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**Primary Mathematics**

Learner's Book 1

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# Introduction

Welcome to Stage 1 of **Cambridge Primary Mathematics**. We hope this book will show you how interesting and exciting mathematics can be.

Mathematics is everywhere. Everyone uses mathematics every day. Where have you noticed mathematics?

Have you ever wondered about any of these questions?

- Are the numbers we use when measuring the same as the numbers we count with?
- Why are the same 10 digits used to make all numbers (0, 1, 2, 3, 4, 5, 6, 7, 8 and 9)?
- What is the difference between 2D and 3D shapes?
- How do you describe a pattern?
- How do you measure the passage of time?
- How do you solve a mathematics problem?

You will work like a mathematician to find the answers to some of these questions. It is good to talk about mathematics and share ideas as you explore. You will reflect on what you did and how you did it to think about whether you would do the same next time.

You will be able to practise new skills and check how you are doing and also challenge yourself to find out more. You will be able to make connections between what seem to be different areas of mathematics.

We hope you enjoy thinking and working like a mathematician.

Cherri Moseley and Janet Rees



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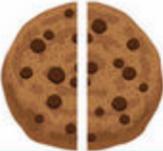
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# How to use this book

In this book you will find lots of different features to help your learning:

Questions to find out what you know already.

**Getting started**

1 This cookie is a whole.  

How many parts is the cookie cut into? \_\_\_\_\_

Are they the same as each other? \_\_\_\_\_

What you will learn in the unit.

**We are going to . . .**

- count sets of objects.

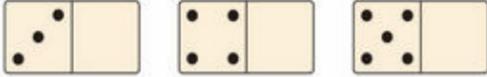
Important words that you will use.

count estimate how many set total

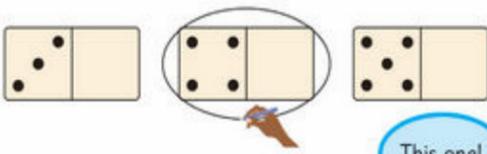
Step-by-step examples showing a way to solve a problem.

**Worked example 1**

Which domino has 4 spots?



**Answer:**



This one!

Questions to help you think about how you learn.

What have you learned about sets and sorting?  
Write or draw one thing that you know now that you didn't know before.



There are often many different ways to solve a problem.

These questions will help you develop your skills of thinking and working mathematically.

6 Write the number that comes after.

2	
---	--

5	
---	--

8	
---	--

An investigation to carry out with a partner or in groups. This will help develop your skills of thinking and working mathematically.

**Let's investigate**

Sumi says when you add 1 more, you make the next counting number. Is Sumi correct? Discuss with your partner.

What you have learned in the unit. Tick the column to show how you feel about each thing.

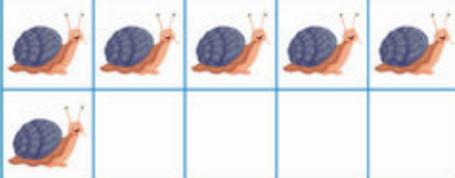
**Look what I can do!**

- I can compare two sets of numbers.
- I can say which set has more or fewer (or less or greater).
- I can recognise when two sets have the same number of objects.

Questions that cover what you have learned in the unit.

**Check your progress**

1 How many objects are there?



At the end of some units there is a project for you to carry out, using what you have learned. You might make something or solve a problem.

**Snakes**

Your first challenge is to make a snake!  
You could use card, paper, dough, pipe cleaners, ribbon, glue, tape, cubes, blocks... anything that you can find.



Projects and their accompanying teacher guidance have been written by the NRICH Team. NRICH is an innovative collaboration between the Faculties of Mathematics and Education at the University of Cambridge, which focuses on problem solving and on creating opportunities for students to learn mathematics through exploration and discussion <https://rich.maths.org>.

# Thinking and Working Mathematically

There are some important skills that you will develop as you learn mathematics.



