

# Maths Trek

Exploring maths in the real world

1  
NSW STAGE 1

## Take a look inside!

As you explore these sample pages, look out for these handy notes which point out the important information and exciting features of Maths Trek.



Sample Student Book Pages  
(NSW Syllabus Edition)

firefly  
EDUCATION

# Your Maths Trek Teacher Guide

- 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 Kindergarten to Year 6!



## ○ Maths Trek Online

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

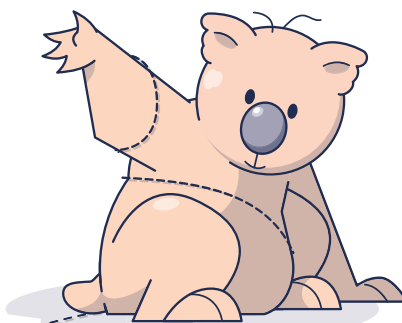
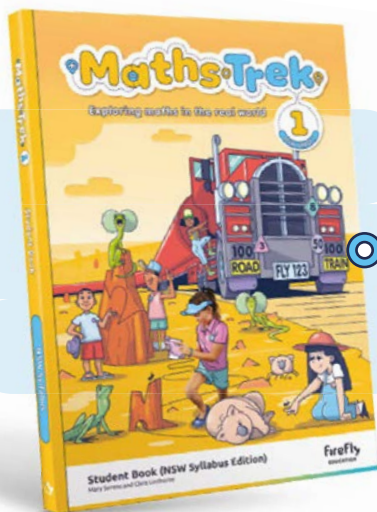
You will also find investigation notes, Student Book answers, and preparation and planning documents at Maths Trek Online.



## ○ Maths Trek Student Book

The Student Book is packed with 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.

Students then complete the scaffolded activities in the Student Book with you or independently.

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.

Download the *Problem-Solving Progress Checklist* to record each student's progress throughout the year.



## 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.

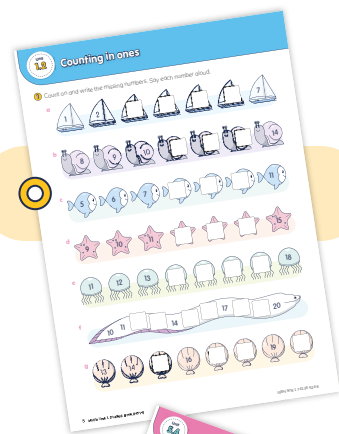
Work together with your students to read, plan and complete each step of the investigation, including the Student Book activity.

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

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

## Assessment


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




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## 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.

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### 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.

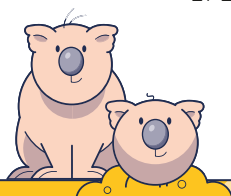


**Investigation: Plenty of popsticks**



**Investigation: Win or lose**

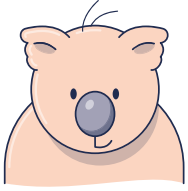
\* Log in to Maths Trek Online to download and print assessments.



# Maths is everywhere

## Cover hunt

Write how many of each picture you see on the front cover of your book.



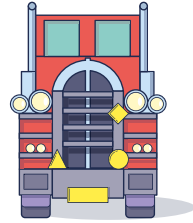
wombat



lizard



hat



road train

Colour the numbers you see on the front cover of your book.

3

15

100

50

25

20

8

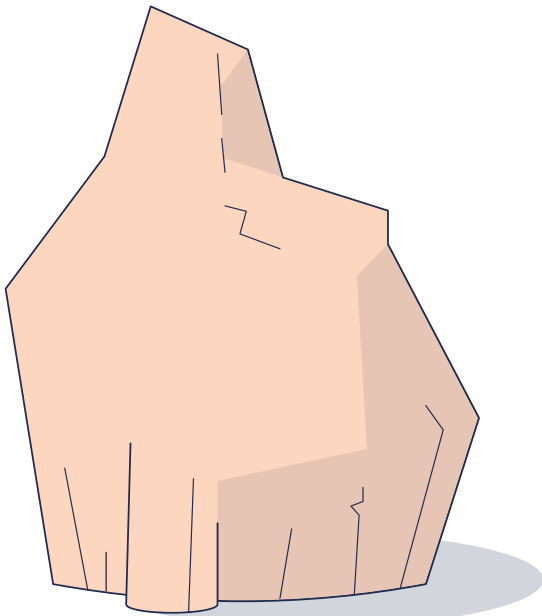
1

2

123

## Ant paths

Draw 8 ants marching on the termite mound.



