

Maths Trek

Exploring maths in the real world

1



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.

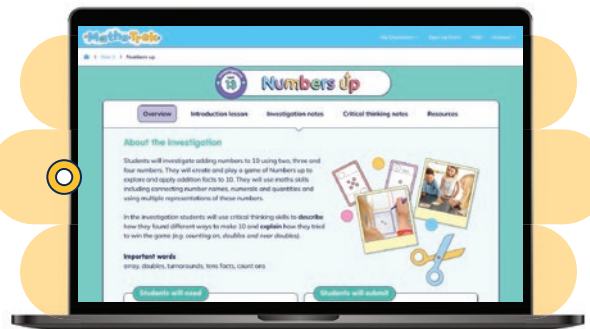
To maximise the benefits of the program, use the Student Book with the explicit teaching resources at Maths Trek Online to build, develop and strengthen each student's ability to work mathematically.

- 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 termly assessments.

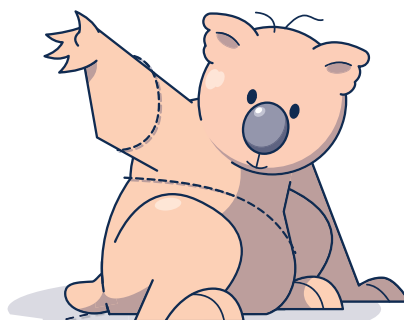
You will also find investigation notes, Student Book answers, and preparation and planning documents at Maths Trek Online.



○ 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.

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, stimulus images 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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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.

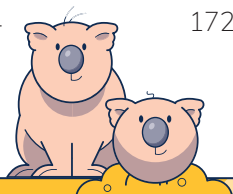


Investigation: Plenty of popsticks



Investigation: Win or lose

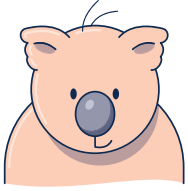
* Log in to Maths Trek Online to download and print assessments.



Maths is everywhere

Cover hunt

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



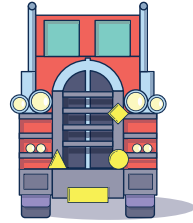
wombat



lizard



hat



road train

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

3

15

100

50

25

20

8

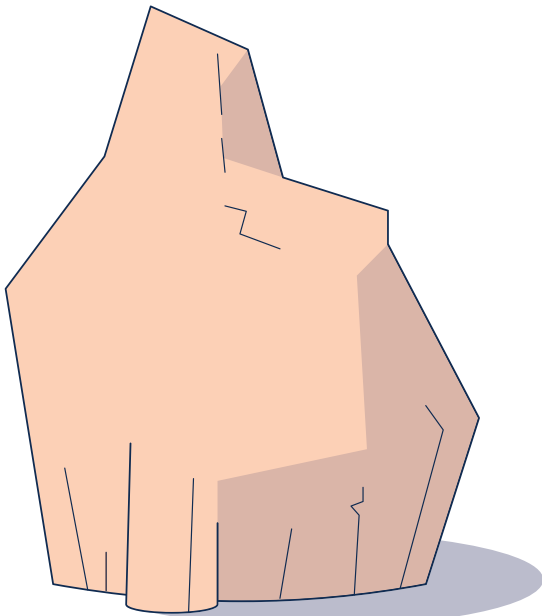
1

2

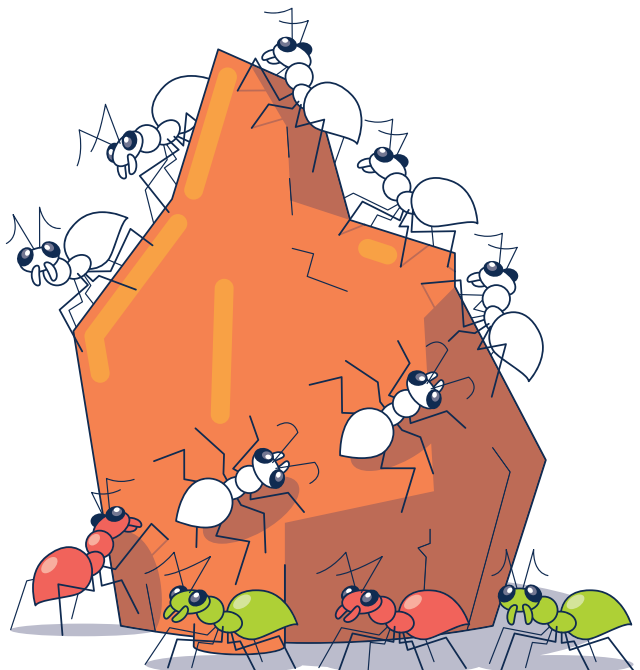
123

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.

