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Primary Mathematics

Learner's Book 1

Cherri Moseley & Janet Rees

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

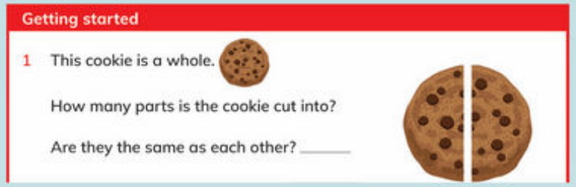
Contents

Contents

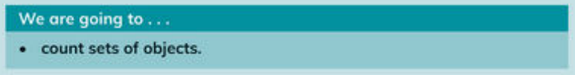
How to use this book

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

Questions to find out what you know already.

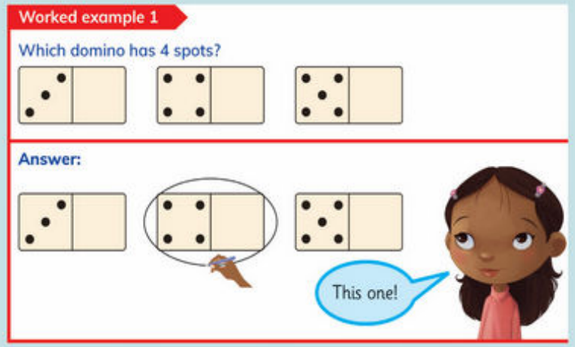


What you will learn in the unit.

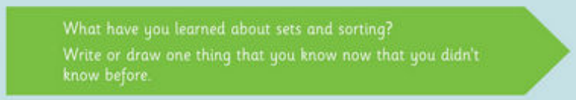


Important words that you will use.

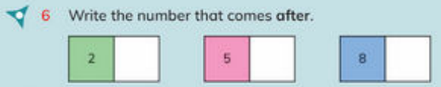
Step-by-step examples showing a way to solve a problem.



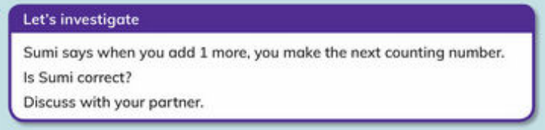
Questions to help you think about how you learn.



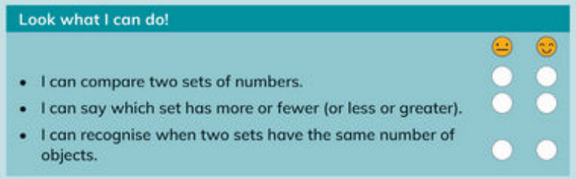
These questions will help you develop your skills of thinking and working mathematically.



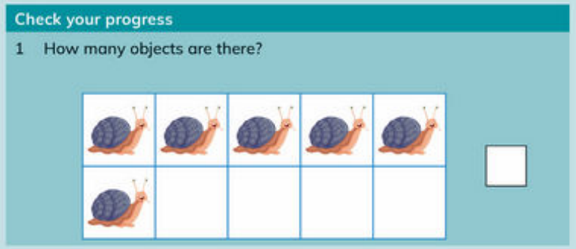
An investigation to carry out with a partner or in groups. This will help develop your skills of thinking and working mathematically.



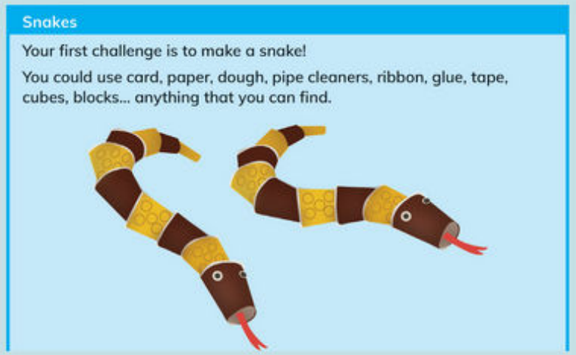
What you have learned in the unit. Tick the column to show how you feel about each thing.



Questions that cover what you have learned in the unit.



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.



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://nrich.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.

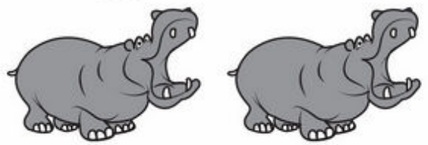
Convincing is when I explain my thinking to someone else, to help them understand.

1 Numbers to 10

Getting started

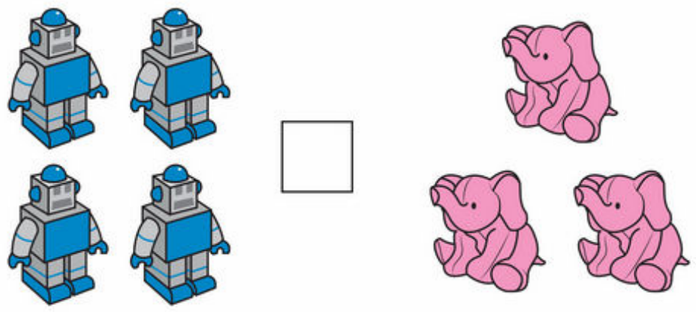
1 How many hippos are there?

Draw a ring around the number that matches the set.



1	2	3

2 Count the toys and write the numbers.



3 Write some numbers you know in the space below.

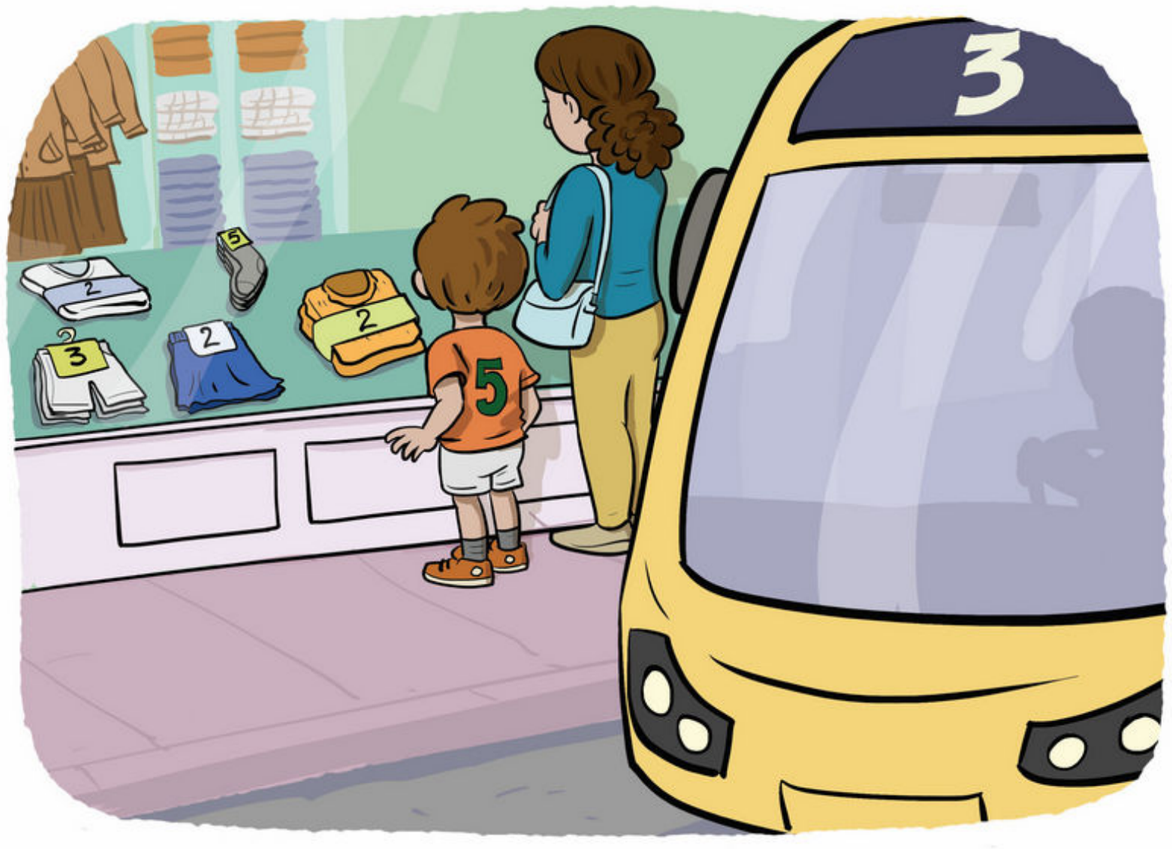
Tell your partner something about each of the numbers you wrote.

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

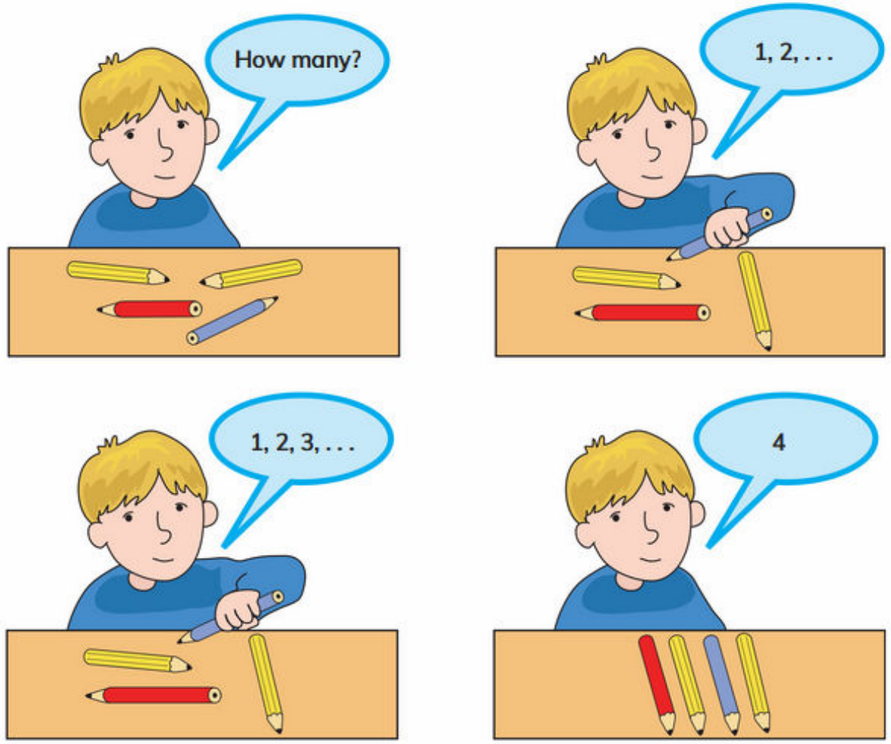
We are going to ...

- **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.