Colour the ants to continue the pattern.



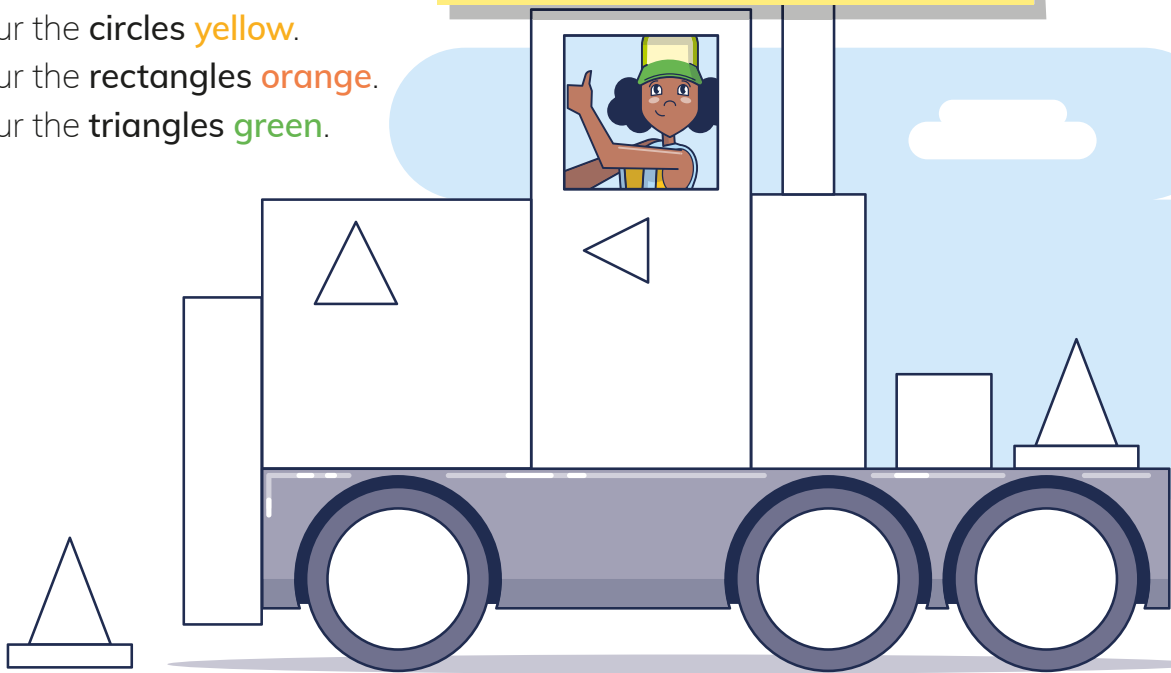
## Engaging activities from day one

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.



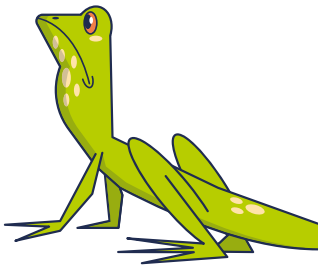
### Shape hunt

- Colour the **squares blue**.
- Colour the **circles yellow**.
- Colour the **rectangles orange**.
- Colour the **triangles green**.

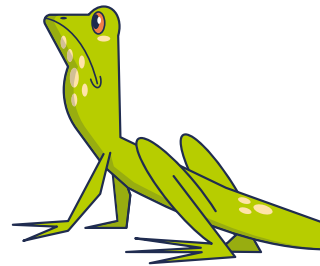


### Long and short

Draw a **long** tail.



Draw a **short** tail.



