
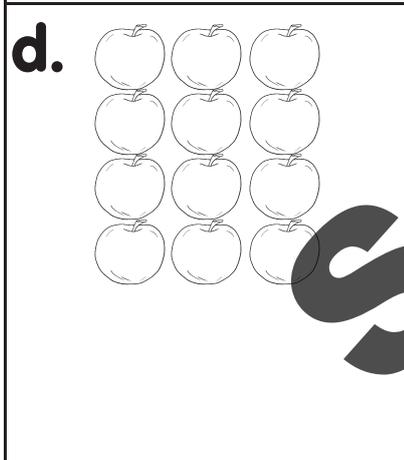
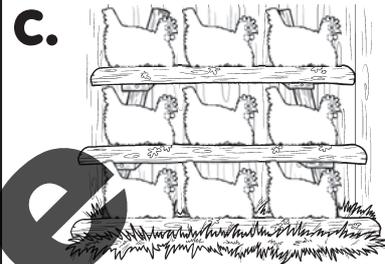
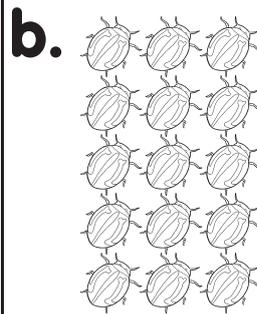
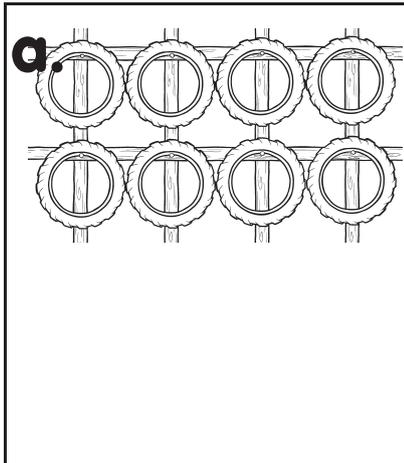
$$2+2+2=6$$

$$3+3=6$$

$$3 \times 2=6$$

$$2 \times 3=6$$

1. Write 1 or 2 possible addition facts for each array shown below.

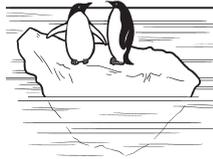


2. On the back of this sheet draw everyday objects that show arrays. Write multiplication facts for your arrays.

Wonder word problems

Have a go at solving these problems involving wonders of the natural world.

- 1** The lifespan of a Gentoo penguin is 20 years. It spends half its life in the ocean foraging for food. How many years does the penguin spend on land?



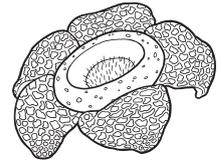
- 2** A javelin frog from the Kimberley, WA is 2 cm long. How many javelin frogs could I place in a row to fit on two 30 cm rulers?



- 3** Snails can crawl 20 metres in one day! How far could a snail travel to find a succulent lettuce in 6 hours?



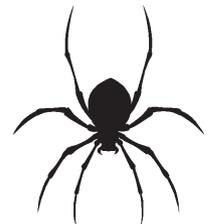
- 4** The smelly corpse plant blooms once every 7 years. I saw one bloom in 2016. How many times can I expect to see the same plant bloom before 2040?



- 5** A seahorse moves in the ocean by fluttering its tail fin 35 times a second. How many tail flutters would a seahorse make in 10 seconds? In 15 seconds?



- 6** In my terrarium there are 40 spiders' legs and 30 spiders' eyes. How many eyes does my species of spider have?



- 7** A koala eats on average one kilogram of eucalyptus leaves a day. How many kilograms will 5 koalas eat in May?



- 8** Gibbons are long-armed primates that can swing 10 metres at a time through the treetops. How many swings would it take a gibbon to move half a kilometre?

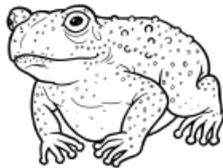
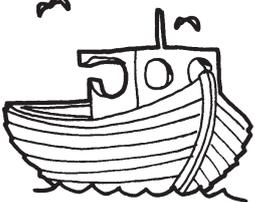
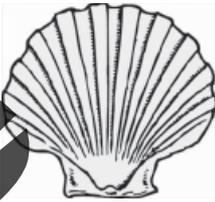
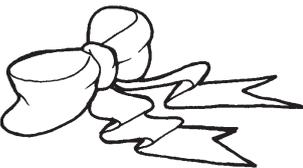
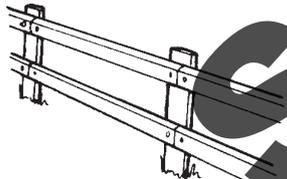
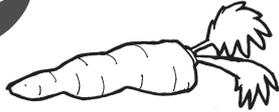


Write a wonder word problem for a classmate to solve on the back of this sheet.

Length 2

1

Would you measure the following objects in centimetres or metres?
Remember there are 100 centimetres (100 cm) in one metre (1 m).
Tick the correct unit.

<p>a</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>b</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>c</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>
<p>d</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>e</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>f</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>
<p>g</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>h</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>i</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>
<p>j</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>k</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>	<p>l</p>  <p><input type="checkbox"/> cm <input type="checkbox"/> m</p>

2

Answer these questions using your answers from Question 1.

- a. Which objects would be longer than 5 metres? _____

- b. Which objects would be shorter than 30 cm? _____

- c. How long do you think a blue whale is? _____
- d. Estimate the length of a carrot. _____

Massive food problems

Put on your thinking caps to solve these problems related to mass. You can check your answers with a calculator.

