

# Maths Trek

Exploring maths in the real world

4



Sample Student Book Pages

**firefly**  
EDUCATION

# Your Introduction to Maths Trek

Maths Trek is a whole-school numeracy program that provides everything you and your students need to explore maths in real-world contexts.

To maximise the benefits of the program, use the Student Book with the explicit teaching resources at Maths Trek Online to build, develop and strengthen each student's ability to work mathematically.

**An adventure in maths for every student from Foundation to Year 6!**

## Maths Trek Online

Maths Trek Online is home to lesson guides, teaching slides, interactive teaching tools, videos, printable differentiation tasks and mid-term assessments.

You will also find investigation notes, Student Book answers, and preparation and planning documents at Maths Trek Online.



## Maths Trek Student Book

The Student Book is packed with modelled examples as well as teacher-guided and independent activities for every topic and problem-solving strategy.

Students will also find plenty of practice problems, revision activities, application questions and investigation pages in the Student Book.



# Using the Student Book with Online

## Topics

Use the online lesson guides and teaching slides to explicitly teach each topic.

Go to the corresponding Student Book page and discuss any modelled examples. Complete the *Work together* activities with your students. Then students move on to the *Your turn* activities for independent practice.

The Student Book is an integral part of the consolidation process. Once you have explicitly taught each concept, it is essential that students apply what they have learned to the activities.

## Revision

Use the revision activities throughout the Student Book to consolidate each student's learning and identify strengths and weaknesses.

## Problem-solving

Use the videos, teaching slides and modelled examples in the Student Book to teach each problem-solving strategy.

Students consolidate their skills throughout the year by independently completing practice problems. These build confidence in choosing appropriate strategies to solve a variety of unfamiliar problems.

## Investigations

Investigations provide students with opportunities to apply maths concepts learned in previous weeks to unfamiliar, extended mathematical problems.

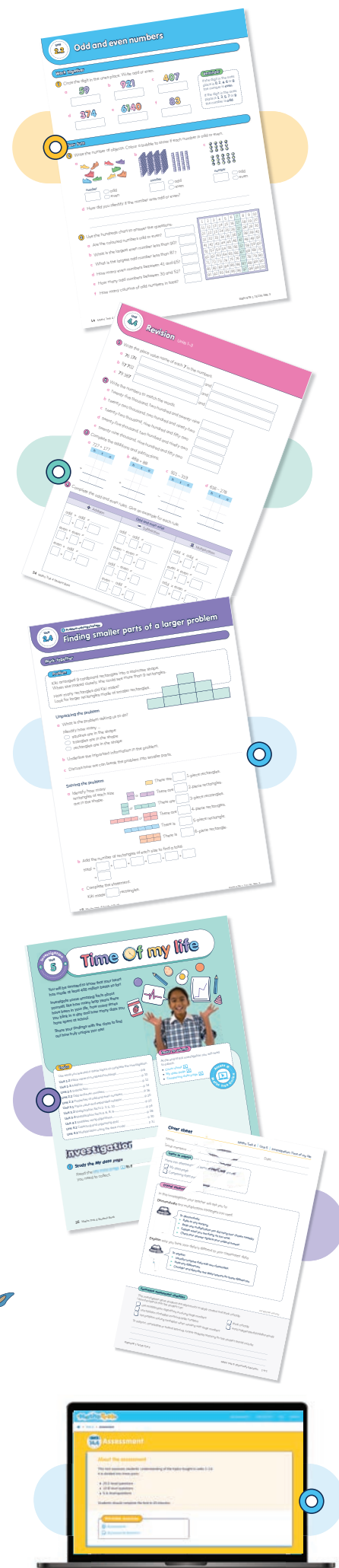
Use the online teaching notes, exemplars, videos and printable resources to introduce and guide students through each step of the investigation.

Use the online critical thinking lessons to ensure students can reflect, reason and communicate their understanding of what they have discovered.

Download the *Cover sheet* and use the formative assessment checklist to record each student's progress.

## Assessment

Download the four mid-term assessments at Maths Trek Online to assess each student's understanding of the preceding topics. Each assessment includes graded C to A level questions.





# Contents





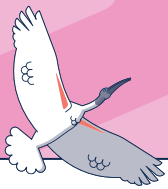
## Term 1





<b>Unit 1</b>	<b>1.1</b>	Maths is everywhere	6
	<b>1.2</b>	Place value to hundred thousands	8
	<b>1.3</b>	Addition	10
<hr/>			
<b>Unit 2</b>	<b>2.1</b>	Subtraction	12
	<b>2.2</b>	Odd and even numbers	14
	<b>2.3</b>	Properties of odd and even numbers	16
	<b>2.4</b>	PS strategy: Finding smaller parts of a larger problem	18
<hr/>			
<b>Unit 3</b>	<b>3.1</b>	Place value and expanded notation	20
	<b>3.2</b>	Multiplication facts 2, 3, 5, 10	22
	<b>3.3</b>	Multiplication facts 4, 6, 8, 9	24
	<b>3.4</b>	PS strategy: Making an organised list	26
<hr/>			
<b>Unit 4</b>	<b>4.1</b>	Multiples using algorithms	28
	<b>4.2</b>	Collecting and organising data	30
	<b>4.3</b>	Multiplication using the area model	32
	<b>4.4</b>	Revision: Units 1–4	34
<hr/>			
<b>Unit 5</b>		<b>Investigation: Time of my life</b>	36
<hr/>			
<b>Unit 6</b>	<b>6.1</b>	Modelling to solve problems	38
	<b>6.2</b>	Calculating with money	40
	<b>6.3</b>	Budgets	42
	<b>6.4</b>	PS strategy: Drawing a picture or diagram	44
	<b>6.5</b>	Assessment*	
<hr/>			
<b>Unit 7</b>	<b>7.1</b>	Reading graduated scales	46
	<b>7.2</b>	Measuring with litres and millilitres	48
	<b>7.3</b>	Converting litres and millilitres	50
	<b>7.4</b>	PS strategy: Working backwards	52
<hr/>			
<b>Unit 8</b>	<b>8.1</b>	Measuring with kilograms and grams	54
	<b>8.2</b>	Rounding to ten thousands	56
	<b>8.3</b>	Multiplication using the area model	58
	<b>8.4</b>	Revision: Units 6–8	60
<hr/>			
<b>Unit 9</b>		<b>Investigation: Plenty of pikelets</b>	62