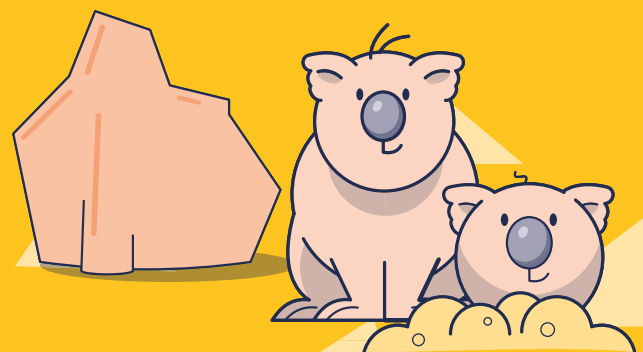
### Lizard maths

I spy 2 lizards sitting on a rock.

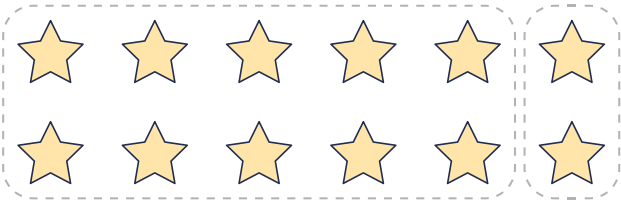
How many tails?

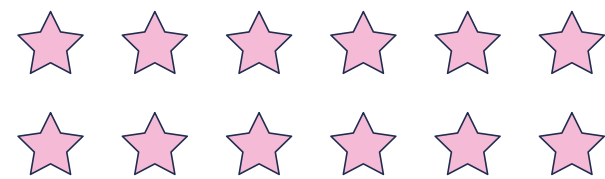
How many eyes?

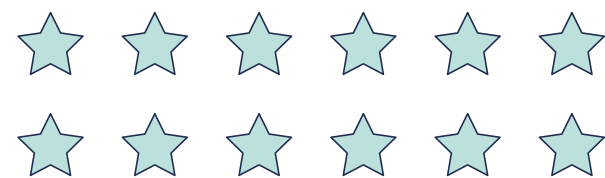
How many legs?



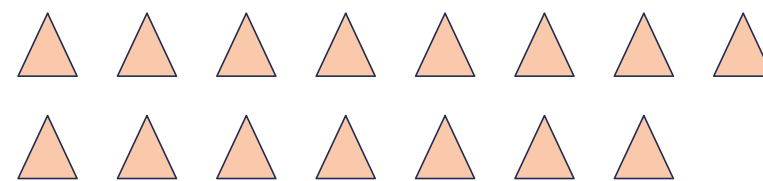
1 Show different ways **12** can be split into two groups.  
Complete the number sentences. The first one is started for you.