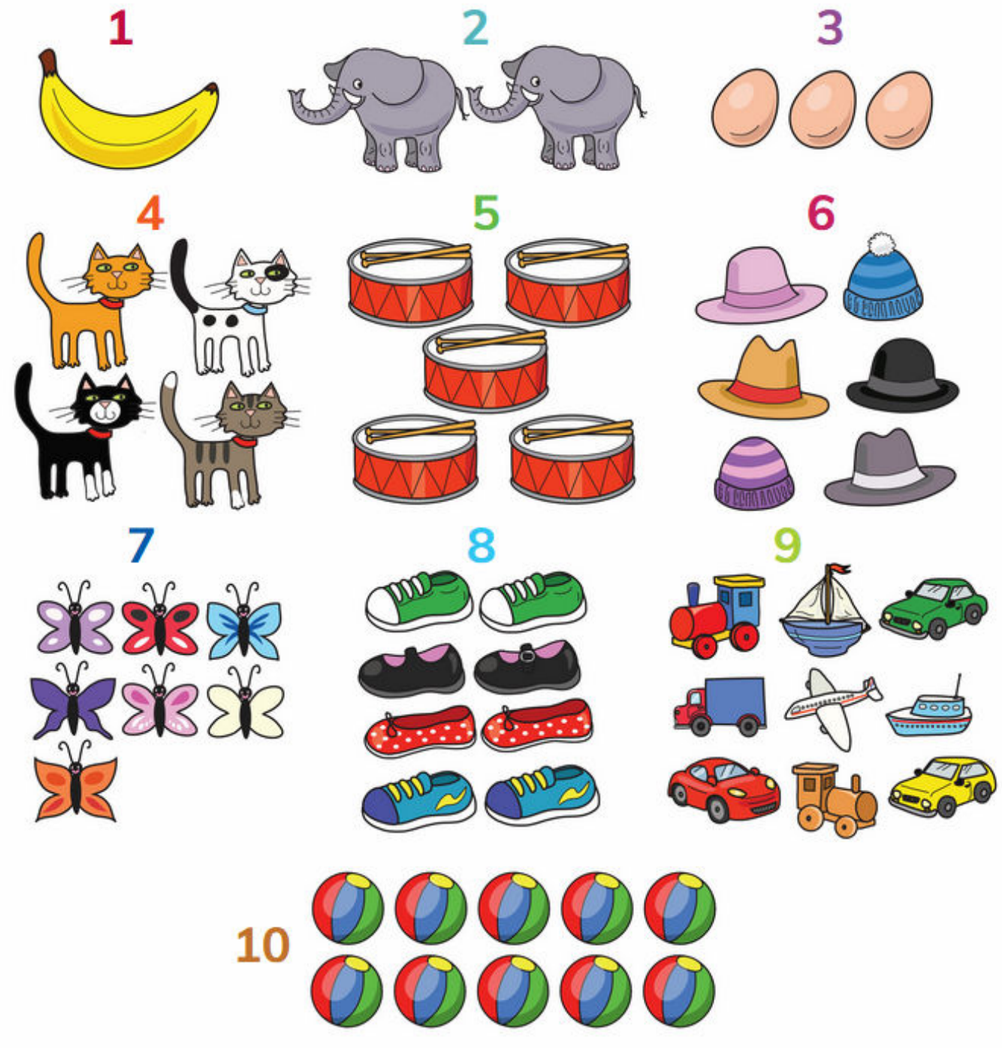
The last number you say tells you how many objects there are.



count estimate how many set total

Exercise 1.1

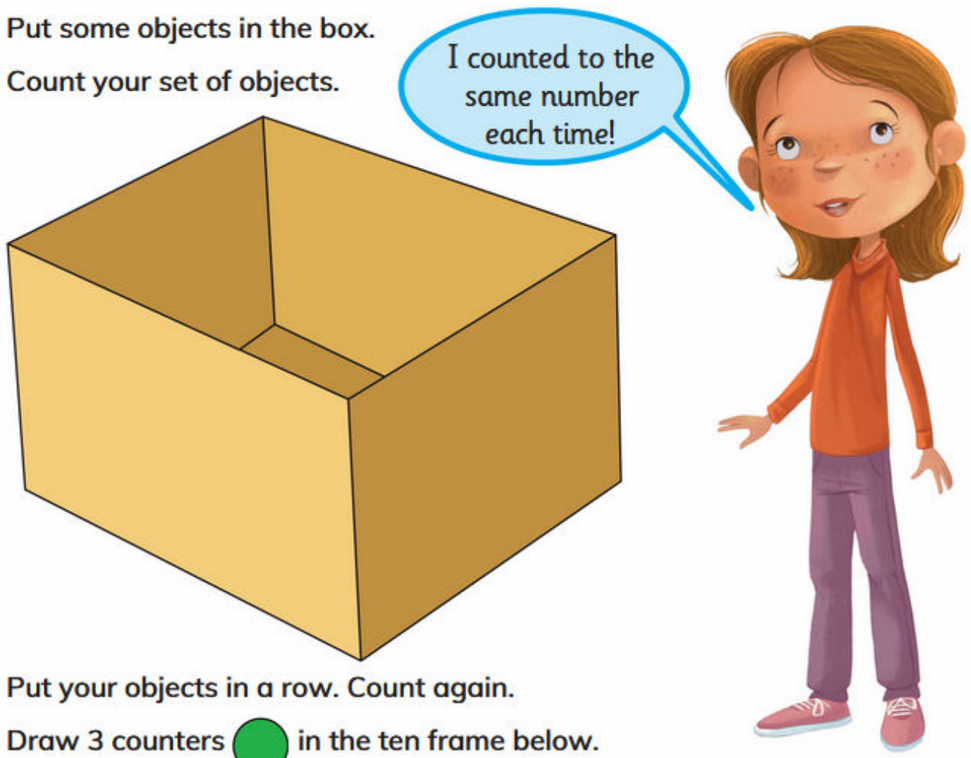
1 Count together.



1	2	3	4	5	6	7	8	9	10

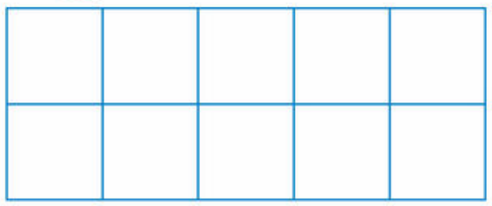
2 Put some objects in the box.

Count your set of objects.



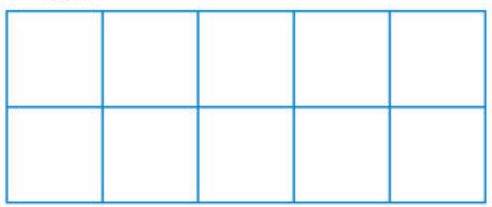
Put your objects in a row. Count again.

3 Draw 3 counters in the ten frame below.



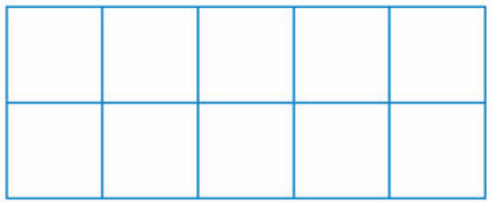
3

Draw 6 buttons in the ten frame below.



6

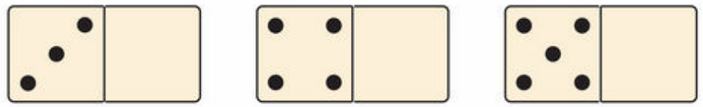
Draw 0 counters in the ten frame below.



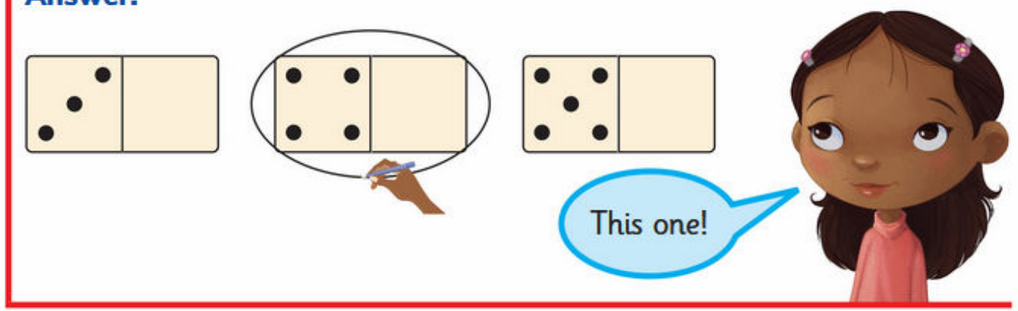
0

Worked example 1

Which domino has 4 spots?

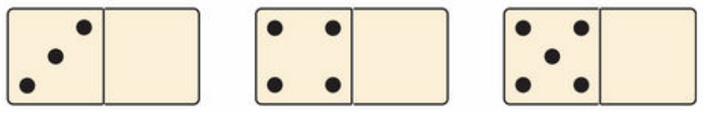


Answer:



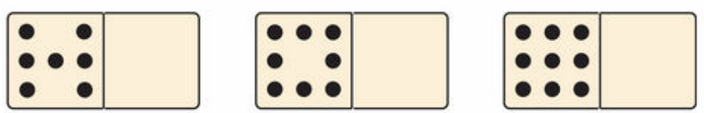
4 Which domino has 5 spots?

Draw a ring around the correct domino.

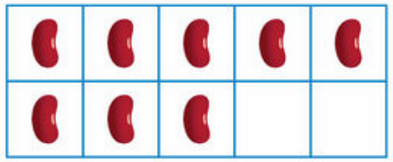


5 Which domino has 9 spots?

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.

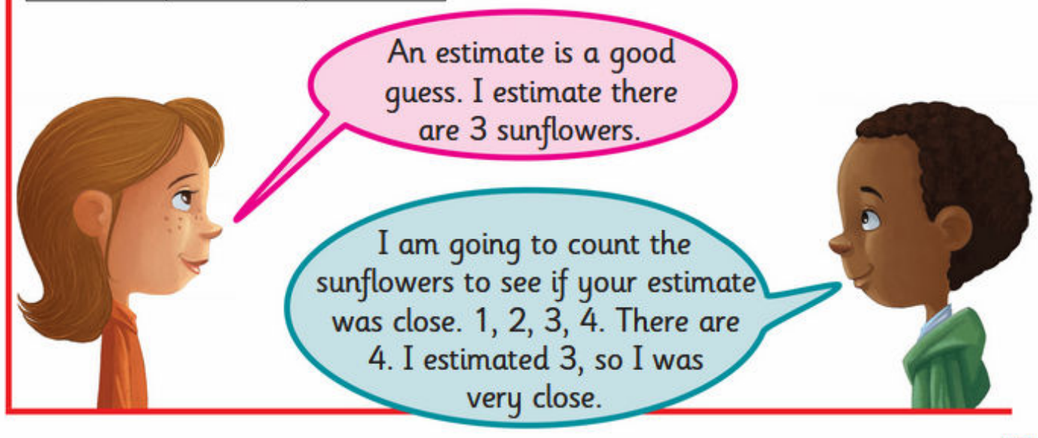
Look at your answer to question 7.
How did you make it easy to see how many you drew?

Worked example 2

How many sunflowers are there? Estimate then count.

Answer:

	Estimate	Count
	3	4



8 Look at the picture on the previous page.
Estimate then count. Write the numbers.

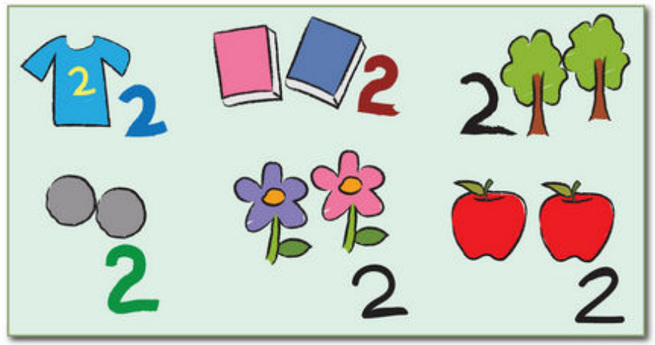
				
Estimate	Estimate	Estimate	Estimate	Estimate
Count	Count	Count	Count	Count

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.**

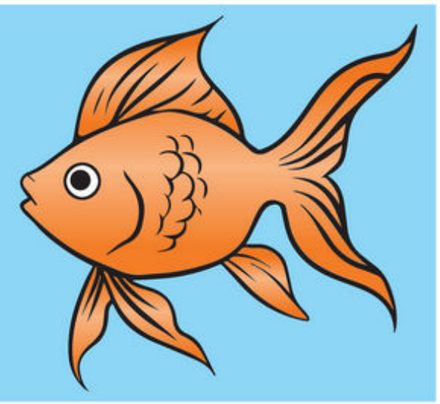
Saying the numbers in a number rhyme is a good way to learn the order of the numbers.

between number
order point
number track

Exercise 1.2

1 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.