## Term 2

<b>Unit 10</b>	<b>10.1</b>	Factors	64
	<b>10.2</b>	Line symmetry	66
	<b>10.3</b>	Symmetrical patterns	68
	<b>10.4</b>	PS strategy: Making a table or chart	70
<hr/>			
<b>Unit 11</b>	<b>11.1</b>	Place value to tenths	72
	<b>11.2</b>	Tenths on a number line	74
	<b>11.3</b>	Measuring perimeter	76
	<b>11.4</b>	PS strategy: Acting out the problem	78
<hr/>			
<b>Unit 12</b>	<b>12.1</b>	Calculating perimeter	80
	<b>12.2</b>	Area	82
	<b>12.3</b>	Area of irregular shapes	84
	<b>12.4</b>	Revision: Units 10–12	86
<hr/>			
<b>Unit 13</b>		<b>Investigation: It's only natural</b>	88
<hr/>			
<b>Unit 14</b>	<b>14.1</b>	Describing possible outcomes	90
	<b>14.2</b>	Dependent and independent events	92
	<b>14.3</b>	Combining objects	94
	<b>14.4</b>	Assessment*	
<hr/>			
<b>Unit 15</b>	<b>15.1</b>	Equivalent number sentences	96
	<b>15.2</b>	Addition	98
	<b>15.3</b>	Subtraction	100
	<b>15.4</b>	PS strategy: Guessing and checking	102
<hr/>			
<b>Unit 16</b>	<b>16.1</b>	Picture graphs	104
	<b>16.2</b>	Multiplying and dividing by 10, 100, 1000	106
	<b>16.3</b>	Rounding using a target digit strategy	108
	<b>16.4</b>	PS strategy: Solving a simpler problem	110
<hr/>			
<b>Unit 17</b>	<b>17.1</b>	Estimation strategies	112
	<b>17.2</b>	Grid references	114
	<b>17.3</b>	Maps, pathways and directions	116
	<b>17.4</b>	Revision: Units 14–17	118
<hr/>			
<b>Unit 18</b>		<b>Investigation: Heritage hunt</b>	120





## Term 3

<b>Unit 19</b>	<b>19.1</b>	Addition	122
	<b>19.2</b>	Subtraction	124
	<b>19.3</b>	Column graphs	126
	<b>19.4</b>	PS strategy: Finding a pattern or using a rule	128
<hr/>			
<b>Unit 20</b>	<b>20.1</b>	Picture graphs	130
	<b>20.2</b>	Comparing graphs	132
	<b>20.3</b>	Fractions on a number line	134
	<b>20.4</b>	Problem-solving practice	136
<hr/>			
<b>Unit 21</b>	<b>21.1</b>	Equivalent fractions	138
	<b>21.2</b>	Angles	140
	<b>21.3</b>	Tessellation	142
	<b>21.4</b>	Revision: Units 19–21	144
<hr/>			
<b>Unit 22</b>		<b>Investigation: Ripper rides</b>	146
<hr/>			
<b>Unit 23</b>	<b>23.1</b>	Turnarounds and friendly pairs	148
	<b>23.2</b>	Algorithms	150
	<b>23.3</b>	Fractions as division	152
	<b>23.4</b>	Assessment*	
<hr/>			
<b>Unit 24</b>	<b>24.1</b>	Predicting possible outcomes	154
	<b>24.2</b>	Place value to hundredths	156
	<b>24.3</b>	Hundredths on a number line	158
	<b>24.4</b>	Problem-solving practice	160
<hr/>			
<b>Unit 25</b>	<b>25.1</b>	Division facts 2, 3, 5, 10	162
	<b>25.2</b>	Division facts 4, 6, 8, 9	164
	<b>25.3</b>	Division	166
	<b>25.4</b>	Problem-solving practice	168
<hr/>			
<b>Unit 26</b>	<b>26.1</b>	Place value and expanded notation	170
	<b>26.2</b>	Multiplication	172
	<b>26.3</b>	Inverse operations	174
	<b>26.4</b>	Revision: Units 23–26	176
<hr/>			
<b>Unit 27</b>		<b>Investigation: Super sports stadium</b>	178

## Planning made easy

Maths Trek guides you and your students through a sequence of topics, problem-solving, revision and investigations. As the year progresses, your students consolidate their learning and revisit concepts. They also have ample opportunity to apply what they've learned to unfamiliar, extended maths problems.

You'll find four assessments in the yearly plan too — one for each term. They assess each student's understanding of the preceding topics and are available to print at Maths Trek Online.





			80
			82
			84
			86
			88
			90
			92
			194
<hr/>			
<b>Unit 30</b>	<b>30.1</b>	Quadrilaterals	196
	<b>30.2</b>	Combining shapes	198
	<b>30.3</b>	Converting units of time	200
	<b>30.4</b>	Revision: Units 28–30	202
<hr/>			
<b>Unit 31</b>		<b>Investigation: Double trouble</b>	204
<hr/>			
<b>Unit 32</b>	<b>32.1</b>	Time (am and pm)	206
	<b>32.2</b>	Reading and interpreting timetables	208
	<b>32.3</b>	Time to the nearest minute	210
	<b>32.4</b>	Assessment*	
<hr/>			
<b>Unit 33</b>		<b>Investigation: Movie marathon</b>	212
<hr/>			
<b>Unit 34</b>		<b>Investigation: Want more investigations?</b>	214

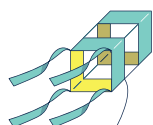
## Want more investigations?