**Specialising**  
is when I test examples to see if they fit a rule or pattern.

**Characterising**  
is when I explain how a group of things are the same.

**Generalising**  
is when I can explain and use a rule or pattern to find more examples.

**Classifying**  
is when I put things into groups and can say what rule I have used.



**Critiquing**  
is when I think about what is good and what could be better in my work or someone else's work.

**Improving**  
is when I try to make my maths better.

**Conjecturing** is when I think of an idea or question linked to my maths.

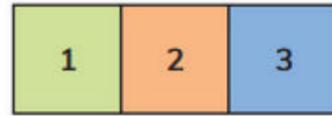
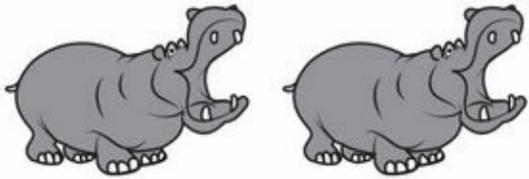
**Convincing**  
is when I explain my thinking to someone else, to help them understand.



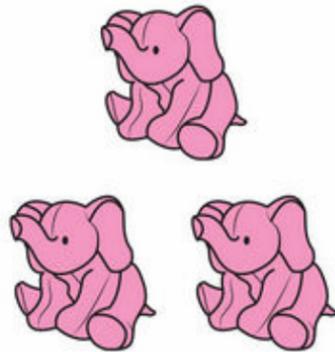
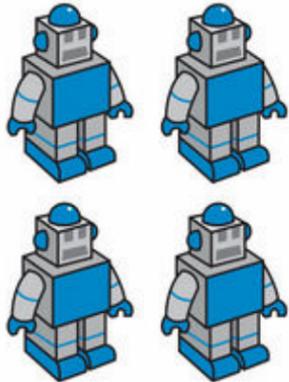
## Getting started

1 How many hippos are there?

Draw a ring around the number that matches the set.



2 Count the toys and write the numbers.



3 Write some numbers you know in the space below.

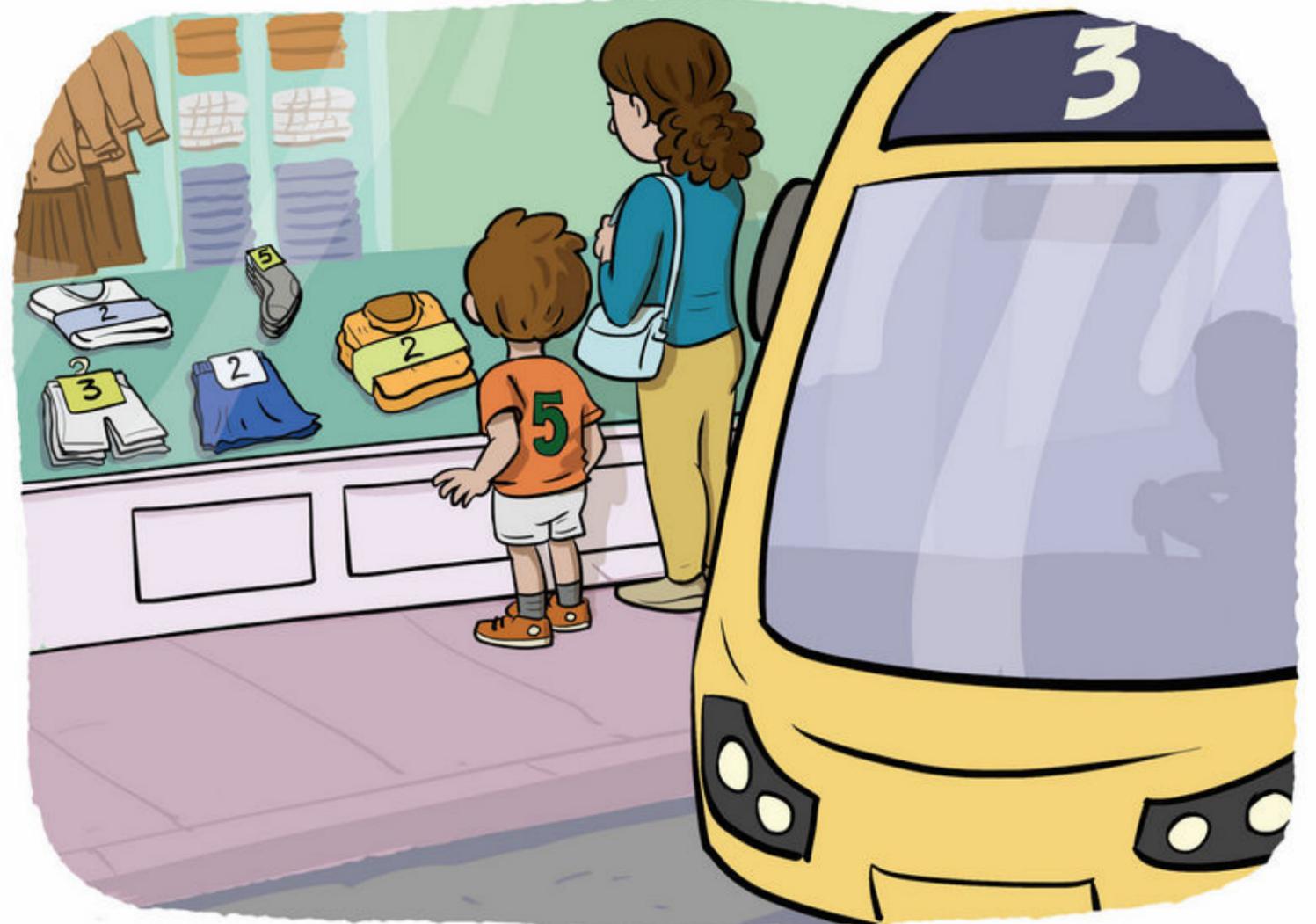
Tell your partner something about each of the numbers you wrote.