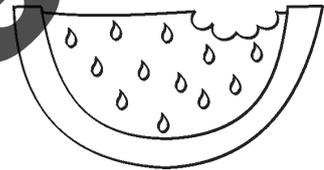
1

At the Easter Show, pumpkin farmers receive a point for every gram their monster-sized vegetables weigh. The masses of the winning pumpkins are: 1st place: 735.5 kg; Runner up: 621 kg; Best in junior section: 347.2 kg. **How many points did each of the winning entries receive?**



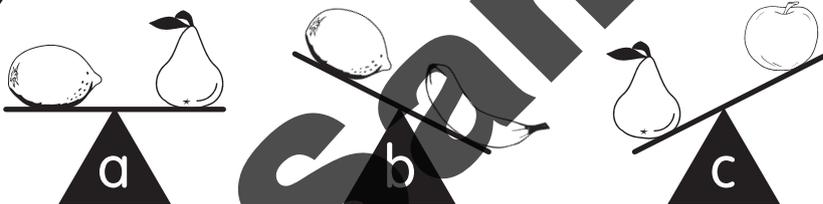
2

Mum bought a watermelon with a mass of 1 kg. She cut 3 slices from the watermelon to take on a picnic. Each slice had a mass of 150g. **What was the mass of the leftover watermelon that she put in the fridge?**



3

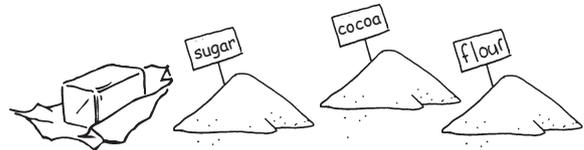
Circle the heaviest fruit. Explain your choice in the space below.



4

Oliver wants to make brownies for both teams competing in the cricket final next week. He's found a recipe for 20 servings that includes the following ingredients: 400g of sugar; 45g of cocoa powder; 250g of butter; 180g of flour.

How much sugar, cocoa powder, butter and flour does Oliver need if he wants to make 60 servings of brownies?



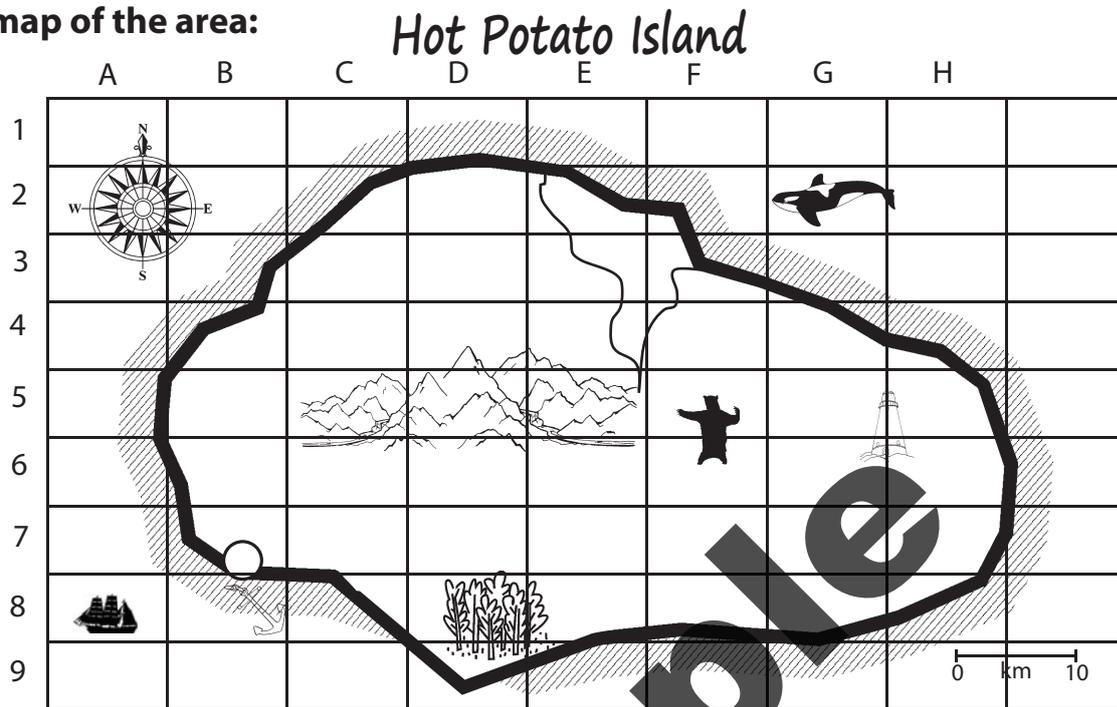
5

A man picks up a box containing 8 cans of sliced beetroot. The total mass of the cans is 3.4 kg. **How many grams does one can of sliced beetroot weigh?**



On the grid

Wolf Bakes wants to trek across some very dangerous country on Hot Potato Island to see if he can survive off the land. He's been given a grid map of the area:



Use the information on the grid map to help you to answer the questions.

1. Give the grid reference for Wolf's drop-off point marked ○.
2. Where do orcas regularly feed offshore? _____
3. Where is the highest peak on the island located? _____
4. What can be found on the island in D8? _____
5. Give the grid reference for:
 - a) the most southern point of the main island. _____
 - b) the rescue boat anchored off the coast. _____
6. Wolf's pick up point is on the eastern side of the island in H4. Mark this pick up point on the map with an X.
7. With a dotted line, mark the quickest route that Wolf could take from his pick up point to the boat. Estimate how far Wolf has to walk to the drop off point. _____
8. What might force Wolf to change his course? Give the grid reference/s. _____