2 Say your favourite number rhyme to a partner.

3 Count to 10. Point to each number as you say it.

1	2	3	4	5	6	7	8	9	10

Worked example 3

Which number is missing?

1	2	3	4	5	6		8	9	10

Answer:

1	2	3	4	5	6	7	8	9	10

4 Count to 10. Write the missing numbers.

1	2		4	5	6	7		9	10

1			4	5	6	7		9	10

5 Which numbers have been swapped in this number track?
Write the numbers in the box.

1	2	3	4	8	6	7	5	9	10

6 Write the number that comes **after**.

2		5		8	

7 Write the number that comes **before**.

	2		5		8

What do you do if you cannot remember a missing number?
Ask your partner to tell you what they do.

Look what I can do!

	😐	😊
• I can count to 10 and find a missing number.	○	○
• I can say some number rhymes.	○	○
• I can read and write the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10.	○	○

1.3 Comparing numbers

We are going to ...

- compare sets of objects and numbers.

You can compare different sets. You can find out which set has more, fewer or the same number of objects as another set.

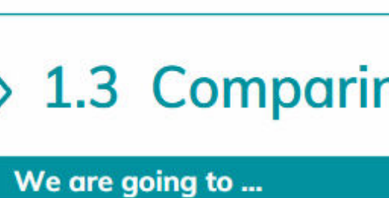
Fewer means the same as **less**.
More means the same as **greater**.

compare equal fewer
less more same

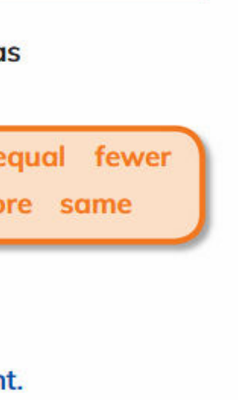
Exercise 1.3

Worked example 4

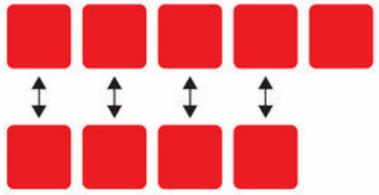
Compare the two sets. Look for what is the same or different.
Tick ✓ the set that has more objects.



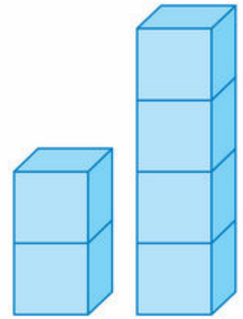
I can match each shape in one row with a shape in the other row.
There is no match for the last shape in the top row, so there are more shapes in the top row than in the bottom row. I need to tick the top row.



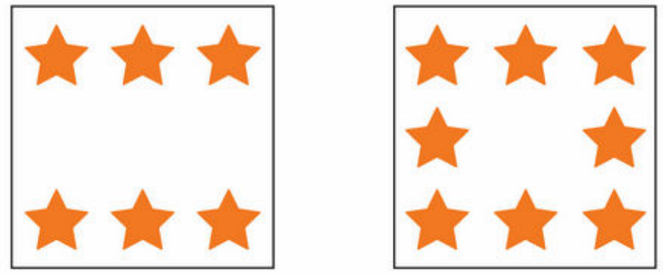
Answer:

 ✓

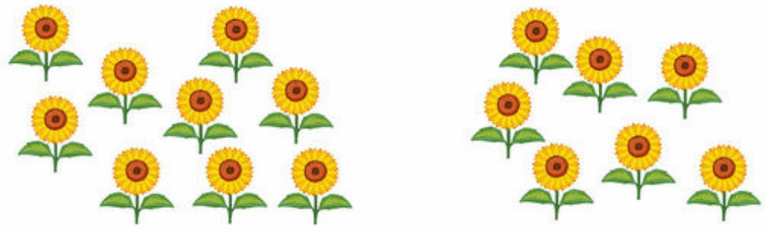
1 Compare the sets.
Tick ✓ the set that has fewer objects.



2 Compare the sets.
Tick ✓ the set that has fewer objects.

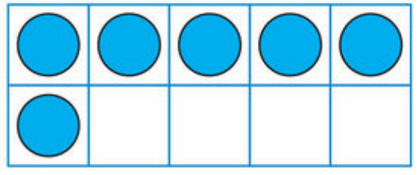


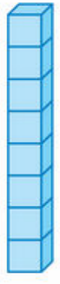
3 Compare the sets.
Tick ✓ the set that has more objects.

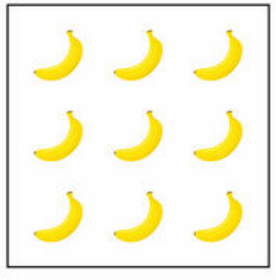


4 Compare the sets.

Tick ✓ the sets that have the same number of objects.

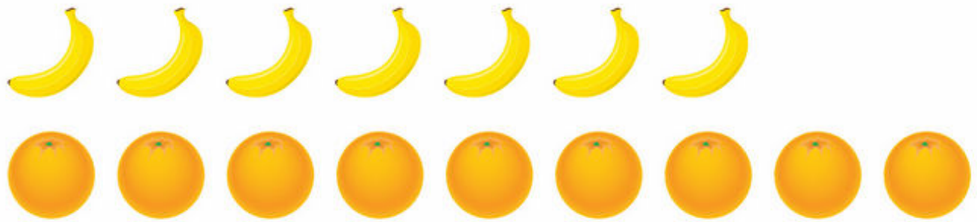






5 Compare the sets.

Complete the sentences.



There are _____  .

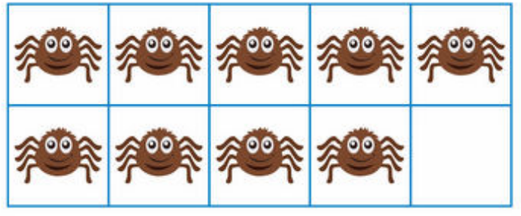
There are _____  .

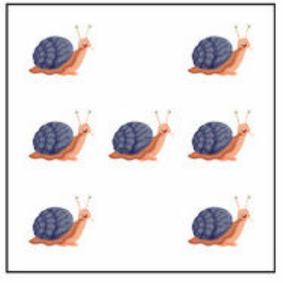
There are more _____ than _____,

so there are fewer _____ than _____.

6 Compare the sets.

Complete the sentences.





There are _____  .

There are _____  .

There are fewer _____ than _____ so there are more _____ than _____.

7 is less than 9.

7 Look at question 6.

How many more spiders than snails? ☐

How many fewer snails than spiders? ☐

Use the number track to help you answer questions 8 to 10.

8 Write a number that is greater than 4. ☐

9 Write a number that is less than 5. ☐

10 Draw a ring around the correct number to complete each sentence.

To find a number that is more than a given number, look along the number track towards the 1 or 10.

To find a number that is fewer than a given number, look along the number track towards the 1 or 10.

Let's investigate

Work with a partner or on your own.

Take 3 objects.

Take 1 more.

How many do you have now? ☐

Take 1 more.

How many do you have now? ☐

Repeat until you have 10 objects. What do you notice?

You have 10 objects.

Put 1 back.

How many do you have now? ☐

Put another 1 back.

How many do you have now? ☐

Repeat until you have 0 objects left. What do you notice?

If you were going to start your investigation again, would you do anything differently?

Look what I can do!

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

1.4 Number words

We are going to ...

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

We can write numbers in words.

Coins often have words instead of numbers on them.

We often use words instead of numbers in a story.

zero: 0 one: 1 two: 2 three: 3 four: 4 five: 5
six: 6 seven: 7 eight: 8 nine: 9 ten: 10

Exercise 1.4

1 Count the spots and read the number words.

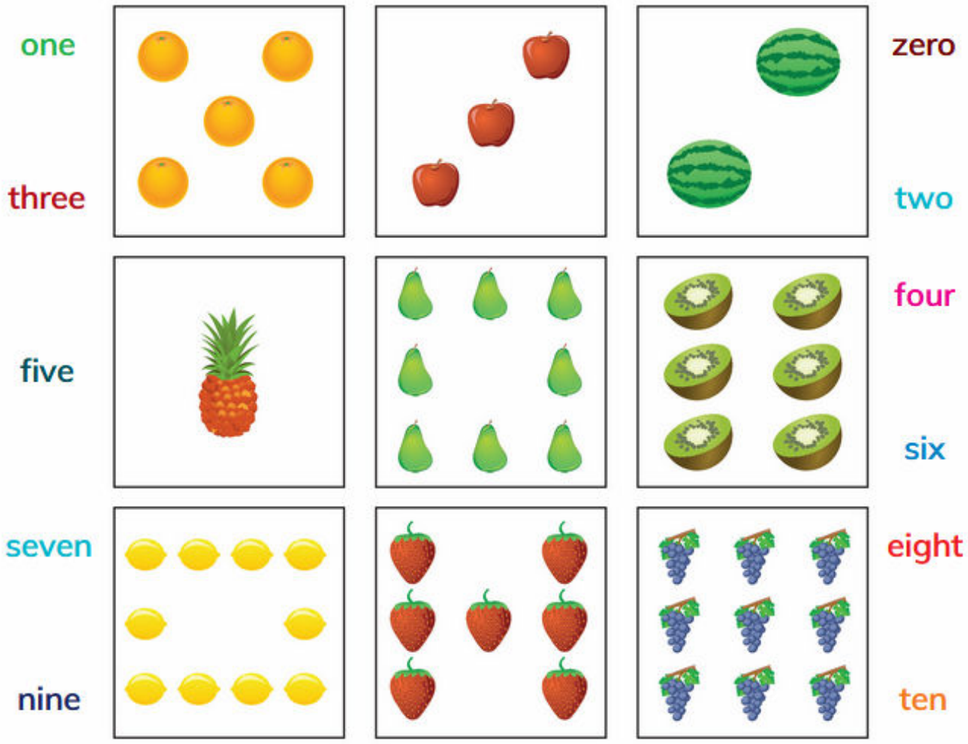
0 zero	1 one	2 two	3 three	4 four	5 five

6 six	7 seven	8 eight	9 nine	10 ten

2 Write the missing word or number on each ten frame.
The first one has been done for you.

1 one	2	three	4	five
6	7	eight	9	10

3 Match the sets to the number words.



Which words do not have a matching set of fruit? _____

4 Draw eight apples.
Make it easy for others to quickly see how many there are.

5 Draw a basket with zero fruit in it.

6 Write the number word after.

one		four		eight	

7 Write the number word before.

	one		four		eight

Can you read and write all the number words correctly?

Do you find the word track, word ten frame or domino layouts with number words helpful? Explain why.

Let's investigate

All the number words from zero to ten have either 3, 4 or 5 letters in the word.

Work with a partner to find out which number words have 3 letters, 4 letters or 5 letters.

Continued

How do you know you have checked all the number words?

Are there any number words that have the same number of letters as that number?

Look what I can do!

- I can read all the number words from zero to ten.
- I can write some number words from zero to ten.

1.5 Odd and even numbers

We are going to ...

- find out about odd and even numbers.

There are different kinds of numbers.