You'll find extra investigations at Maths Trek Online — a great way to round off a year of maths!

### Extra investigations

Why not conclude the year with an extra investigation? Teachers can log in to Maths Trek Online to access the printable pages and resources.





-  **Investigation: Lengthy Leaps**
-  **Investigation: Fraction fun**
-  **Investigation: Puzzling perimeters**
-  **Investigation: Angle Art**



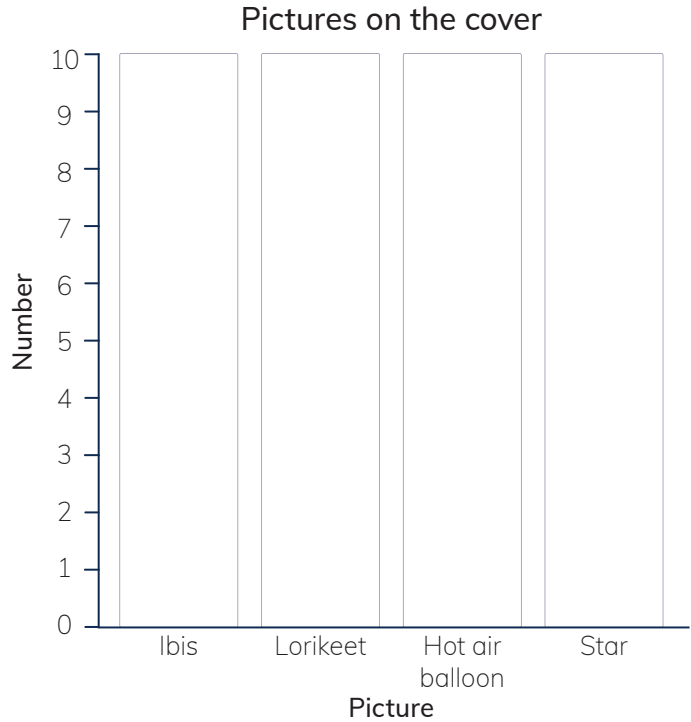


### Tally time

Look at the cover of your book.  
Tally the pictures, then write the totals.

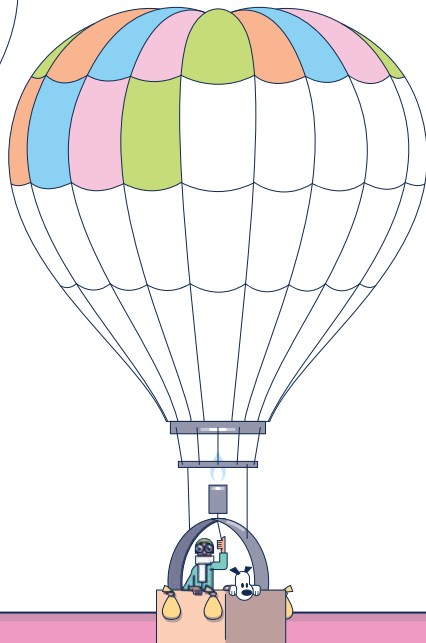
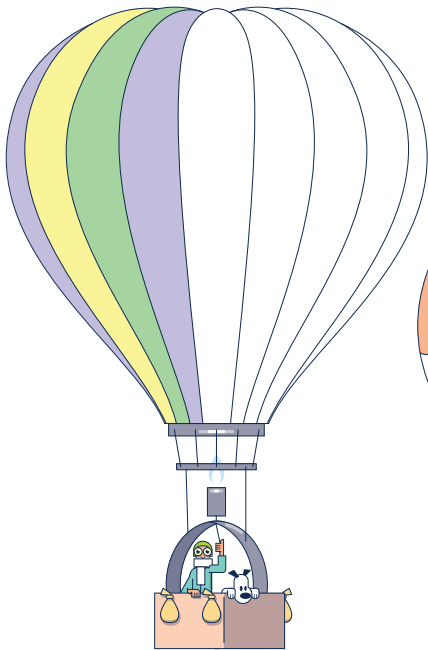
Picture	Tally	Total
 Ibis		
 Lorikeet		
 Hot air balloon		
 Star		

Use the data from the table to complete the column graph.

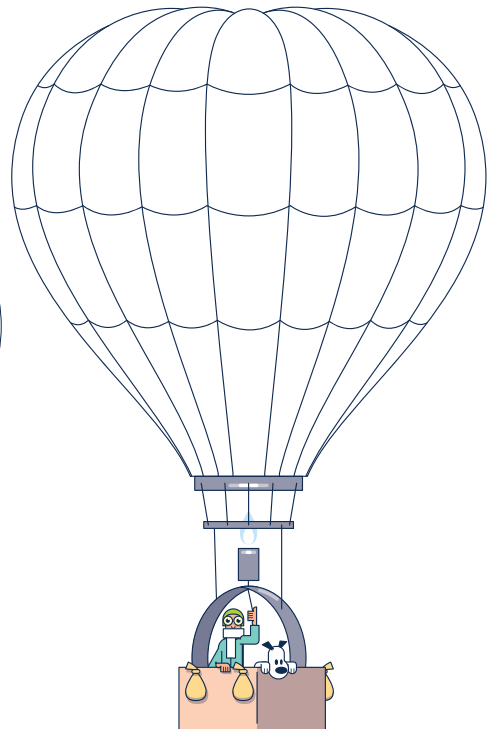


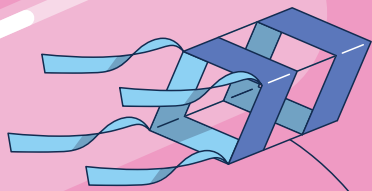
### Balloon patterns

Complete the repeating patterns.



Make your own repeating pattern.