Numbers are all around us.

Sometimes a number is a label, like the number on a football shirt or the number on a bus.

We count to find out how many there are.

A pack of 2 T-shirts shows 2 on the pack.



# > 1.1 Counting sets of objects

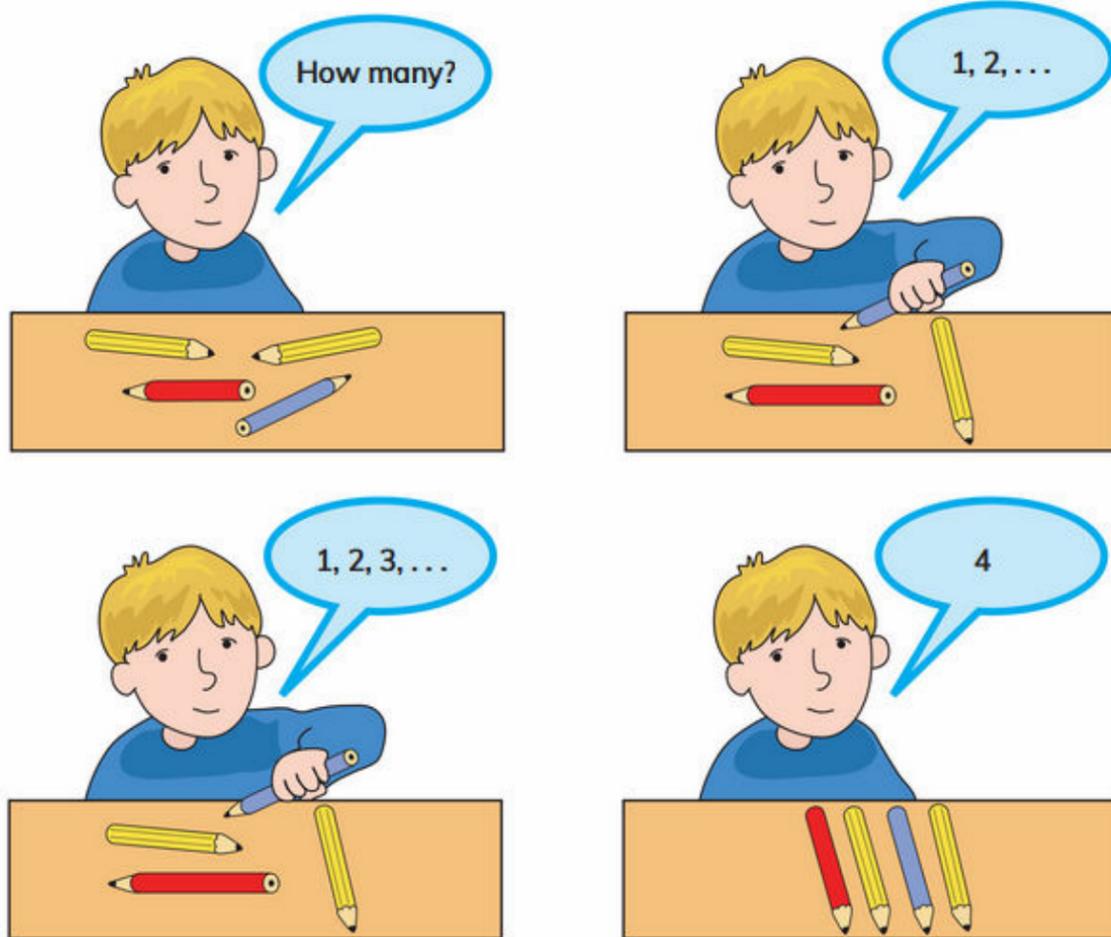
We are going to ...