Some numbers are called even numbers. An even number of objects can be put into pairs with none left over.

even odd pair pattern

Some numbers are called odd numbers. An odd number of objects always has 1 left over when the objects are put into pairs.

Exercise 1.5

Worked example 5

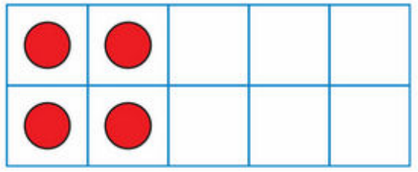
Draw a ring around the correct word for 3.

Use some cubes to help you.

odd / even

Answer: 1 pair and 1 left over. 3 is an (odd) number.

1 Is each number odd or even? Draw a ring around the correct word.

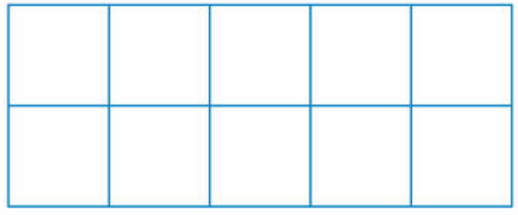


odd / even

8	odd / even
1	odd / even

2 Draw an odd number of counters on the ten frame.

Make it easy to see that it is odd.



Do you need counters or other objects to find out if a number is odd or even?

Explain to your partner how you use the counters.

3 Colour the even numbers on the number track red.

Colour the odd numbers on the number track blue.

0	1	2	3	4	5	6	7	8	9	10

What pattern have you made?

4 Is each number odd or even?

Use the number track in question 3 to help you.

1	odd / even	7	odd / even
4	odd / even	10	odd / even

Let's investigate

Work in a group of four. You will need a set of ten frames cut into jigsaws.*

Put two numbers together to make ten, so that the ten frames are whole again.

Discuss what you notice about the numbers in each ten frame.

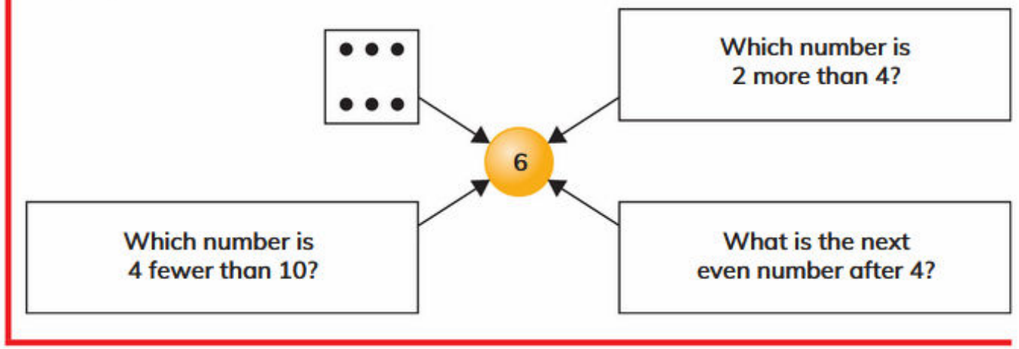
*See the additional teaching idea 'Odd and even on a ten frame' in the Teacher's Resource.

Worked example 6

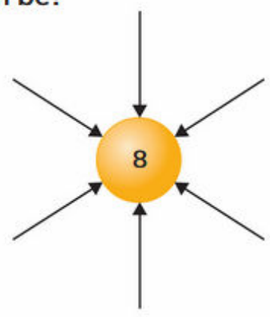
6 is the answer.

What could the question be?

Answer:



5 8 is the answer.
What could the question be?

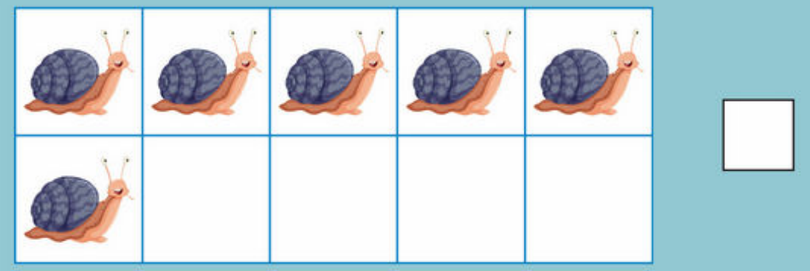


Look what I can do!

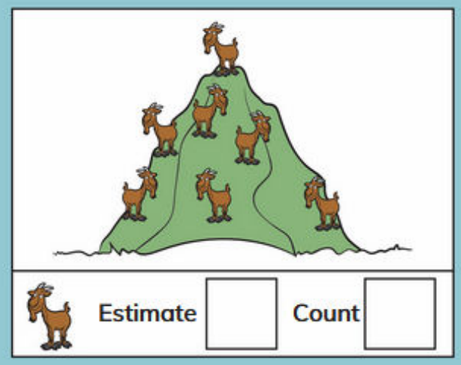
	😐	😊
• I can find out if a number from one to ten is odd or even.	○	○
• I can remember some odd and even numbers.	○	○
• I can describe the pattern of odd and even numbers.	○	○

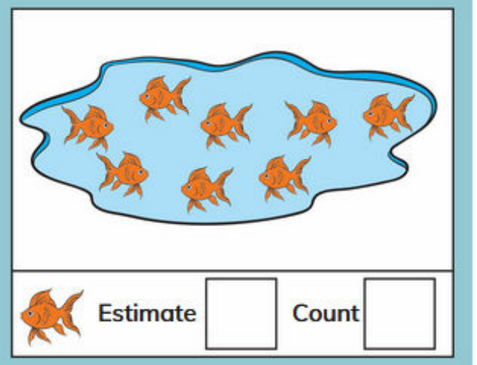
Check your progress

1 How many objects are there?



2 Estimate then count.





3 Draw a ring around the odd numbers.

7 2 6 9 1 8

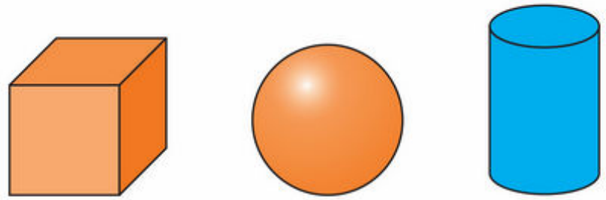
2 Geometry

Getting started

1 Talk to your partner about these shapes.

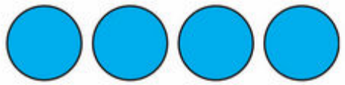
What can you see?

What do you know about these shapes?



2 How many?

There are _____ green shapes.



There are _____ blue shapes.

There are _____ red shapes.

You are learning about 2D and 3D shapes so that you can use them in different ways.

We live inside 3D shapes and we fill our homes, villages and towns with 2D and 3D shapes. Making patterns with shapes will help you to learn much more about them.

2.1 3D shapes

We are going to ...

- describe and sort 3D shapes
- find what is the same and what is different about 3D shapes
- learn and use the right words for 3D shapes.

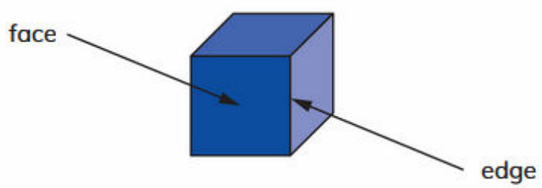
We live inside 3D shapes.

3D cube
cylinder
edge face
sphere

We have 3D shapes all around us.

You can hold a 3D shape in your hand.

3D shapes have faces. Many also have edges.

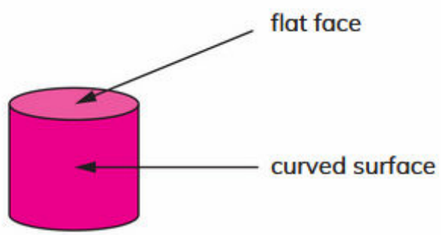


Pick up a 3D shape.

Can you touch an edge?

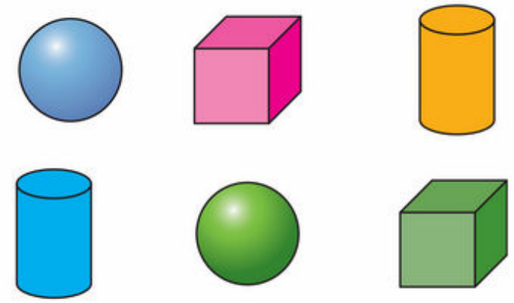
Can you touch a face?

3D shapes can have flat faces or curved surfaces.

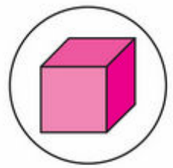


Exercise 2.1

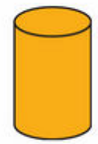
1 Look at the pictures of 3D shapes. Join the shapes that are the same.



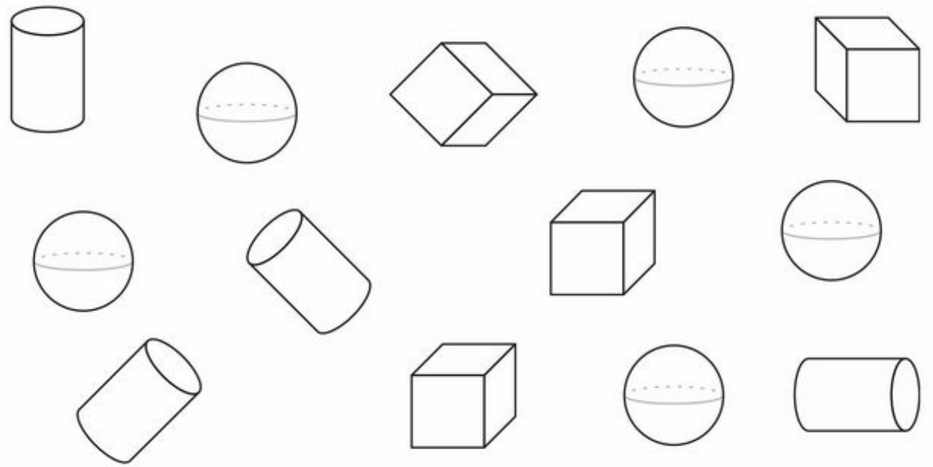
2 Draw a ring around the cubes.



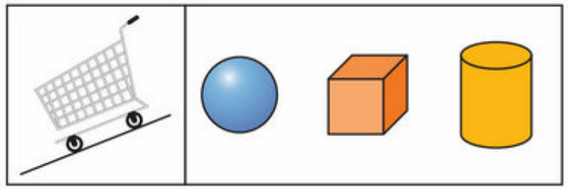
Colour the cylinders yellow.



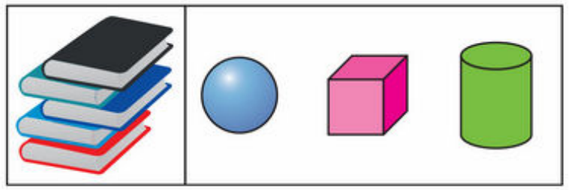
Colour the spheres blue.

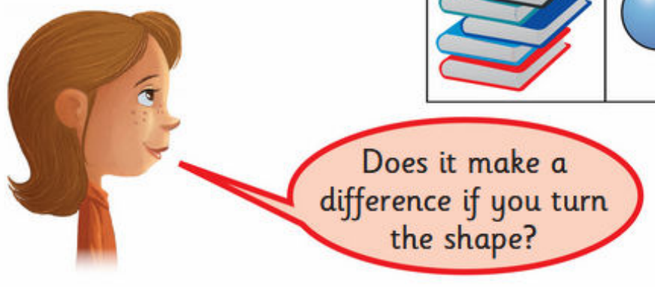


3 Draw a ring around the shapes that will roll.

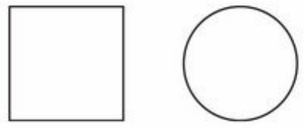


Draw a ring around the shapes that you can stack.