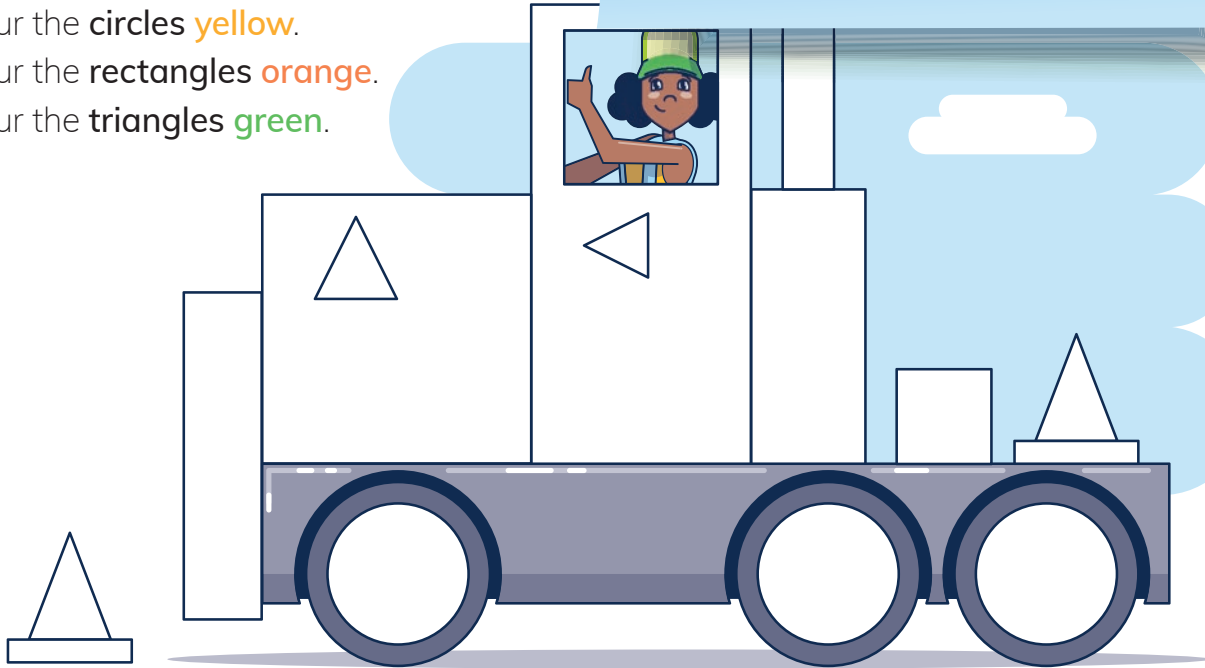
Shape hunt

Colour the **squares blue**.

Colour the **circles yellow**.

Colour the **rectangles orange**.

Colour the **triangles green**.

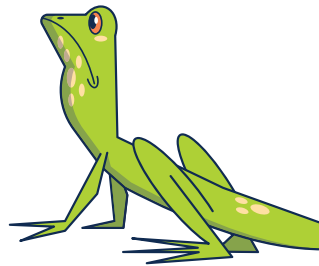


Long and short

Draw a **long** tail.



Draw a **short** tail.



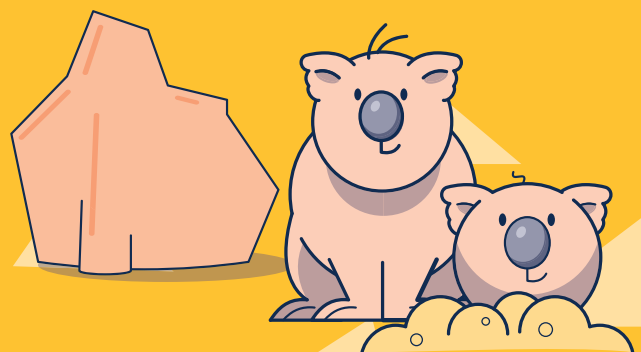
Lizard maths

I spy 2 lizards sitting on a rock.