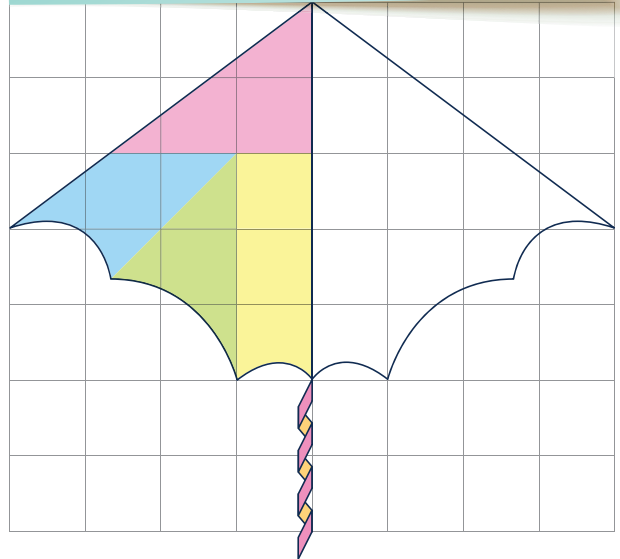
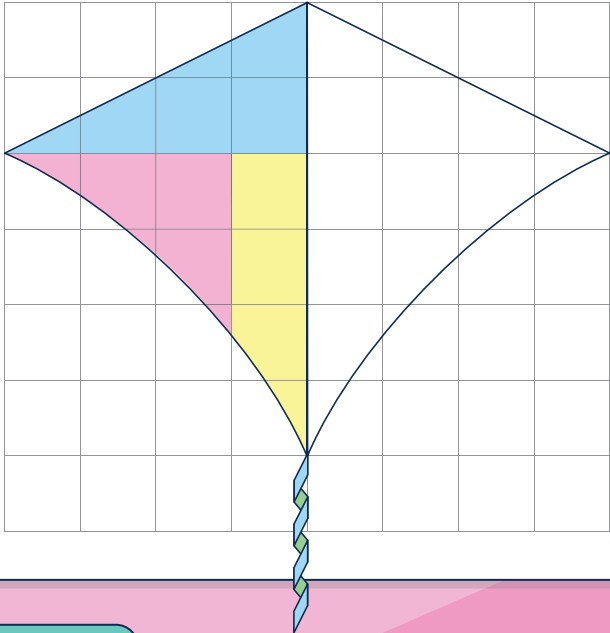


## Engaging activities from day one

Get your students excited about maths as they apply skills learned in the previous year to these fun activities — all cleverly inspired by the art on the cover.

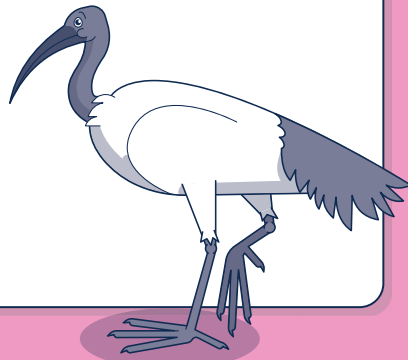
### Mirror images

Draw the reflection of the patterns to complete the



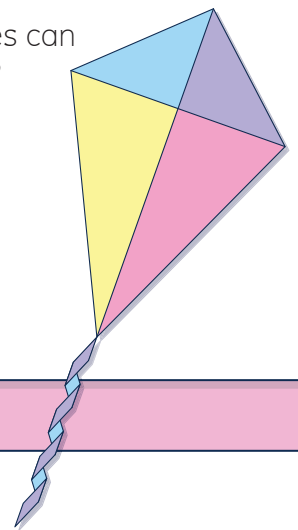
### Ibis maths

An ibis has four toes on each foot.  
How many toes in a flock of 40 ibises?



### Triangle search

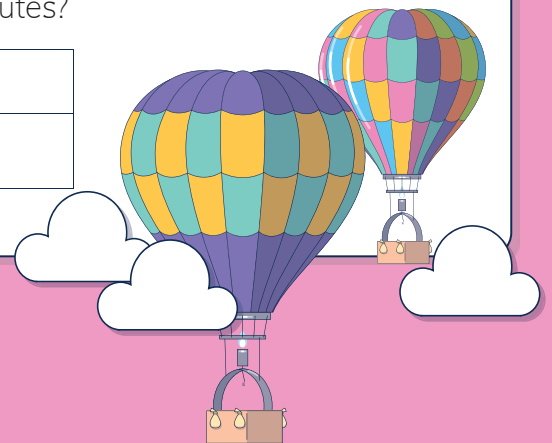
How many triangles can you find in the kite?



### Up, up and away!

A hot air balloon rises 110 metres every minute.  
If it starts on the ground, how high will the balloon be in 5 minutes?

Time (minutes)	1	2	3		
Height above the ground (metres)	110				



## Work together

Thousands group			Ones group		
hundred Thousands	ten Thousands	Thousands	hundreds	tens	ones
hT	tT	T	h	t	o

1 Write the place value name of each **3** in the numbers.

- a 36 132  and
- b 29 330  and
- c 73 993  and

## Your turn

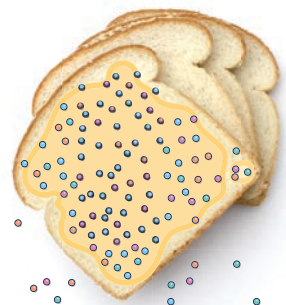
2 Write the numbers in the place value chart.

- a eighty-one thousand, six hundred and seventy-five
- b fifty-two thousand, eight hundred and twenty-two
- c twenty-five thousand, nine hundred and sixty-three
- d ninety-eight thousand and seventy-four
- e eighty-six thousand, seven hundred and three
- f eleven thousand, five hundred and ninety-six

tT	T	h	t	o

3 Write the value of the **bold** digit. The first one is done for you.

- a 27 444  d **5**0 202
- b **3**9 613  e 33 **8**17
- c 76 **9**58  f 92 **0**06



4 Write the numbers to match the words.

- a fifty-six thousand, five hundred and fifty-two
- b fifty-five thousand, five hundred and twenty-five
- c fifty-five thousand, two hundred and sixty-five
- d fifty-six thousand, five hundred and twenty-five
- e fifty-two thousand, two hundred and fifty-five

### Tip

Use a space to separate the thousands when writing a number with 5 or more digits.