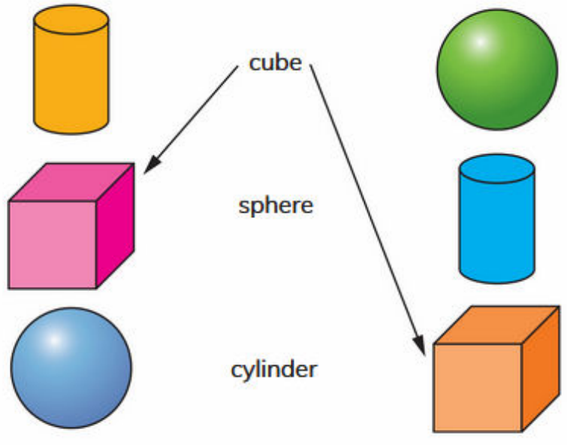




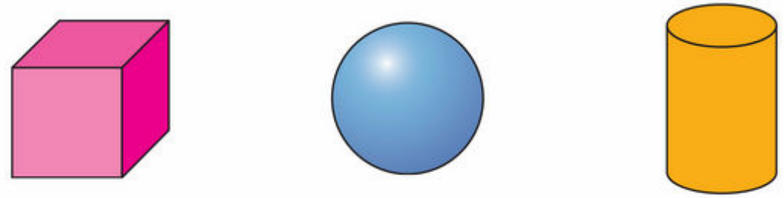
4 Look at the shapes in question 3.
Which 3D shapes fit onto these 2D shapes?
Which 3D shape is missing?



5 Join the name of the shape to the shape itself.
The first one has been done for you.



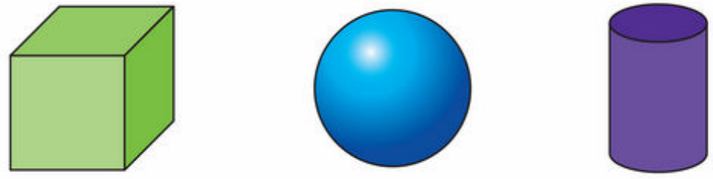
6 How many edges, faces or surfaces does each shape have?



Edges:	Edges:	Edges:
Faces:	Faces:	Surfaces:

Let's investigate

Work with a partner to build a tower.
You can use more than one of each shape.
Talk about your tower and the shapes you will use.
Use the words edge and face.



Which shape would be good to start with?
Which shape would be better at the top of the tower?

If you built another tower using the same 3D shapes would you do it the same way or a different way? Why?

Look what I can do!

	😐	😊
• I can describe and sort 3D shapes.	○	○
• I can find what is the same and what is different about shapes.	○	○
• I can use the right words for the parts of 3D shapes.	○	○

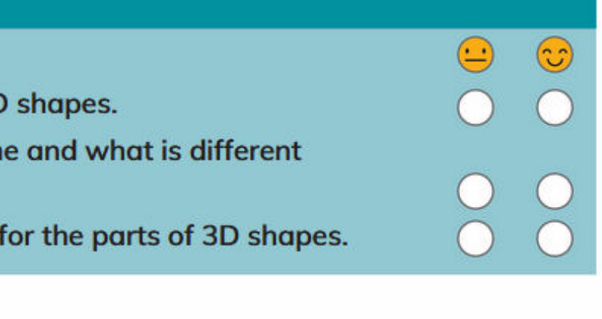
2.2 2D shapes

We are going to ...

- describe and sort 2D shapes using the number of sides
- find out the number of sides that different shapes have
- find what is the same and what is different about shapes
- use the right names for 2D shapes.

2D shapes are flat. This is what makes them different to 3D shapes.

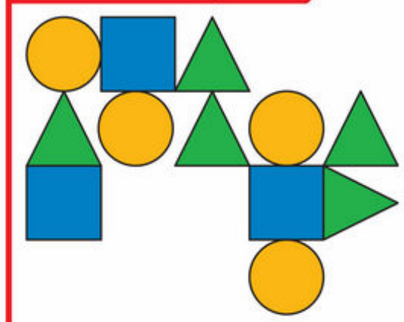
Playing with shapes and making patterns using 2D shapes will help you to learn much more about them.



2D circle curved rectangle side square straight triangle

Exercise 2.2

Worked example 1



How many ● are there?

How many ■ are there?

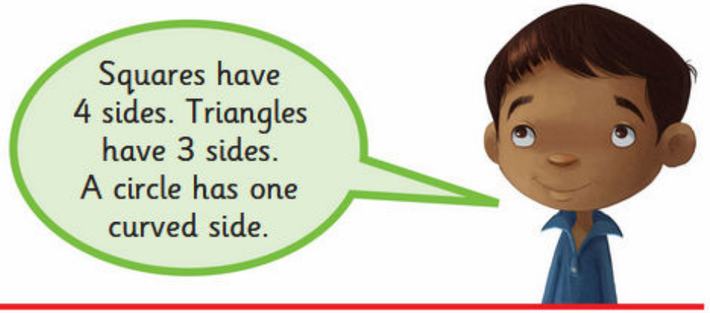
How many ▲ are there?

Answer:

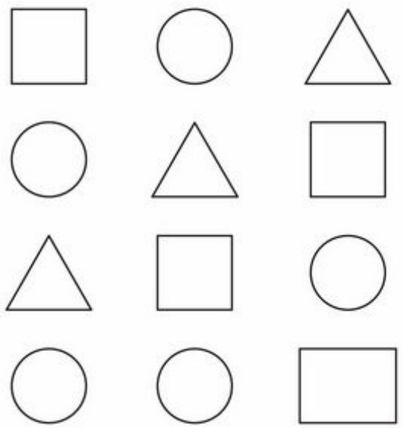
There are 4 ●

There are 3 ■

There are 5 ▲



1



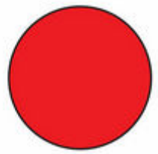
Colour the ●

Colour the ▲

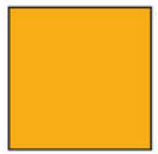
Colour the ■

Colour the ■

2 A circle has curved sides.



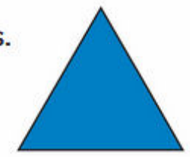
A square has straight sides.



Draw a ring around the correct word in each sentence.

A rectangle has 4 **curved / straight** sides.

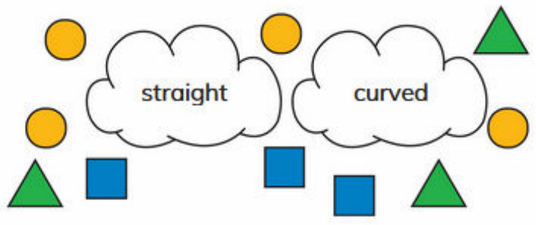
A triangle has **1 / 2 / 3 / 4** straight sides.



3 Match each shape to the correct clouds.

Are the sides straight or curved?

Count the shapes for each cloud.



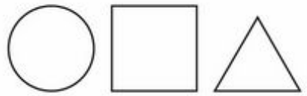
Work with a partner. Keep asking your partner questions until they work out what each shape is.

Write the number in these boxes.

Straight	**Curved**

4 Use shape pieces to draw a rocket.

Use as many of each shape as you want.



How many shapes did you use?

How is your partner's rocket the same?

How is it different?

Let's investigate

You will need a set of shapes and a partner.

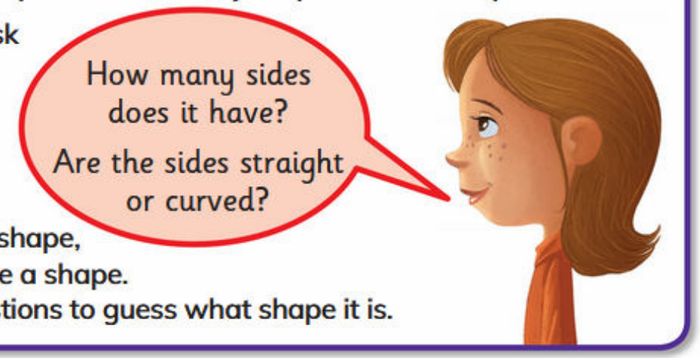
Put your shapes in a bag or a box.

Take turns to pick a shape. Do not show your partner the shape.

Your partner should ask questions to find out what shape it is.

Your partner should say what shape it is.

If they say the correct shape, it is their turn to choose a shape.
You can then ask questions to guess what shape it is.



What did you find easy about 2D shapes?
What did you find difficult?

Look what I can do!

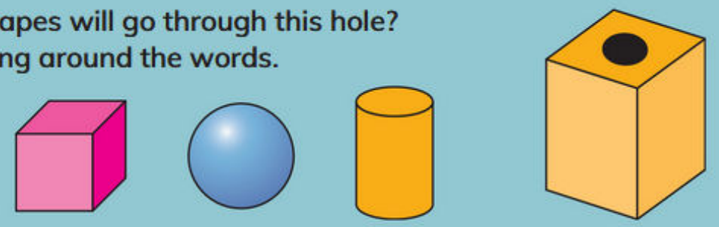
- I can describe and sort 2D shapes.
- I can find what is the same and what is different about shapes.
- I can use the right names for 2D shapes.

Check your progress

1 Which shape has 6 faces or surfaces? Draw a ring around the word.

sphere cylinder cube

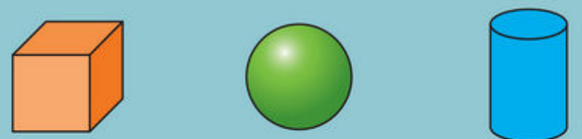
2 Which shapes will go through this hole?
Draw a ring around the words.



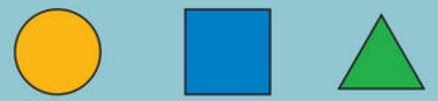
cube sphere cylinder

3 Join these words to the correct shapes.

All flat faces Some flat faces No flat faces



4 Draw a ring round the shape that has 4 sides.



5 Which shapes can fit together with no spaces? Draw your answers in the space below.

For example, 

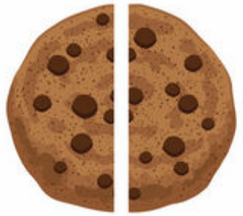
3 Fractions

Getting started

1 This cookie is a whole. 

How many parts is the cookie cut into?

Are they the same as each other? _____



2 This bar of chocolate is a whole. 

How many parts is the chocolate cut into? 

Are they the same as each other? _____

You are learning about fractions so that you can use them in different ways.

Each fraction can look different. It depends on the shape you start with.

A fraction is part of a whole.

3.1 Fractions

We are going to ...

- find half of a shape
- recognise when a shape is not split into halves
- put two halves back together to make the whole.

We use fractions to help us share fairly.

We both get the same, half each.

We use fractions every day.

This is a pair of shoes. 

Two shoes make a pair.

One shoe is half of that pair.

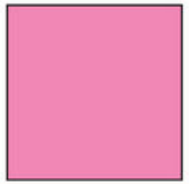
fraction half part

We need to match our shoes. 