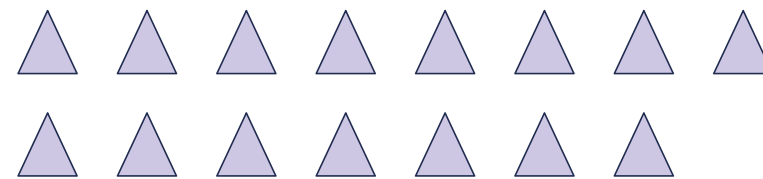
a   $\square + \square = 12$

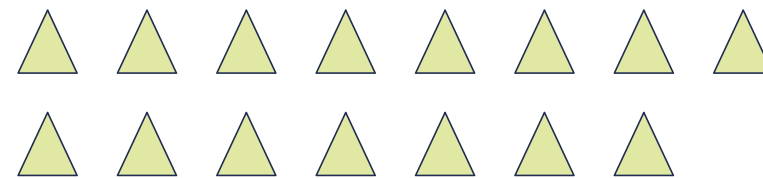
b   $\square + \square = 12$

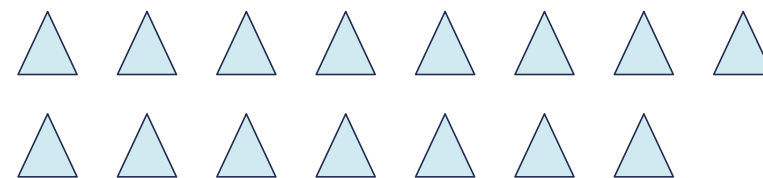
c   $\square + \square = 12$

2 Show different ways **15** can be split into two groups.  
Complete the number sentences.

a   $\square + \square = 15$

b   $\square + \square = 15$

c   $\square + \square = 15$

d   $\square + \square = 15$

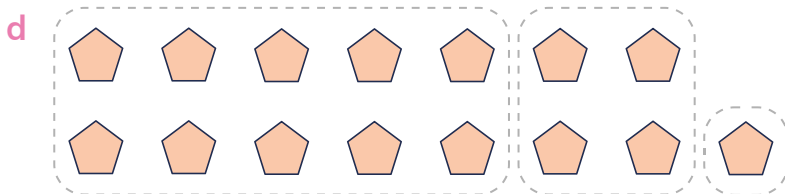
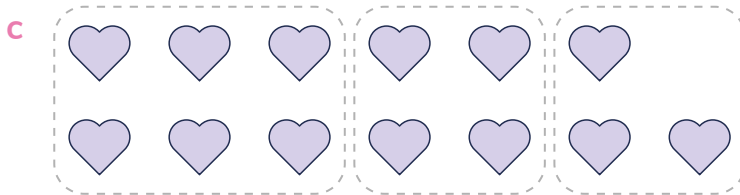
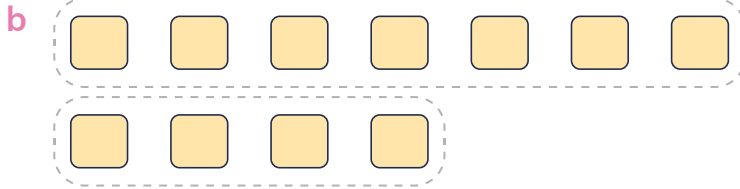
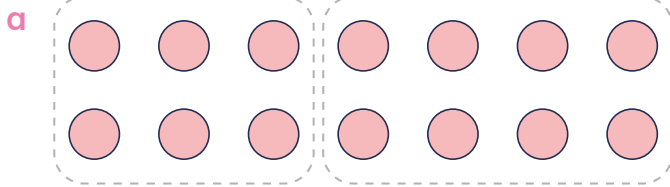


## 70+ topics in every year

From number and algebra to statistics and probability, your students complete a wide variety of activities to apply what they've learned in each lesson.

Some concepts are revisited throughout the year to consolidate learning.

3 Write number sentences to show the groups.



$$\square + \square = \square$$

$$\square + \square + \square = \square$$

$$\square + \square + \square = \square$$

4 Show different ways **16** strawberries can be split into three groups. Complete the number sentences.

$$\square + \square + \square = 16$$

$$\square + \square + \square = 16$$

1 Circle the items that match the 3D object in each group.

<p>a</p>  <p>cube</p>				
<p>b</p>  <p>sphere</p>				
<p>c</p>  <p>rectangular prism</p>				
<p>d</p>  <p>pyramid</p>				
<p>e</p>  <p>cylinder</p>				
<p>f</p>  <p>cone</p>				

2 Describe the six 3D objects in question 1 to a classmate. Discuss:

- Does it have **flat** or **curved** surfaces?
- Does it have **faces** and **edges**? How many?
- What shape are its faces?

3 Read the clues. Draw the 3D objects and write their names.

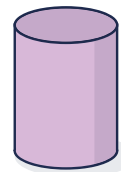
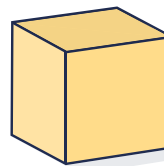
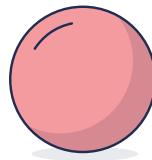
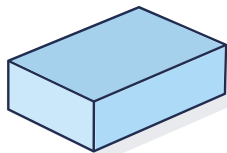
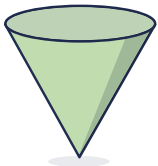
a I have 6 faces.  
All my faces are rectangles.

b I can roll.  
Two of my faces are circles.  
I have 2 curved edges.

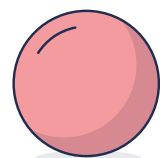
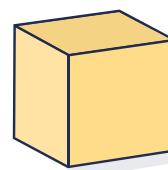
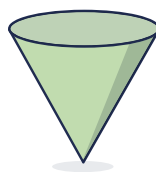
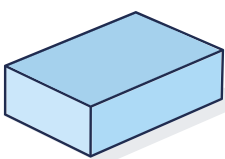
c I have 6 square faces.

d I have a curved surface.  
I have no edges or vertices.  
I can roll.