How many tails?

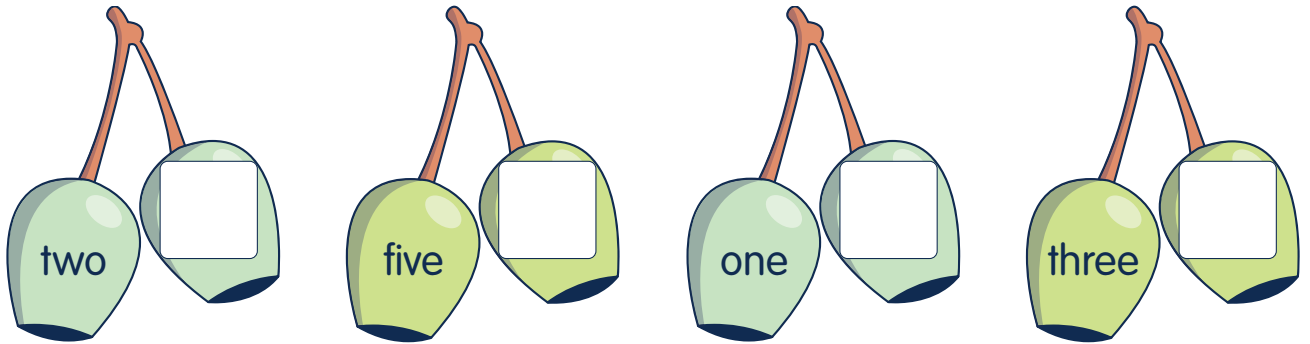
How many eyes?

How many legs?

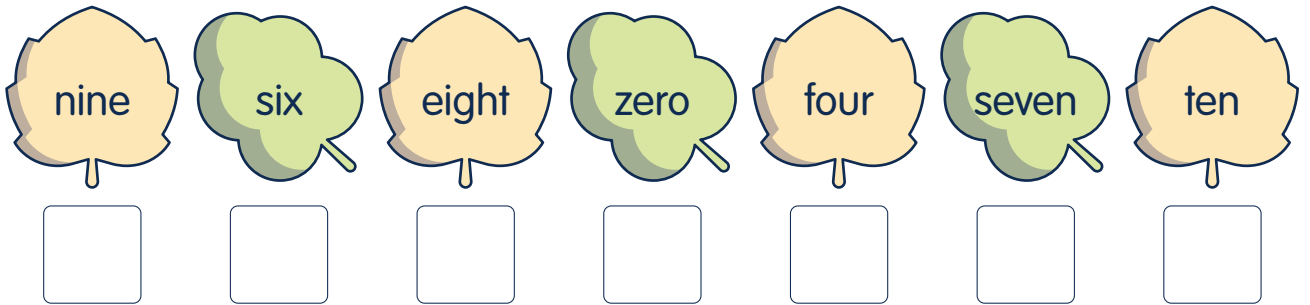


1 Write the numerals to match the words.

a



b



2 a Trace the numbers.

b Find sets of three cards that show the same number. Colour them alike.

| | | | |
|--------|----|--------|-----|
| twelve | 20 | 10 | |
| 11 | | twenty | ten |
| | 12 | eleven | |

- 3 a Trace the numbers. Say each number aloud.
 b Tell a classmate what you notice about each of the numbers.

| | | | | | | |
|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |

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 are revisited throughout the year to consolidate learning.

- 4 a Trace the **teen** numerals and words.
 b Draw lines to match.