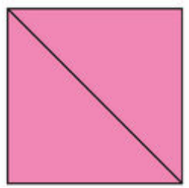
Exercise 3.1

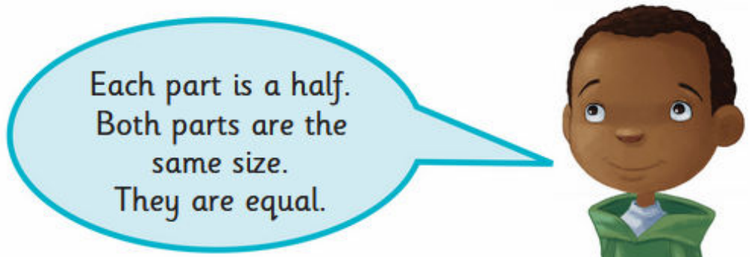
Worked example 1

Find half of a square.



Answer:

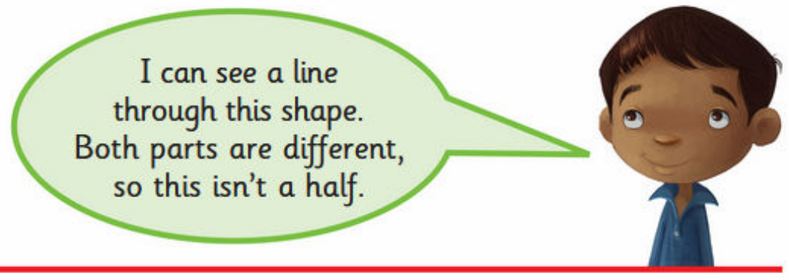




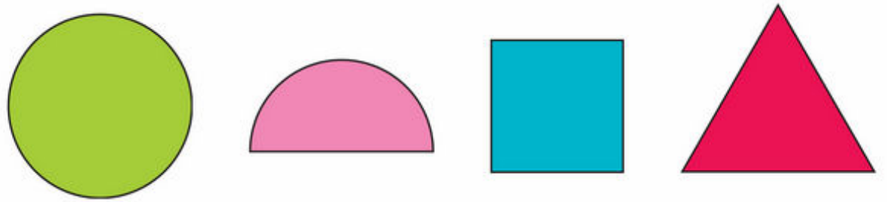
Worked example 2

Is this shape cut in half?

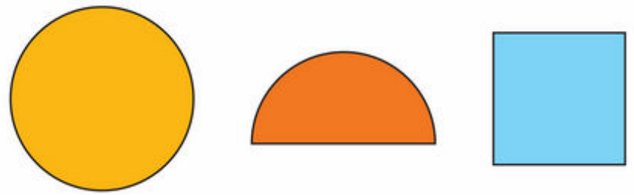
Answer:



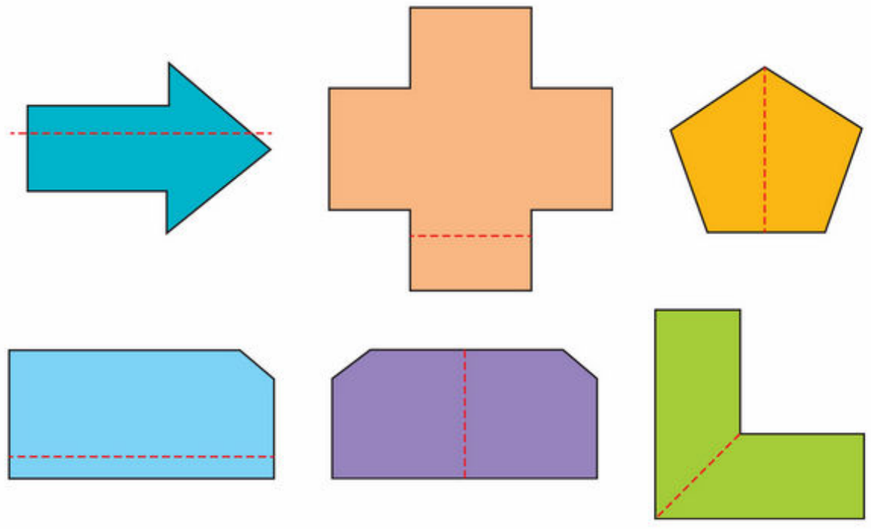
1 Draw a line on each shape to show two halves.



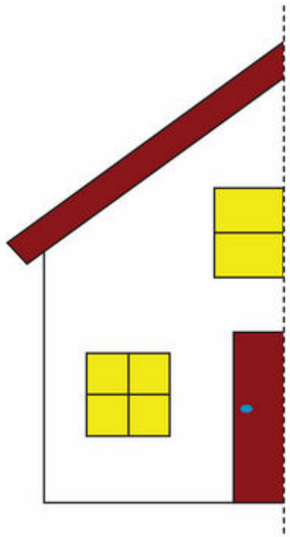
2 Draw a line on each shape to show two pieces that are **not** halves.



3 Draw a ring around the shapes that have been folded in half.



4 This is one half of a house.
Draw the other half to make a whole house.



5 Draw half of each of these shapes.

Let's investigate

You will need: 2 paper squares the same size but different colours, scissors, glue, a piece of paper.

1 Fold one square in half, corner to corner.

2 Cut along the fold line.
You have 2 triangles.

3 Fold one of the triangles in half.

4 Cut along the fold.
You now have 2 small triangles.

5 Fold the other square side to side.

6 Cut along the fold.
You have 2 halves.

7 Fold them in half.

8 Cut along the fold.
You have 4 small squares.

Make a pattern using all your shapes so that the edges fit together.

Compare your pattern with other patterns.

Is it the same or is it different?

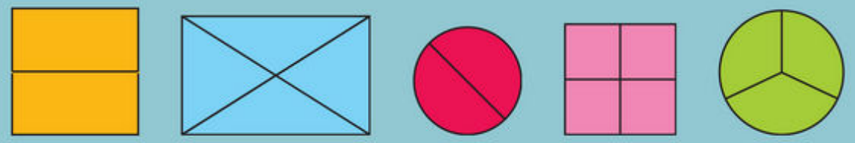
What did you find easy when you were learning about fractions?
What did you find difficult?

Look what I can do!

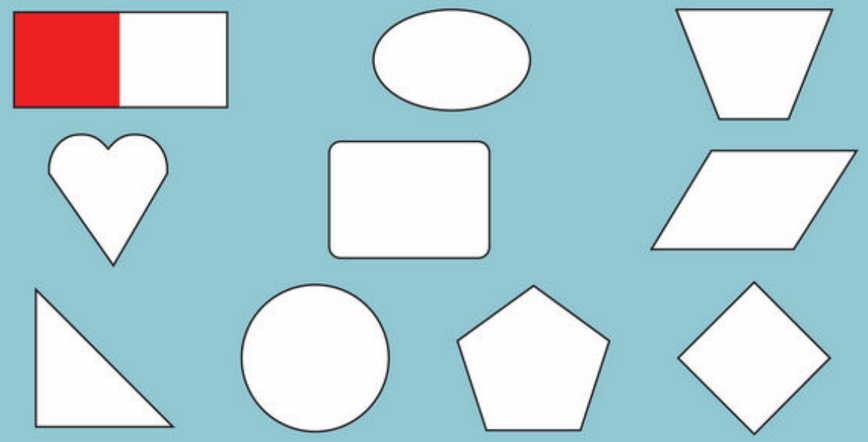
- I can find half of a shape.
- I can recognise when a shape is not split into halves.
- I understand that 2 halves of the same shape can fit together to make a whole.

Check your progress

1 Draw a ring around the shapes that show a half.



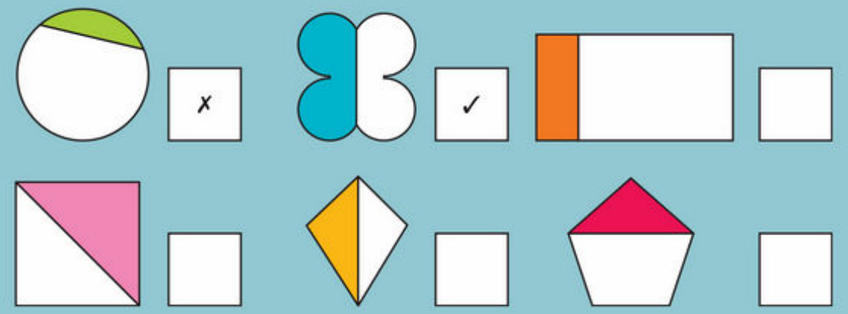
2 Colour one half of each shape. The first has been done for you.



Continued

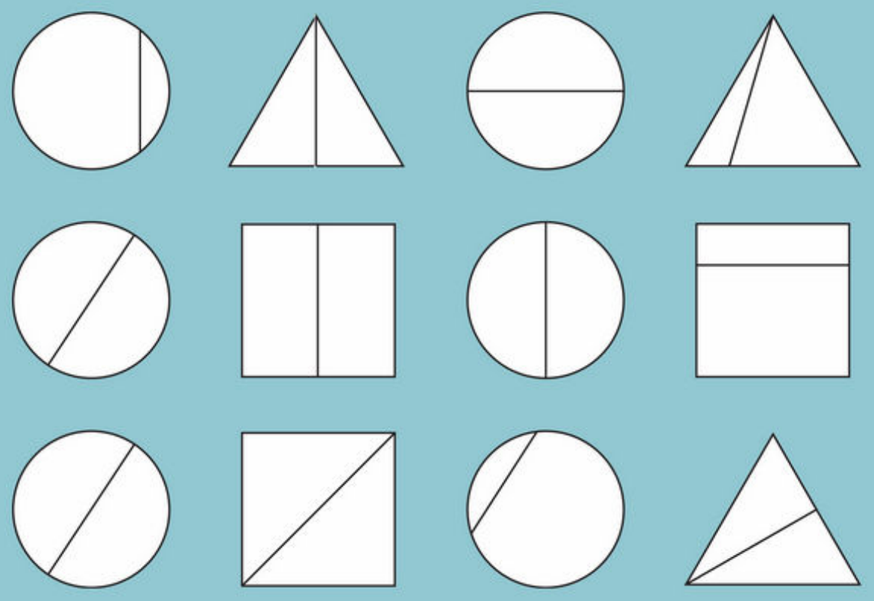
3 Put a ✓ in the box if half of the shape is coloured.
The first two have been done for you.

Put a ✗ in the box if half is not coloured.



4 Colour the shapes that have equal parts.

Cross out the shapes that do not have equal parts.



4 Measures

Getting started

1 Draw a ring around the taller giraffe.

Draw a taller tree next to the tall giraffe.

Draw a shorter tree next to the short giraffe.

2 Draw a ring around the shorter house in each pair.

a

b

Knowing about length helps us to measure.

There are many different words for length.

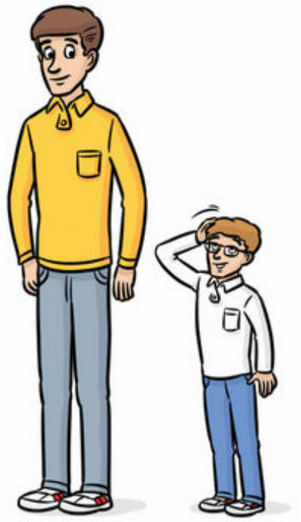
4.1 Length

We are going to ...

- explore length and compare lengths
- use the correct words for different kinds of lengths.

We can measure how long things are

or how tall things are



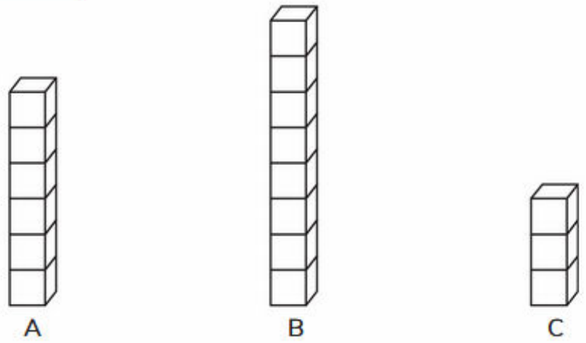
or how far apart they are.