- count sets of objects.

You need to say the numbers in the correct order to count.

To count objects, start with 1 and say a number for each object.

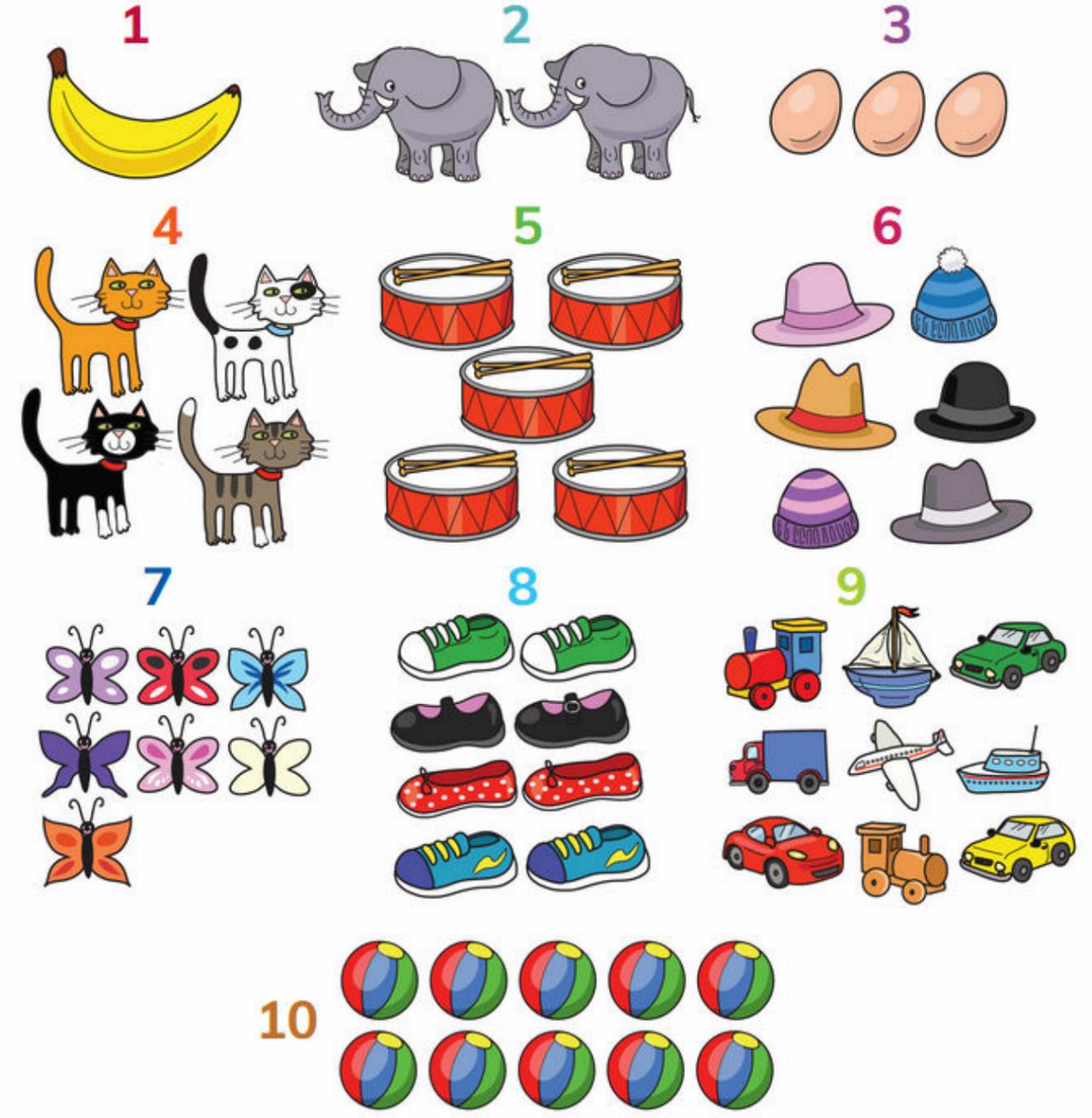
The last number you say tells you how many objects there are.