12 345 ✓

1234 ✓



5 Write the area of Croatia in words.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ square kilom

6 Write the area of the Netherlands in words.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ square kilometres

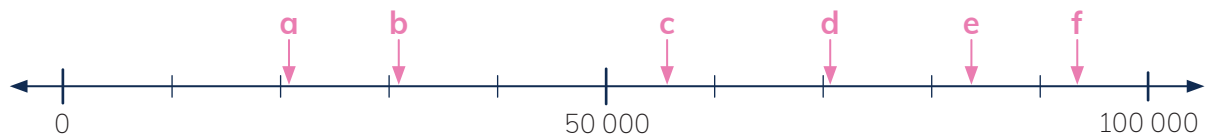
### 70+ topics in every year

From number and measurement to space and statistics, your students complete a wide variety of activities to apply what they've learned in the lesson.

Key topics, like this one, are revisited throughout the year to consolidate learning.

Hungary	93 030
Netherlands	41 526
Slovenia	20 273

7 Write the countries that match the areas labelled on the number line.



a	<input type="text"/>	d	<input type="text"/>
b	<input type="text"/>	e	<input type="text"/>
c	<input type="text"/>	f	<input type="text"/>

8 Write the value of the **3** in the area of each country.

a Belgium	<input type="text"/>	c Denmark	<input type="text"/>
b Slovenia	<input type="text"/>	d Ireland	<input type="text"/>



9 The area of Tasmania is 68 401 square kilometres. How many European countries in the table are smaller than Tasmania?

### Challenge

Roll a dice 5 times. Write each number in a box.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

a Rearrange the digits to make the greatest number.

b Rearrange the digits to make the smallest number.

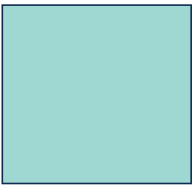
c Use the digits to make a number closest to the area of the Netherlands.

d Use the digits to make a number closest to the area of Denmark.

## Work together

1 Calculate the perimeters of the shapes.

**a**



5 m

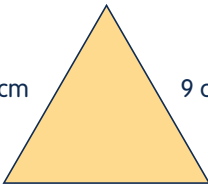
5 m

5 m

5 m

$$\begin{aligned} & \boxed{\phantom{0}} \text{ m} + \boxed{\phantom{0}} \text{ m} + \boxed{\phantom{0}} \text{ m} + \boxed{\phantom{0}} \text{ m} \\ &= \boxed{\phantom{0}} \text{ m} \times 4 \quad \leftarrow \text{shortcut} \\ &= \boxed{\phantom{0}} \text{ m} \end{aligned}$$

**b**



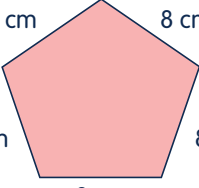
9 cm

9 cm

9 cm

$$\begin{aligned} & \boxed{\phantom{0}} \text{ cm} + \boxed{\phantom{0}} \text{ cm} + \boxed{\phantom{0}} \text{ cm} \\ &= \boxed{\phantom{0}} \text{ cm} \times 3 \quad \leftarrow \text{shortcut} \\ &= \boxed{\phantom{0}} \text{ cm} \end{aligned}$$

**c**



8 cm

8 cm


8 cm

8 cm

8 cm

$$\begin{aligned} & \boxed{\phantom{0}} \text{ cm} + \boxed{\phantom{0}} \text{ cm} + \boxed{\phantom{0}} \text{ cm} + \boxed{\phantom{0}} \text{ cm} + \boxed{\phantom{0}} \text{ cm} \\ &= \boxed{\phantom{0}} \text{ cm} \times 5 \quad \leftarrow \text{shortcut} \\ &= \boxed{\phantom{0}} \text{ cm} \end{aligned}$$

**d**



10 m

5 m

5 m


10 m

$$\begin{aligned} & (10 \text{ m} + 5 \text{ m}) + (10 \text{ m} + 5 \text{ m}) \\ &= \boxed{\phantom{0}} \text{ m} \times 2 \quad \leftarrow \text{shortcut} \\ &= \boxed{\phantom{0}} \text{ m} \end{aligned}$$

## Your turn

2 Use shortcuts to calculate the perimeters of the shapes.

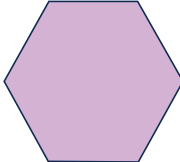
**a**



11 cm

$$\begin{aligned} & 11 \text{ cm} \times 4 \\ &= \end{aligned}$$


**b**



3 m

$$\begin{aligned} & \\ &= \end{aligned}$$

**c**

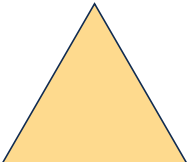


7 m

3 m

$$\begin{aligned} & \\ &= \end{aligned}$$

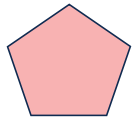
**d**



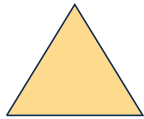
8 cm

$$\begin{aligned} & \\ &= \end{aligned}$$

3 **Riddle time:** Calculate the perimeters of the shapes. To solve the riddle, copy the letters that match the answers into the boxes below.



3 cm

 (H)


20 cm

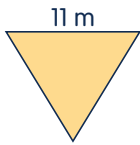
 (U)


4 cm

 (A)


15 cm

10 cm

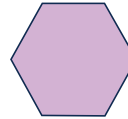
 (R)


11 m

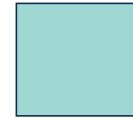
 (M)


12 m

3 m

 (P)


6 m

 (E)


8 m

 (T)

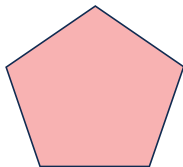
Every day we measure something that has no length, width or thickness. What is it?