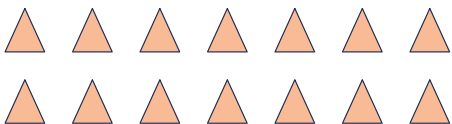
4 Circle the 3D objects that can be stacked. Discuss your choices with a classmate.

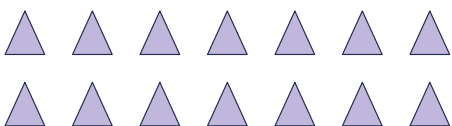


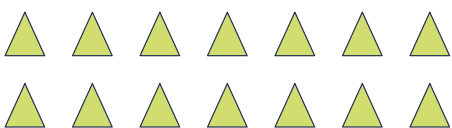
5 Circle the 3D objects that can roll. Discuss your choices with a classmate.



1 Show different ways **14** can be split into two groups. Complete the number sentences.

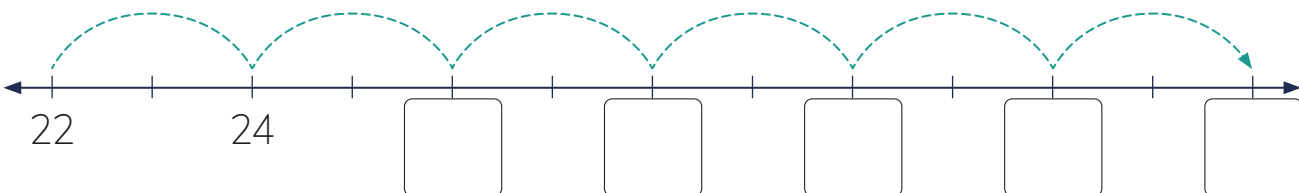
a   +  = 14

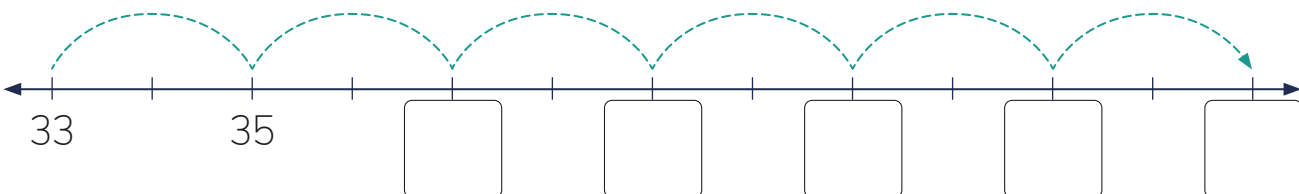
b   +  = 14

c   +  = 14



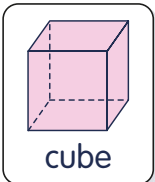
2 Count forwards by 2s. Write the missing numbers.

a 

b 

3 Answer the questions about each 3D object.

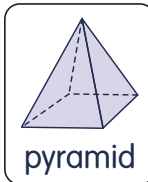
a How many faces?



cube

What shape are the faces?

b How many faces?



pyramid

What shapes are the faces?