count estimate how many set total

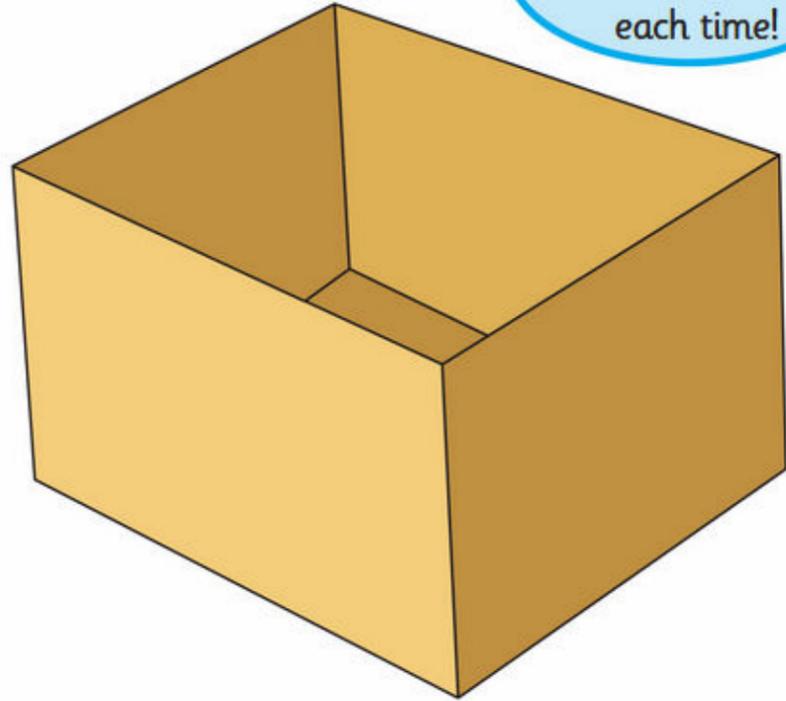
## Exercise 1.1

1 Count together.



1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

- 2 Put some objects in the box.  
Count your set of objects.

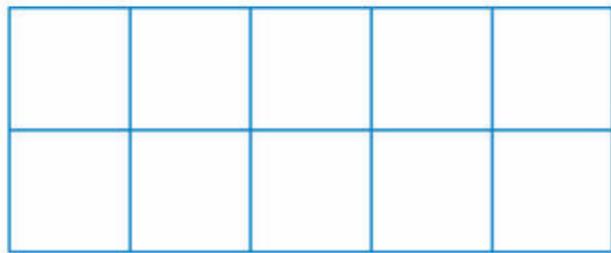


I counted to the same number each time!



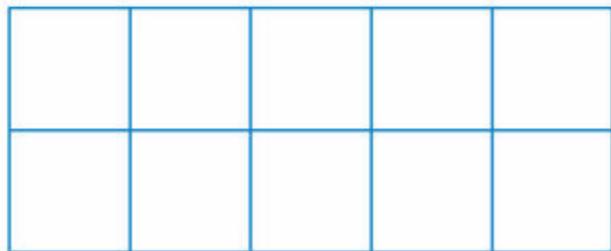
Put your objects in a row. Count again.

- 3 Draw 3 counters  in the ten frame below.



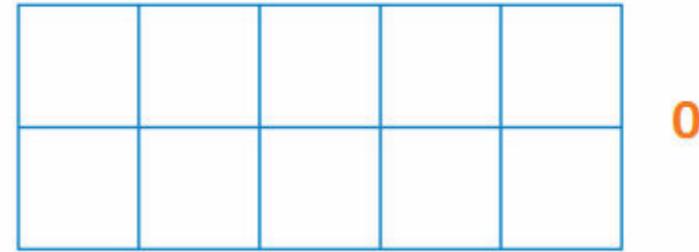
3

Draw 6 buttons  in the ten frame below.