32 m	15 cm	36 m
<input type="text"/>	<input type="text"/>	<input type="text"/>

32 m	36 m	33 m	30 m	36 m	50 cm	16 cm	32 m	60 cm	50 cm	36 m
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



4 Use shortcuts to calculate the length of the sides of each shape.



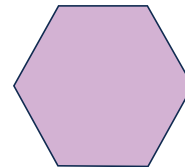
a perimeter 45 m

side



b perimeter 24 m

side

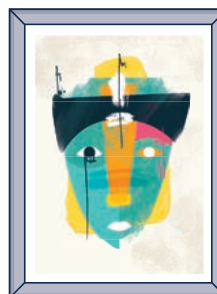


c perimeter 54 m

side

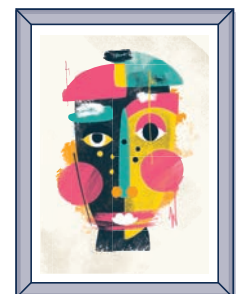
5 An art gallery wants to frame two new paintings. The materials cost \$100 per metre of frame. What is the total cost of both frames?

\$



50 cm

25 cm

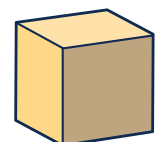


50 cm

25 cm

### Challenge

What is the perimeter of the net of a 5 cm cube?  
Try drawing the net on a separate piece of paper to help.



5 cm

1 Write the place value name of each **7** in the numbers.

a 76 174  and

b 57 702  and

c 79 387  and

2 Write the numbers to match the words.

a twenty-five thousand, two hundred and twenty-nine

b twenty-two thousand, two hundred and ninety-two

c twenty-two thousand, nine hundred and fifty-two

d twenty-five thousand, two hundred and ninety-two

e twenty-nine thousand, nine hundred and fifty-two

3 Complete the additions and subtractions.

a  $727 + 177$

h	t	o
+		

b  $488 + 88$

h	t	o
+		

c  $921 - 319$

h	t	o
-		

d  $616 - 278$

h	t	o
-		

4 Complete the odd and even rules. Give an example for each rule.

Odd and even rules		
$\oplus$ Addition	$\ominus$ Subtraction	$\otimes$ Multiplication
odd + odd = _____ <input type="text"/> + <input type="text"/> = <input type="text"/>	odd - odd = _____ <input type="text"/> - <input type="text"/> = <input type="text"/>	odd $\times$ odd = _____ <input type="text"/> $\times$ <input type="text"/> = <input type="text"/>
even + even = _____ <input type="text"/> + <input type="text"/> = <input type="text"/>	even - even = _____ <input type="text"/> - <input type="text"/> = <input type="text"/>	even $\times$ even = _____ <input type="text"/> $\times$ <input type="text"/> = <input type="text"/>
even + odd = _____ <input type="text"/> + <input type="text"/> = <input type="text"/>	odd - even = _____ <input type="text"/> - <input type="text"/> = <input type="text"/>	odd $\times$ even = _____ <input type="text"/> $\times$ <input type="text"/> = <input type="text"/>
	even - odd = _____ <input type="text"/> - <input type="text"/> = <input type="text"/>	

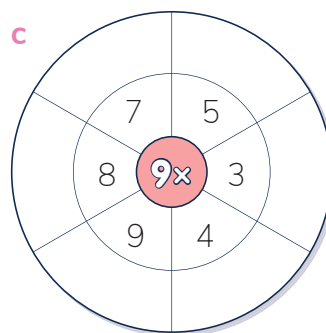
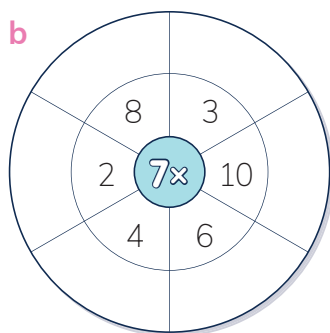
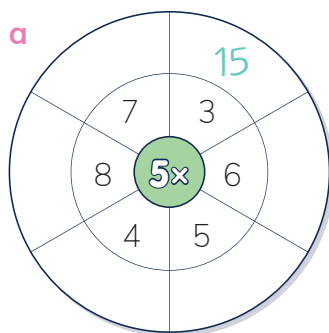
5 Complete the table.

Numeral	Word form
49 160	
	eighty-three thousand, six hundred and fourteen
	forty thousand, two hundred and seven

### Regular revision

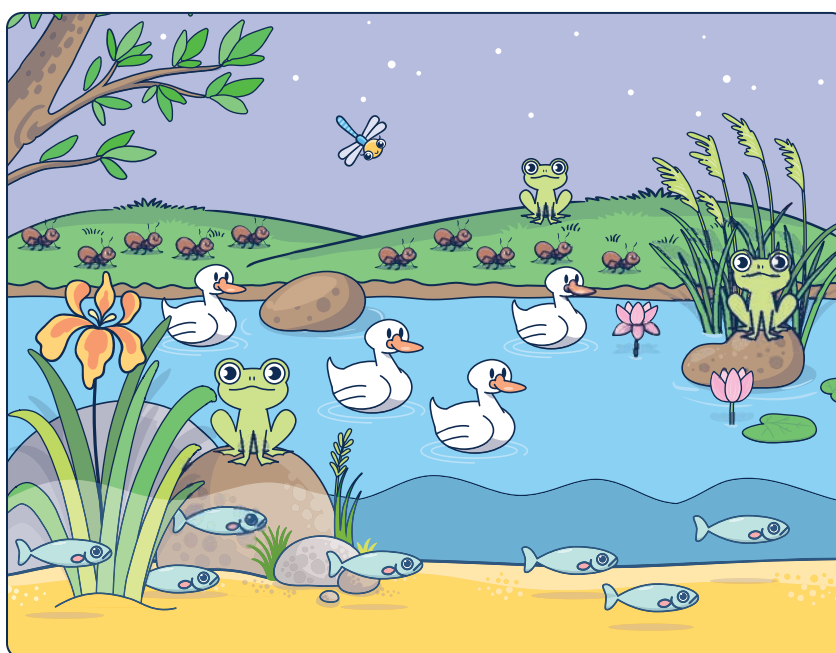
Every 4–5 weeks, your students complete revision activities based on the preceding topics. This regular revision is great for consolidating learning and identifying each student's strengths and weaknesses.