13

14

15

16

17

18

19

fourteen

thirteen

seventeen

fifteen

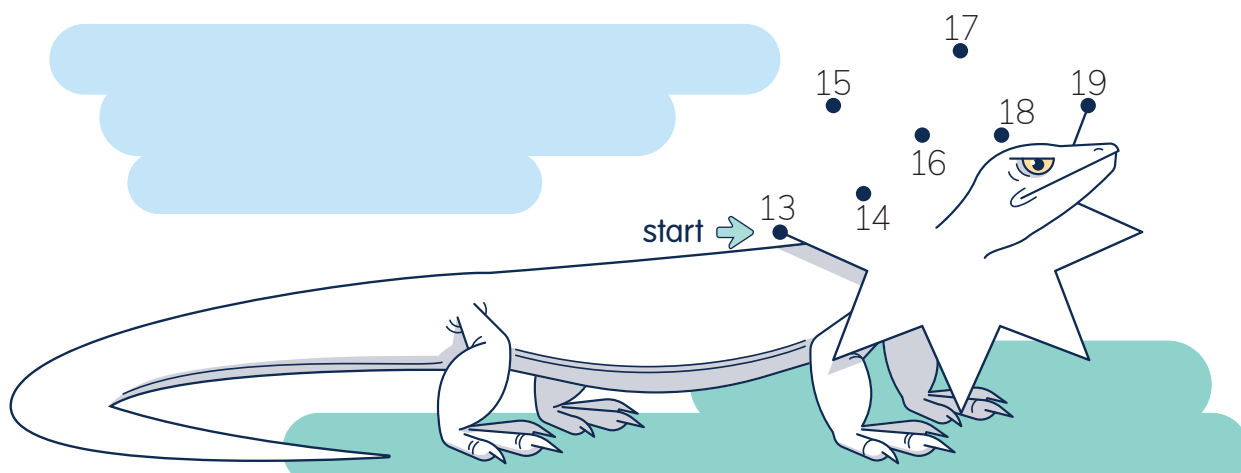
nineteen

sixteen

eighteen

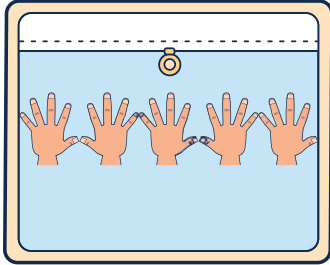


- 5 Join the dots.



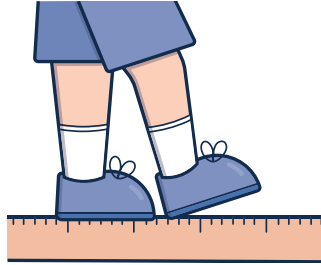
1 Use different units of length to find each measurement.

a window



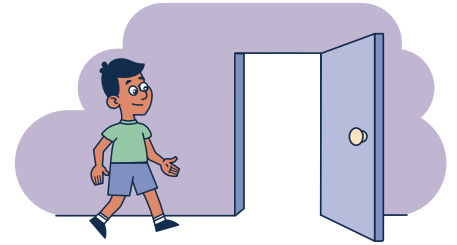
handspans

b teacher's ruler



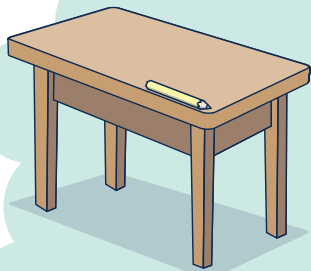
shoes

c distance from your desk to the door

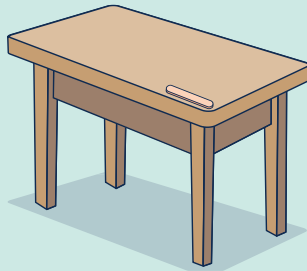


steps

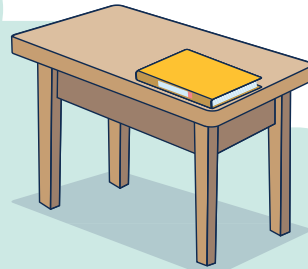
2 a Use different units of length to measure your desk.



pencils



popsticks



workbooks

You will need

- pencils
- popsticks
- workbooks

b Tell a classmate why all the measurements are not the same.

3 Use a piece of string to measure objects in your classroom. Complete the sentences.

You will need



a string the length of three popsticks

a is **shorter** than three popsticks.

b is about the **same** length as three popsticks.

c is **longer** than three popsticks.

4 Estimate, then measure the length of each object using popsticks.

| Object name | Object | Estimate | Measure |
|----------------|---|--------------------------------|--------------------------------|
| Pencil case |  | <input type="text"/> popsticks | <input type="text"/> popsticks |
| Teacher's desk |  | <input type="text"/> popsticks | <input type="text"/> popsticks |
| _____ | | <input type="text"/> popsticks | <input type="text"/> popsticks |

5 Complete the sentences about question 4.

The _____ is **longer** than the _____.