and



### 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.

4 Cross out to show how many are left. Complete the number sentence.

a



$$8 - 5 = \square$$

b



$$11 - 3 = \square$$

c



$$15 - 4 = \square$$

d



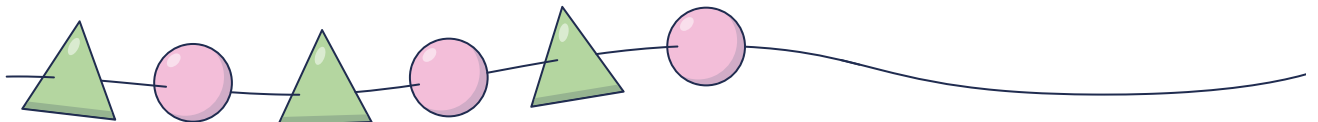
$$20 - 6 = \square$$

5 Read each story. Draw pictures to match. Write the number sentences.

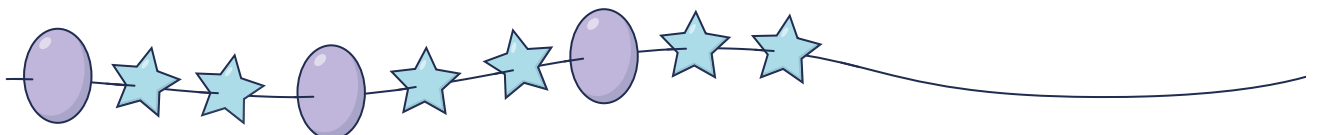
Story	Picture	Number sentence
10 jelly beans. I ate 3. How many jelly beans are left?		
9 jelly beans. I ate 4. How many jelly beans are left?		

6 Circle the repeated part in each pattern. Continue the patterns.

a



b



# Let's roll

## Be a dice detective!

What is the smallest total you can make by adding the numbers you roll on two regular dice?  
What is the largest?

Create your own pair of dice where the smallest total you roll on two dice is 10 and the largest total is 20.

Which numbers will you choose to write on your dice? Will you have a dice face with 7 dots or more?

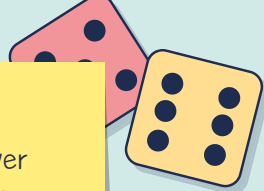
Use addition facts to create and play a game of Cover-up with your new dice.



# Cover-up addition

## Bring maths to life

Designed to be conducted over a week, every investigation is packed with opportunities for your students to apply their maths skills to unfamiliar, extended problems.



1 Record all the doubles facts that have answers from 10 to 20.

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

2 The numbers on my new dice are:

<input type="text"/>	,	<input type="text"/>	,	<input type="text"/>	,	<input type="text"/>	,	<input type="text"/>	,	<input type="text"/>	,	<input type="text"/>
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3 Play Cover-up with a classmate.

10	14	16	12
15	17	20	16
13	15	1	
19	16	14	18

### You will need:

- your 2 new dice
- 2 piles of different coloured counters

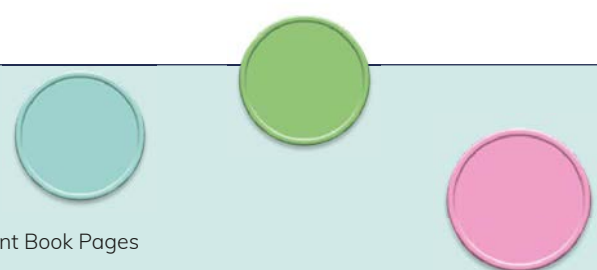
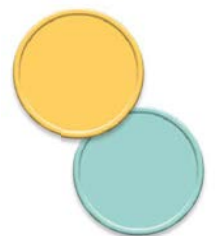
### How to play:

1 Take turns at rolling two dice.

### Develop critical thinking skills

Critical thinking is an integral part of 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 when sharing and discussing results.

2 The result of the dice is the number of counters to place on the board. The player with the most counters on the board when all spaces are filled.



# Making a table or chart

## Work together

### Problem

Don sells cupcakes.

It costs \$2 for one cupcake, \$4 for two cupcakes and \$6 for three cupcakes.



If we keep the pattern going, how much will six cupcakes cost?

a What is the problem asking us to do?

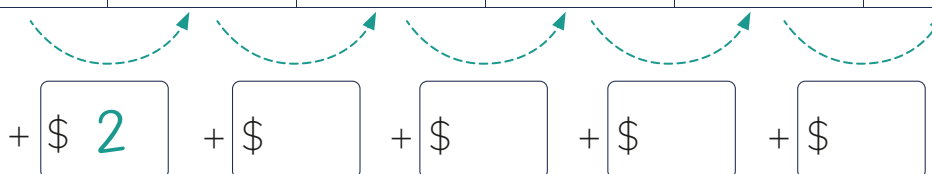
Work out the cost of ...

- one cupcake
- five cupcakes
- six cupcakes

b Let's talk about the problem. What do you know?

c Complete the table to work out the cost of six cupcakes.