6

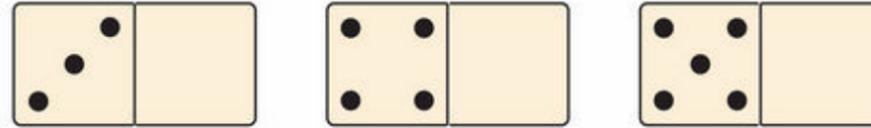
Draw 0 counters  in the ten frame below.



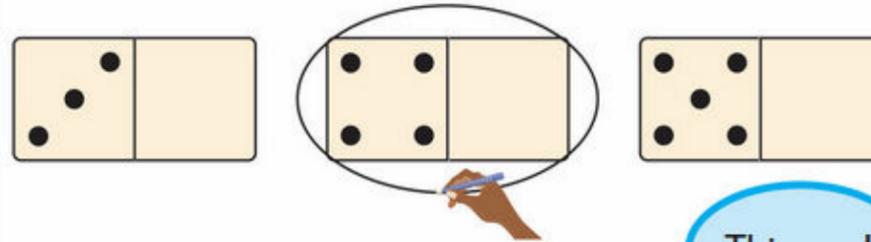
0

**Worked example 1**

Which domino has 4 spots?



Answer:

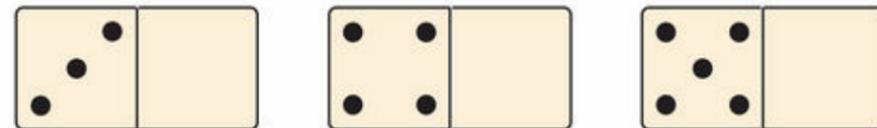


This one!



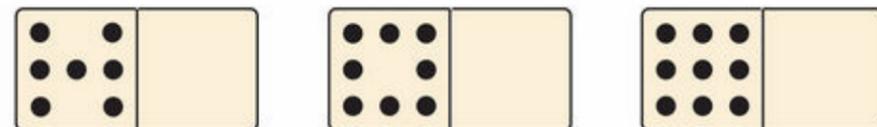
- 4 Which domino has 5 spots?

Draw a ring around the correct domino.

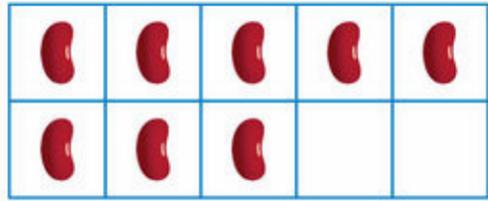


- 5 Which domino has 9 spots?

Draw a ring around the correct domino.



6 Match each picture to the correct number.



- 8
- 0
- 4
- 9
- 7
- 5



Ask your partner to show you how they got their answer.

7 Draw 7 bananas.

Make it easy to see how many there are.



Look at your answer to question 7.  
How did you make it easy to see how many you drew?