Length is the measurement of something from one end to the other.

length long short tall thin wide

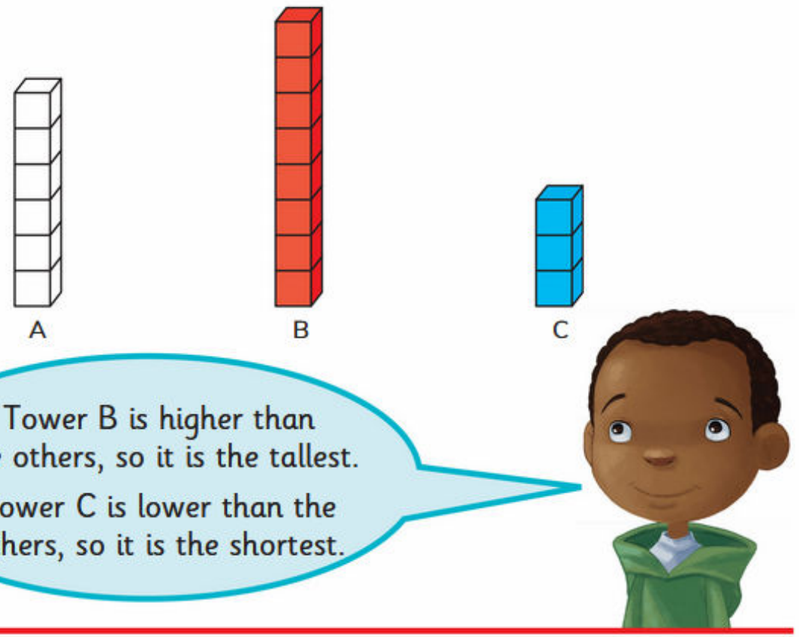
Exercise 4.1

Worked example 1

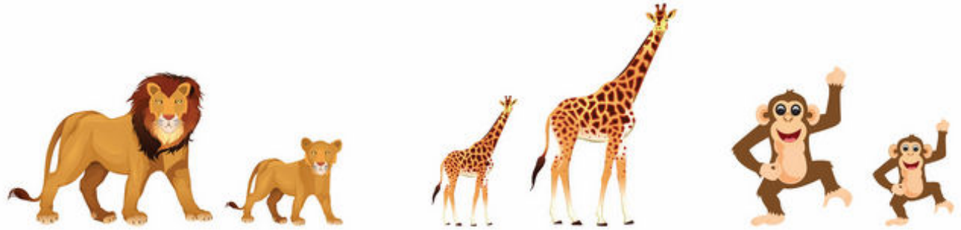


Colour the tallest tower of blocks red. Colour the shortest tower of blocks blue.

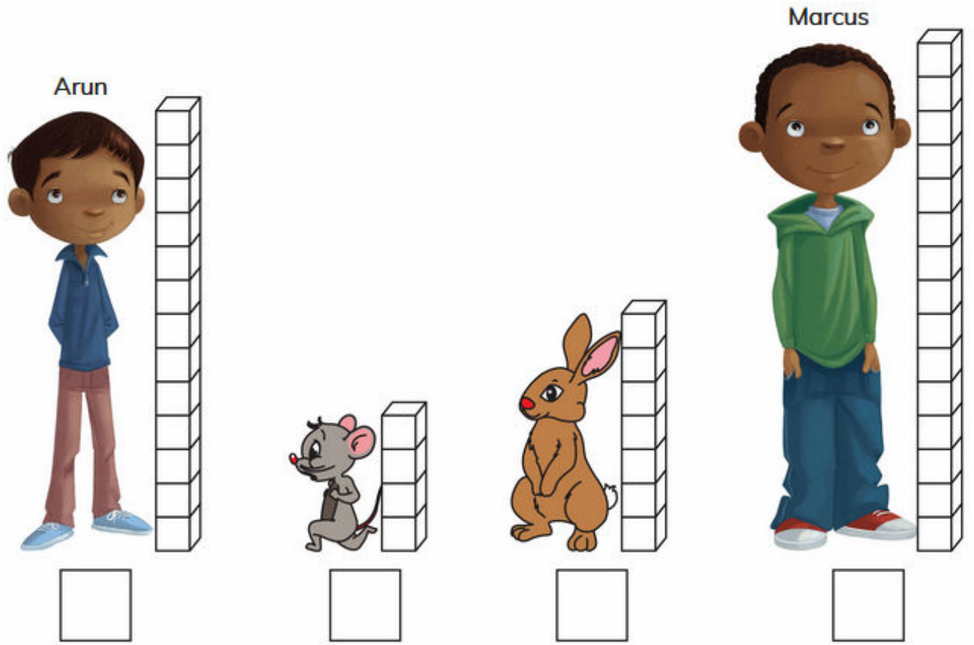
Answer:



1 Draw a ring around the taller animal in each pair.



2 How many cubes tall is each character?



Who is taller than Arun? _____

Who is shorter than Marcus? _____

Put the characters in order from shortest to tallest.

Label them 1, 2, 3 or 4.

Now put the characters in order from tallest to shortest.

Label them a, b, c or d.

3 Talk to your partner.

Use the words taller and shorter to describe objects in your classroom.

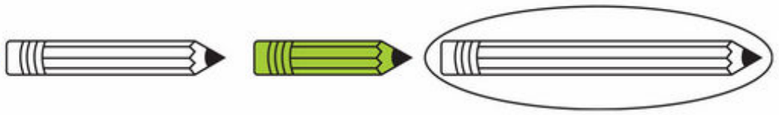
Worked example 2

Look at these pencils.

Which is the longest? Which is the shortest?

Draw a ring around the longest and colour the shortest.

Answer:



4 Which is longer, your foot or your hand?

How can you find out?

My _____ is longer than my _____.

foot

hand

5 Which is shorter, your finger or your nose?

How can you find out?

My _____ is shorter than my _____.

finger

nose

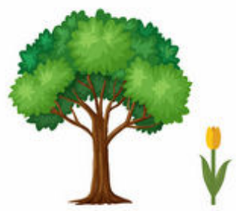
6 Draw your family.

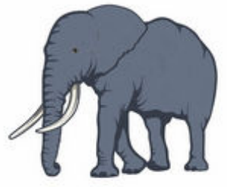
Draw them in order from the shortest to the tallest.

7 The height of something is how far it is from the bottom to the top.

The tree is taller than the flower.

Write the word taller or shorter below each object.





_____

_____

8 The length of something is how far it is from one end to the other.

The bus is longer than the car.

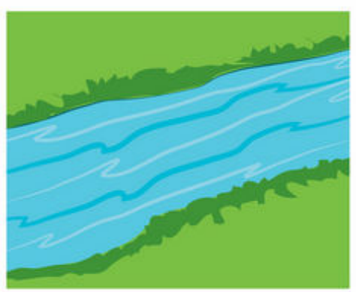
The car is shorter than the bus.

Write the word longer or shorter under each picture in the pairs below.

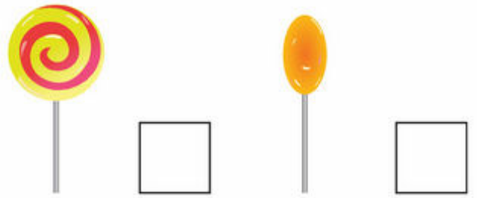
Draw 2 different objects.

Write longer or shorter under each picture.

9 Which river is wider? Tick ✓ the correct answer.



Which lollipop is the thinnest? Tick ✓ the correct answer.



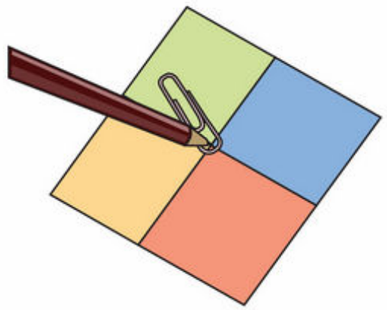
This is a wide door.

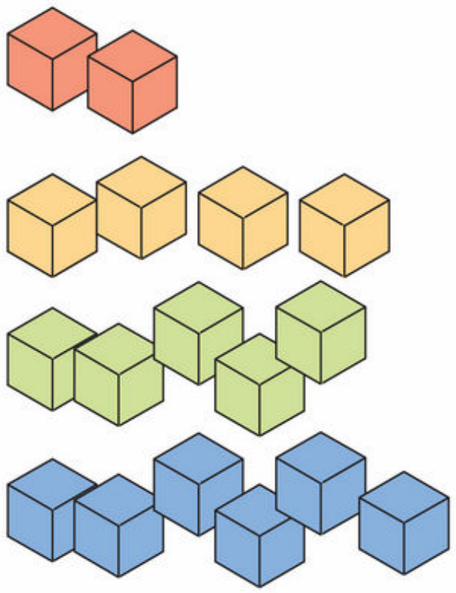
Draw a door that is thinner.

Let's investigate

Work with a partner to build a tower.

Use a spinner to choose the block colour.





Take turns to spin the spinner and collect a block.

If there is none of that colour left, miss your turn.

Keep playing until all of the blocks have been used.

Who has the taller tower?

Who has the shorter tower?

Put the blocks back on to the table and play the game again.

Did you learn anything new about length?
What was easy to do and what was difficult?

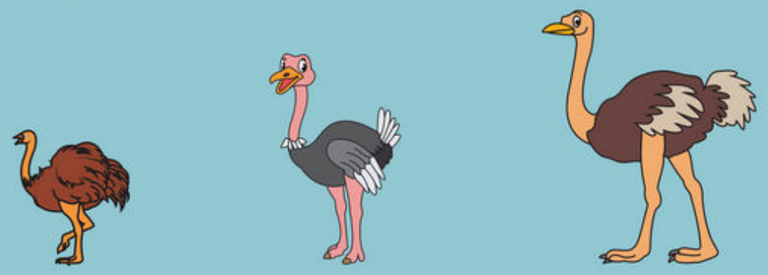
Look what I can do!

	😐	😊
• I can explore length.	○	○
• I can compare length.	○	○
• I can use the correct words for different kinds of lengths.	○	○

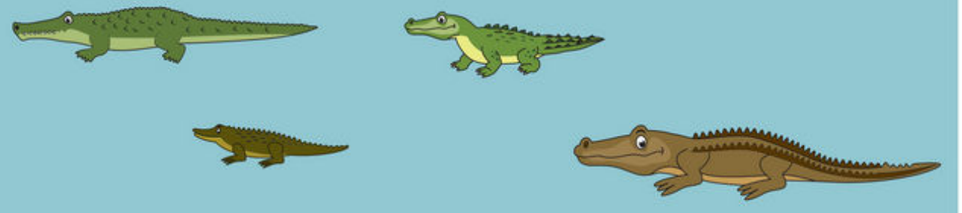
Check your progress

1 Draw a ring around the shortest frog.

2 Draw a ring around the tallest ostrich.



3 Draw a ring around the longest crocodile.

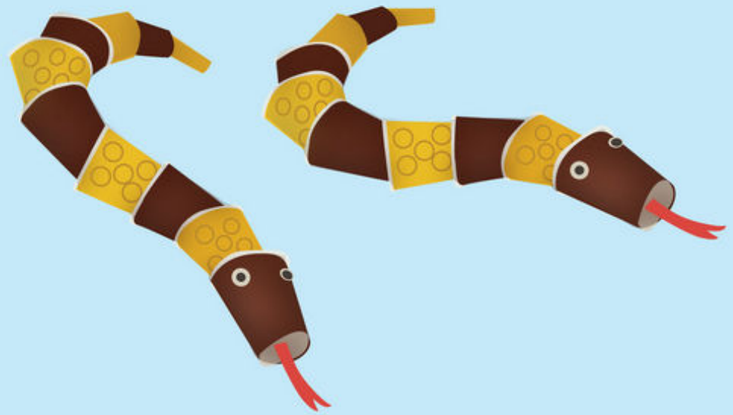


Project 1

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.