6 Complete the multiplication circles.



7 Use tally marks (||||) to show how many, then write the total.

Object	Tally	Total



8 Multiply using the area model, then add to find the answer.

a  $37 \times 5$



+

h	t	o
<hr/>		
<hr/>		

b  $52 \times 9$



+

h	t	o
<hr/>		
<hr/>		

# Time of my life

You will be amazed to know that your heart has made at least 400 million beats so far!

Investigate some amazing facts about yourself, like how many leap years there have been in your life, how many times you blink in a day and how many days you have spent at school.

Share your findings with the class to find out how truly unique you are!



## Topics

Use what you learned in these topics to complete the investigation.

Unit 1.2 Place value to hundred thousands .....	p 8
Unit 1.3 Addition .....	p 10
Unit 2.1 Subtraction .....	p 12
Unit 2.2 Odd and even numbers .....	p 14
Unit 2.3 Properties of odd and even numbers .....	p 16
Unit 3.1 Place value and expanded notation .....	p 20
Unit 3.2 Multiplication facts 2, 3, 5, 10 .....	p 22
Unit 3.3 Multiplication facts 4, 6, 8, 9 .....	p 24
Unit 4.1 Multiples using algorithms .....	p 28
Unit 4.2 Collecting and organising data .....	p 30
Unit 4.3 Multiplication using the area model .....	p 32

## Items to submit

At the end of this investigation you will need to submit:

- Cover sheet
- My data page
- Comparing data page



## Investigation steps

### 1 Study the My data page

Read the [My data page](#) to find the results you need to collect.



## 2 Gather necessary information


Brainstorm with your classmates how you are going to count, calculate and record data such as blinks, breaths, heartbeats and days in a school year.

## 3 Calculate how many days you have lived

You can follow these steps or go ahead and use your own strategy. Knowing how many days you have lived will help you with other calculations.

1. Multiply your age in whole years by 365.
2. Count one day for each of the leap years you have lived.
3. Count the number of days since your last birthday. Do this month by month.
4. Add the totals to find the number of days you have lived.


## 4 Calculate the other facts

You should now be able to calculate all the amazing facts you need to complete your [My data page](#) .

You might like to investigate other facts about yourself, for example how many times you have brushed your teeth or how many hours you have slept in your life.

Include all your working to show how you calculated each fact.

## 5 Compare and contrast your data

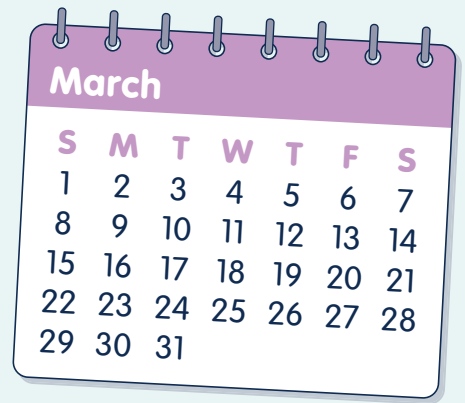
Complete the table on your [Comparing data page](#)  to record your data next to two other classmates' data.

Write five sentences comparing and contrasting all the data on your [Comparing data page](#) .

Share your findings with the class.

## 6 Critical thinking

**Demonstrate** any multiplication strategies you use.  
**Explain** possible reasons for differences between your data and your classmate's data.



### Bring maths to life

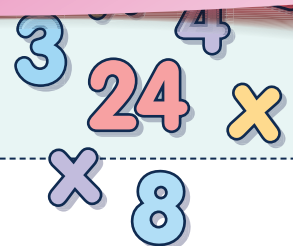
Every Student Book features up to eight investigations. Designed to be conducted over a week, each investigation is packed with opportunities for your students to apply their maths skills to unfamiliar, extended problems.

### Develop critical thinking skills

Critical thinking is an essential step in every investigation. At Maths Trek Online you'll find critical thinking lessons, cognitive verb definitions, examples and hints — all designed to help your students craft well-reasoned responses to critical thinking questions.

### Inquiry

Based on your teacher's age, calculate how many times their heart has beaten.

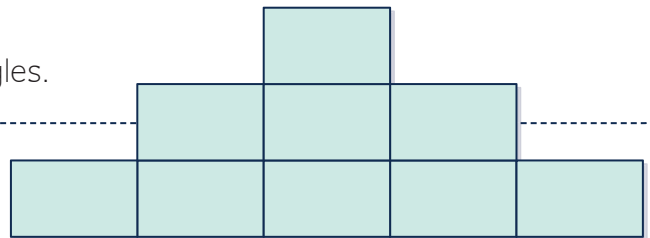


# Finding smaller parts of a larger problem

## Work together

### Problem

Kiki arranged 9 cardboard rectangles into a staircase shape. When she looked closely, she could see more than 9 rectangles. How many rectangles did Kiki make? Look for larger rectangles made of smaller rectangles.



### Unpacking the problem

**a** What is the problem asking us to do?

Identify how many ...

- squares are in the shape
- triangles are in the shape
- rectangles are in the shape

**b** Underline the important information in the problem.

**c** Discuss how we can break the problem into smaller parts to find the answer.

### Solving the problem

**a** Identify how many rectangles of each size are in the shape.

There are  1-piece rectangles.  
 There are  2-piece rectangles.  
 There are  3-piece rectangles.  
 There are  4-piece rectangles.  
 There is  5-piece rectangle.  
 There is  6-piece rectangle.