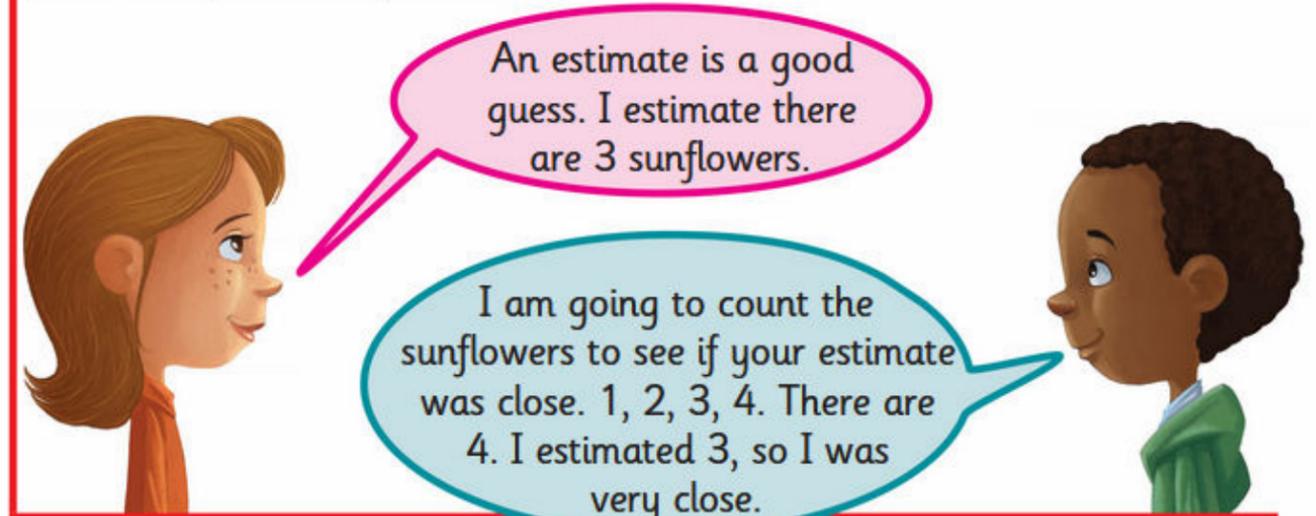
Worked example 2

How many sunflowers are there? Estimate then count.



Answer:

	Estimate <b>3</b>	Count <b>4</b>
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- 8 Look at the picture on the previous page. Estimate then count. Write the numbers.

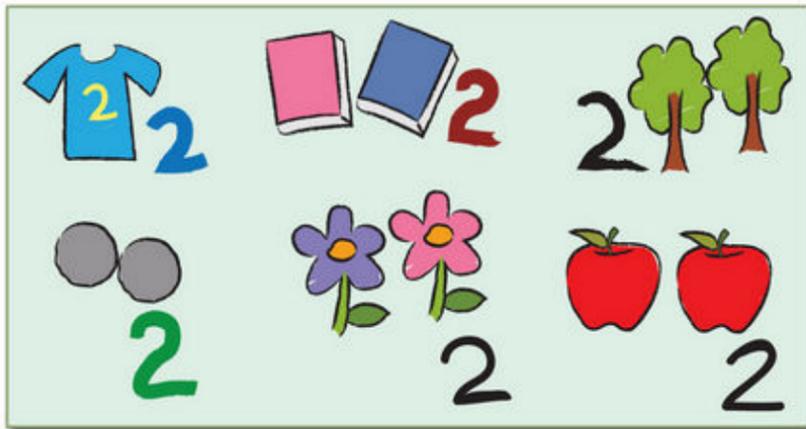
				
Estimate	Estimate	Estimate	Estimate	Estimate
Count	Count	Count	Count	Count

Let's investigate

Work with a partner.

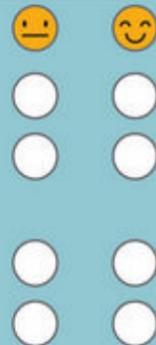
Make a poster all about a number.

Talk about your poster with your class.



Look what I can do!

- I can count objects and write the matching number.
- I can find or draw the correct number of objects.
- I can say how many objects are in some sets without counting.
- I can give a good estimate of how many objects there are.



## > 1.2 Say, read and write numbers to 10

We are going to ...

- say, read and write numbers and number words to 10.

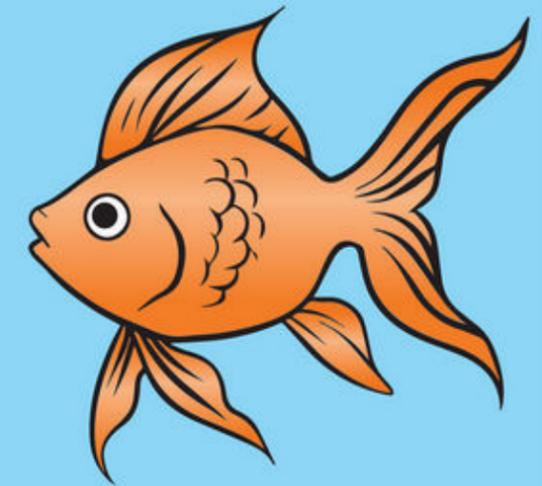
Saying the numbers in a number rhyme is a good way to learn the order of the numbers.

between number  
order point  
number track

### Exercise 1.2

- Say this number rhyme together.

1, 2, 3, 4, 5,  
Once I caught a fish alive!  
6, 7, 8, 9, 10,  
Then I let it go again!  
Why did you let it go?  
Because it bit my finger so.  
Which finger did it bite?  
This little finger on the right.



- Say your favourite number rhyme to a partner.
- Count to 10. Point to each number as you say it.