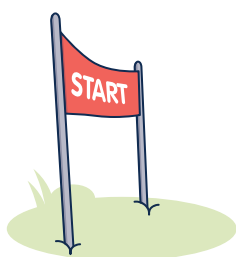
The _____ is the **longest**.

6 a Work with a classmate. Use popsticks to measure who has the **longest** hop. Mark a start line and take note of where each of you lands.

| Name | How many? |
|------|--------------------------------|
| | <input type="text"/> popsticks |
| | <input type="text"/> popsticks |

b Who has the **longer** hop?

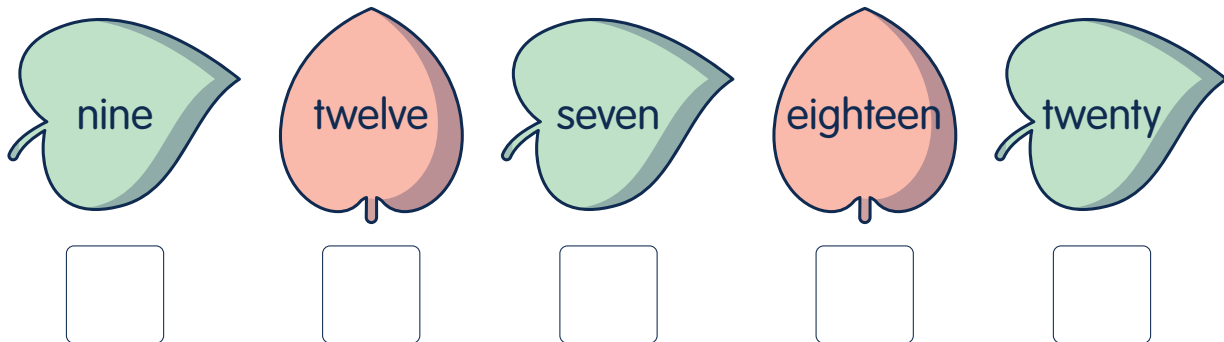
c Who has the **longest** hop in your class?



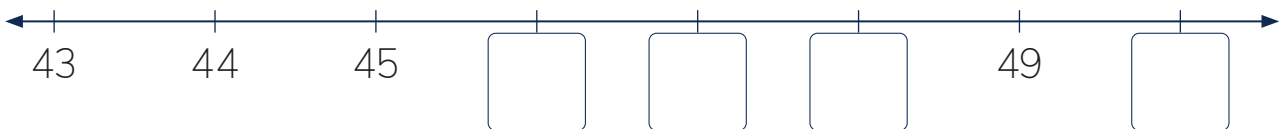
1 Write the missing numbers.

| | | | | | | | | | |
|---|----|---|--|----|----|--|---|---|----|
| 1 | | 3 | | | | | 8 | 9 | |
| | 12 | | | 15 | 16 | | | | 20 |

2 Write the numerals to match the words.



3 Count on and write the missing numbers.



4 Count back one and count on one. Write the numbers.

a

| | | |
|----------------|----|--------------|
| count back one | | count on one |
| | 17 | |

b

| | | |
|----------------|----|--------------|
| count back one | | count on one |
| | 29 | |

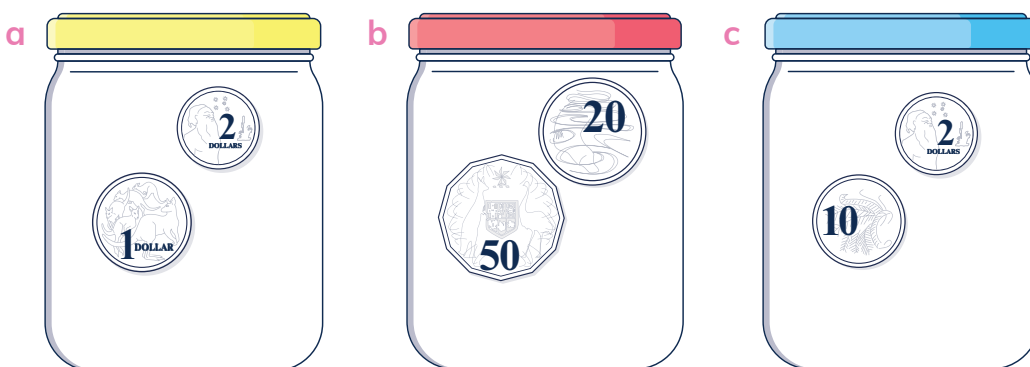
c

| | | |
|----------------|----|--------------|
| count back one | | count on one |
| | 50 | |