Number of cupcakes	1	2	3	4	5	6
Cost	\$2					



d Complete the statement.

Six cupcakes will cost \$ .





## Your turn

### Problem A

Min sells toy cars.

It costs \$3 for one car, \$6 for two cars and \$9 for three cars.

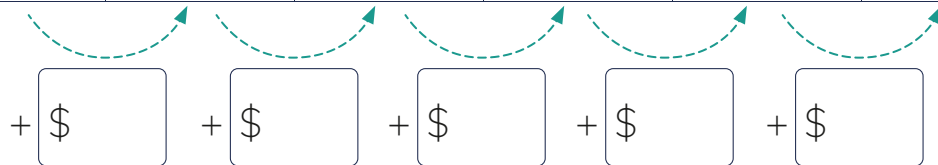
If we keep the pattern going, how much will six cars cost?



### Ten 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.

Number of cars	1	2	3	4	5	6
Cost	\$3					



Six cars will cost \$  .

### Problem B

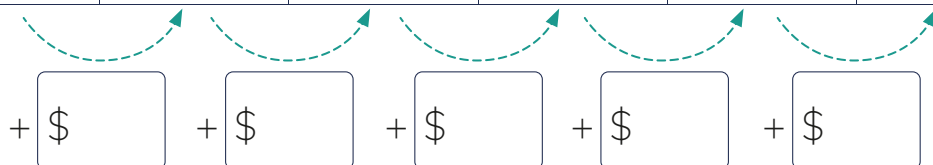
Tia sells marbles.

It costs \$6 for three marbles, \$8 for four marbles and \$10 for five marbles.

If we keep the pattern going, how much will eight marbles cost?



Number of marbles	3	4	5	6	7	8
Cost						



Eight marbles will cost \$  .

## Problem A

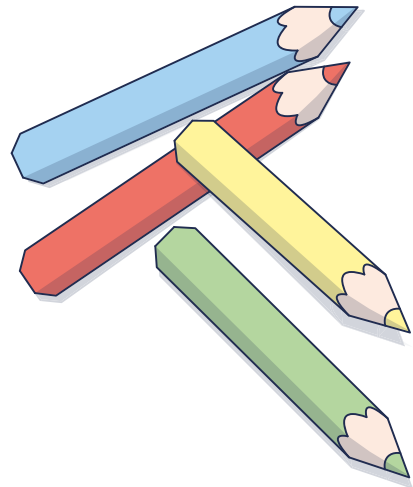
Bob has four coloured pencils.

Red is longer than blue.

Blue is longer than green.

Yellow is shorter than green.

Write the pencils in order from **shortest** to **longest**.



The order of pencils from shortest to longest is

	,		,		,	
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## Think critically

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

- Drawing a picture or diagram       Making a table or chart  
 Finding a pattern

b What if there were a pink pencil that was longer than yellow but shorter than green? Where would the pink pencil go?

### Problem B

Ed collects rocks.  
He has 6 rocks in his collection.  
Ed gets 2 new rocks every week.  
How many rocks will he have 4 weeks from now?



### Plenty of problem-solving practice

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

Ed will have  rocks 4 weeks from now.

### 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 strategy you used.

- Drawing a picture or diagram       Making a table or chart  
 Finding a pattern

**b** How many rocks would Ed have 10 weeks from now?  
Can you think of a simple way to work this out?

# The Maths Trek Program

Maths Trek is a whole-school numeracy program for Kindergarten 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 this book students will find ...

- scaffolded activities for every topic with opportunities to reflect and communicate understanding
- 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 teachers will find ...

- explicit teaching slides and lesson guides for every topic and problem-solving lesson
  - engaging visuals and hands-on activities in lessons
  - differentiation tasks
  - interactive teaching tools
  - place value videos
  - problem-solving strategy videos
  - digital and printable resources to guide students through every investigation
  - critical thinking lessons
  - formative and summative assessments
- Maths Trek Online includes the teaching resources for all year levels and complimentary access to the student site.

## 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 NSW Syllabus Match and Yearly Plan documents
- sign up for a free trial of the online teaching resources
- book a free professional learning workshop for your school.