**b** Add the number of rectangles of each size to find a total.

$$\text{total} = \boxed{\phantom{00}} + \boxed{\phantom{00}} + \boxed{\phantom{00}} + \boxed{\phantom{00}} + \boxed{\phantom{00}} + \boxed{\phantom{00}}$$

$$= \boxed{\phantom{00}}$$

**c** Complete the statement.

Kiki made  rectangles.

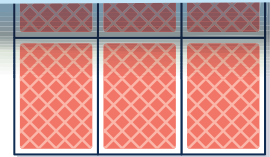


**Nine problem-solving strategies**

Use the online teaching resources and scaffolded *Work together* problem to explicitly teach each strategy. Then give your students independent practice at applying the strategy as they complete the *Your turn* problems.

**Problem A**

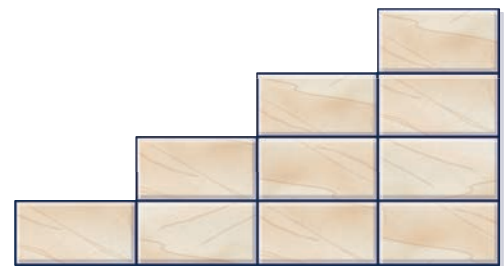
Serena made a shape using 7 rectangular cards.  
 How many rectangles did she make?  
 Look for larger rectangles made of smaller rectangles



Serena made  rectangles.

**Problem B**

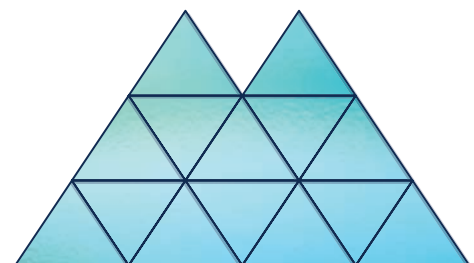
Billy arranged 10 bathroom tiles into a staircase shape.  
 How many rectangles did he make?  
 Look for larger rectangles made of smaller rectangles.



Billy made  rectangles.

**Problem C**

Mia saw a window at a museum that was made of many triangular panels. She counted all the triangles of different sizes she could see.  
 How many triangles did Mia count?



Mia counted  triangles.

## Problem A

Three groups of students are preparing for a science experiment. Every student selects one jug of water and takes it back to their group. Each group needs exactly 1 litre of water for the experiment.

Identify which jugs of water each group needs.



group 1



group 2



group 3



100 mL



150 mL



300 mL



350 mL



400 mL



500 mL



600 mL



600 mL

group 1

 mL

 mL

 mL

group 2

 mL

 mL

group 3

 mL

 mL

 mL

## Think critically

a How did you solve the problem? Tick the strategy or strategies you used.

- |  |  |
|--|--|
| <input type="checkbox"/> Guessing and checking     | <input type="checkbox"/> Drawing a picture or diagram              |
| <input type="checkbox"/> Acting out the problem    | <input type="checkbox"/> Finding a pattern or using a rule         |
| <input type="checkbox"/> Solving a simpler problem | <input type="checkbox"/> Making an organised list                  |
| <input type="checkbox"/> Making a table or chart   | <input type="checkbox"/> Finding smaller parts of a larger problem |
| <input type="checkbox"/> Working backwards         |  |

b What if one of the jugs with 600 mL held 300 mL instead?  
Explain whether all three groups could collect an equal volume of water.

### Problem B

Renee's puppy Rex is growing fast! Renee weighs Rex on the same day each week. Two weeks ago he weighed 3.2 kg. Last week he weighed 3.4 kg. Today the scales showed 3.6 kg. Predict how much Rex will weigh four weeks from today.



### Plenty of problem-solving practice

As the year progresses, your students practise choosing appropriate problem-solving strategies to solve a variety of unfamiliar problems.

In four weeks Rex will weigh  kg.

### Share and discuss

Encourage your students to share their solutions and explain how they used their chosen strategies.

Then discuss the extra related problem with your students to further develop their critical thinking skills.

### Think critically

a How did you solve the problem? Tick the strategies you used.

- |  |  |
|--|--|
| <input type="checkbox"/> Guessing and checking     | <input type="checkbox"/> Drawing a picture                         |
| <input type="checkbox"/> Acting out the problem    | <input type="checkbox"/> Finding a pattern                         |
| <input type="checkbox"/> Solving a simpler problem | <input type="checkbox"/> Making an organised list                  |
| <input type="checkbox"/> Making a table or chart   | <input type="checkbox"/> Finding smaller parts of a larger problem |
| <input type="checkbox"/> Working backwards         |  |

b What if Rex only gained 150 g per week after reaching 3.6 kg? Predict how much Rex would weigh in four weeks.

# The Maths Trek Program

Maths Trek is a whole-school numeracy program for Foundation to Year 6 that develops mathematical understanding, fluency, reasoning and problem-solving skills.

The Student Book together with the explicit teaching resources at Maths Trek Online build, develop and strengthen each student's ability to work mathematically.

Use the comprehensive online teaching resources to explicitly teach each concept before students apply their learning in the Student Book.



## In the Student Book you will find ...

- shared *Work together* activities
- modelled examples
- independent activities to develop and master maths skills
- concepts revisited throughout the year
- scaffolded problems to learn key problem-solving strategies
- practice problems to build confidence in applying the strategies
- real-world investigations where students apply maths skills to unfamiliar, extended mathematical problems to strengthen connections between concepts
- regular revision to consolidate learning

## At Maths Trek Online you will find ...

- explicit teaching slides and lesson guides for every topic
- 3 levels of differentiation tasks for every topic
- interactive teaching tools
- problem-solving strategy videos
- investigation videos
- place value videos
- digital and printable resources to guide students through every investigation
- critical thinking lessons in every investigation
- mid-term assessments
- access to teaching resources for all year levels

## Head to [www.fireflyeducation.com.au/mathstrek](http://www.fireflyeducation.com.au/mathstrek) to:

- view Maths Trek sample pages from other year levels
- download the curriculum match and yearly plan documents
- check out the full Maths Trek product range
- book a meeting with your local education consultant to learn about Maths Trek.