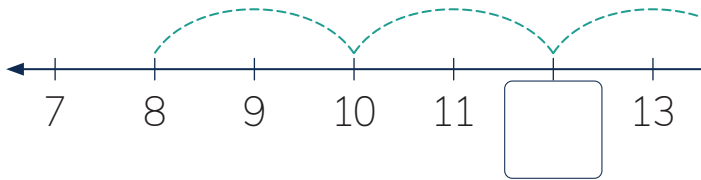
d

| | | |
|----------------|----|--------------|
| count back one | | count on one |
| | 64 | |

5 Colour the coin with the greatest value in each jar.



6 Count forwards by 2s. Write the missing number



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.

7 Write the day and date for today.

(day of the week) (date) (month)

8 Find sets of five cards that show the same number. Colour them alike.

9 Write number sentences to match the pictures.

a and makes

b and makes

10 Number the pencils in order from **shortest** (1) to **longest** (4).

Ramp champ

Start your engines!

Your task is to make a ramp for your toy car.
How far will it travel after leaving the ramp?
How will you measure the distance?
Will your group be the class ramp champs?
What will you change to make your car go further?



Car test results

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.

Test 1 Car on ramp

| Trial | Distance |
|-------|----------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

Test 2

| Trial | Distance travelled |
|-------|--------------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

Test 3

| Trial | Distance travelled |
|-------|--------------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

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.

My group's longest distance was _____.

The car went this distance because _____

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

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

+ \$ 2 + \$ + \$ + \$ + \$

- c Complete the statement.

Six cupcakes will cost \$.



Your turn

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.

Problem A

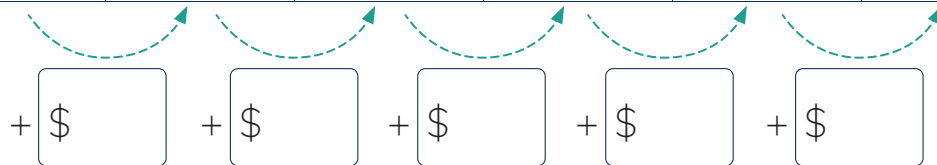
Min sells toy cars.

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?



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



Six cars will cost \$.

Problem B

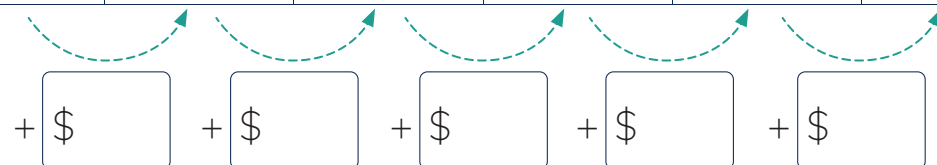
Tia sells marbles.

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

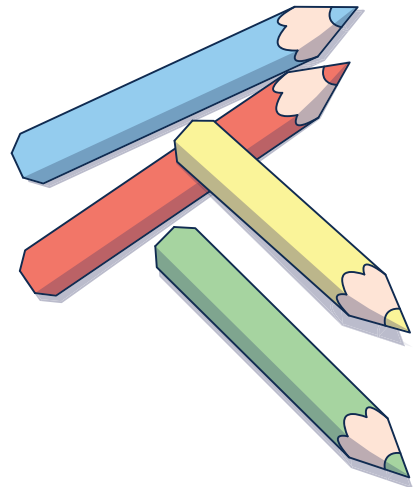
Bob has four coloured pencils.

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

| | | | | | | | |
|--|---|--|---|--|---|--|---|
| | , | | , | | , | | . |
|--|---|--|---|--|---|--|---|

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 strategies 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 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 ...

- 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 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
- place value videos
- digital and printable resources to guide students through every investigation
- critical thinking lessons in every investigation
- termly assessments
- access to teaching resources for all year levels

Head to 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.