Put your snake near other people's snakes.

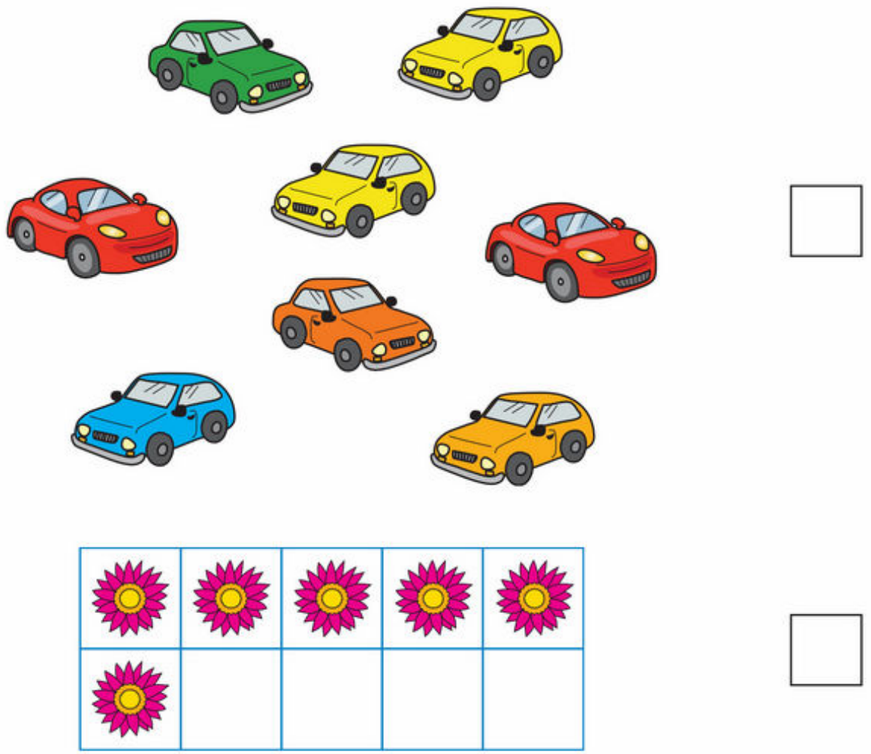
1 What is the same about your snakes?
  What is different?
2 Who has made the longest snake?
  Who has made the shortest snake?
  How do you know?
3 Whose snake is widest?
  Whose snake is thinnest?
  How do you know?
4 What else could you say about your snakes?

5 Working with numbers to 10

Getting started

1 Count out loud to 10.

2 How many? Write the number in the box.



Continued

3 Draw the domino pattern for 6.

Is 6 an odd or even number?

We often put two groups together to add them.

We want to know how many we have altogether.

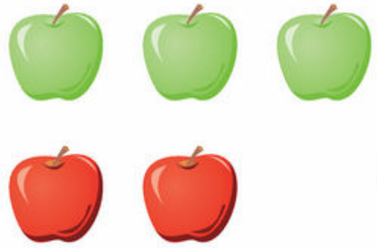
Sometimes we know how many we have. If some are taken away, we want to know how many are left.

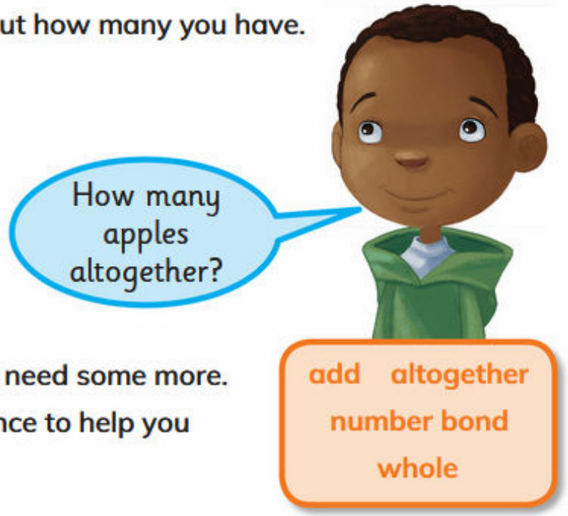
5.1 Addition as combining

We are going to ...

- add quantities together by combining two sets
- begin to remember some number bonds.

Add two groups together to find out how many you have.





If there are not enough, you might need some more.

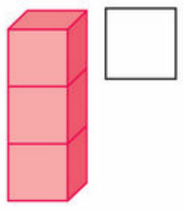
You can write your addition sentence to help you remember what you did.

Exercise 5.1

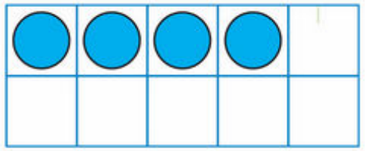
1 Draw 1 more.

Count how many objects there are now.

Complete the number sentence.



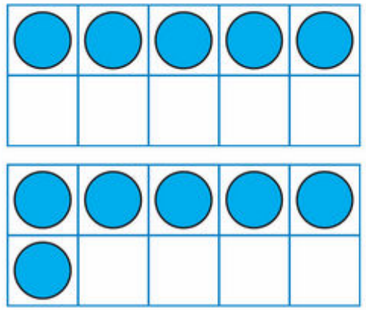
3 add 1 equals ☐.

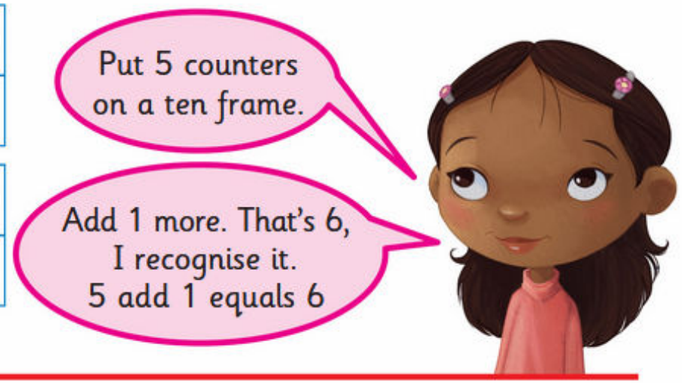


☐ add ☐ equals ☐

Worked example 1

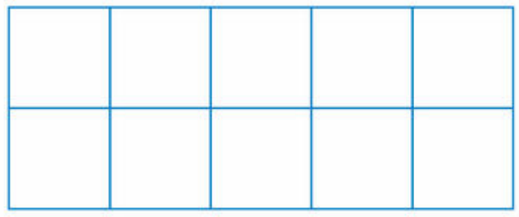
5 add 1 equals ☐





Answer: 5 add 1 equals 6

2 Use counters and a ten frame to help you add 1 more.



6 add 1 equals ☐ 7 add 1 equals ☐

8 add 1 equals ☐ 9 add 1 equals ☐

Let's investigate

Sumi says when you add 1 more, you make the next counting number.

Is Sumi correct?

Discuss with your partner.

Worked example 2

Write a number sentence for the story.

First Then Now

Answer:

First

3

First, then

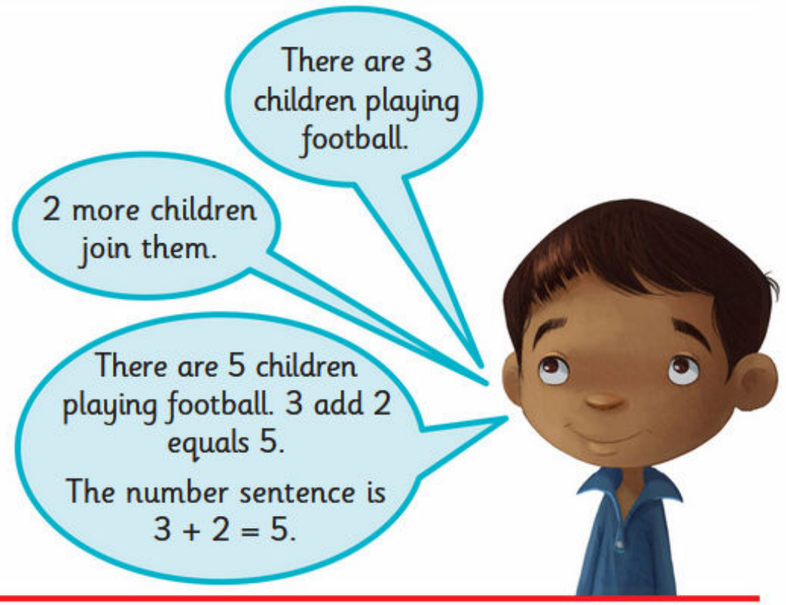
3 add 2

3 + 2

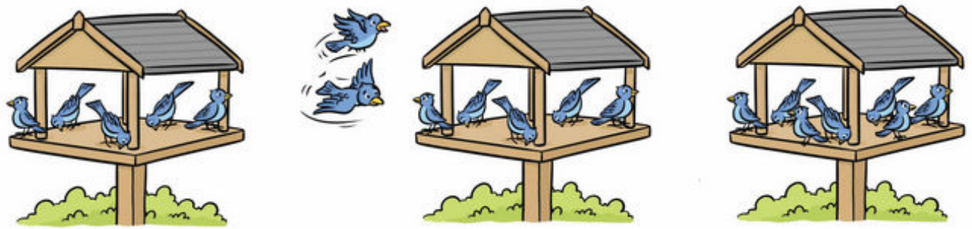
First, then, now

3 add 2 equals 5

3 + 2 = 5



3 Complete the number sentence for this story.



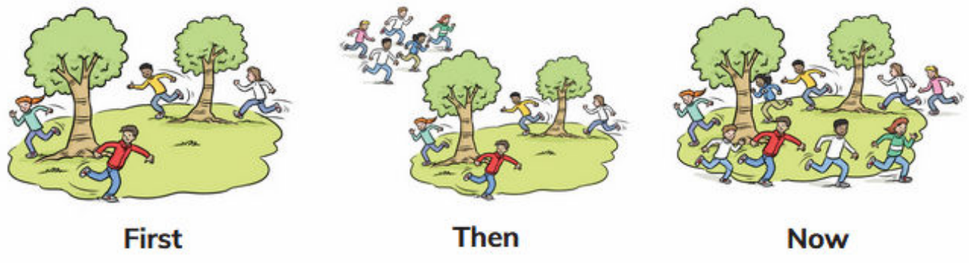
First Then Now

☐ add ☐ equals ☐

☐ + ☐ = ☐

4 Tell your partner what is happening in this story.

Write the number sentence.

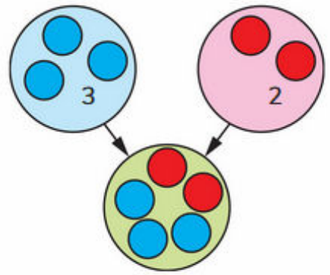


First Then Now

Worked example 3

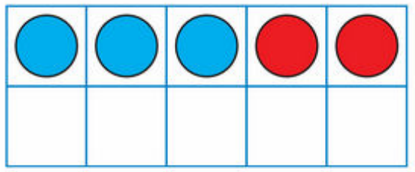
3 add 2 equals ☐

3 + 2 = ☐



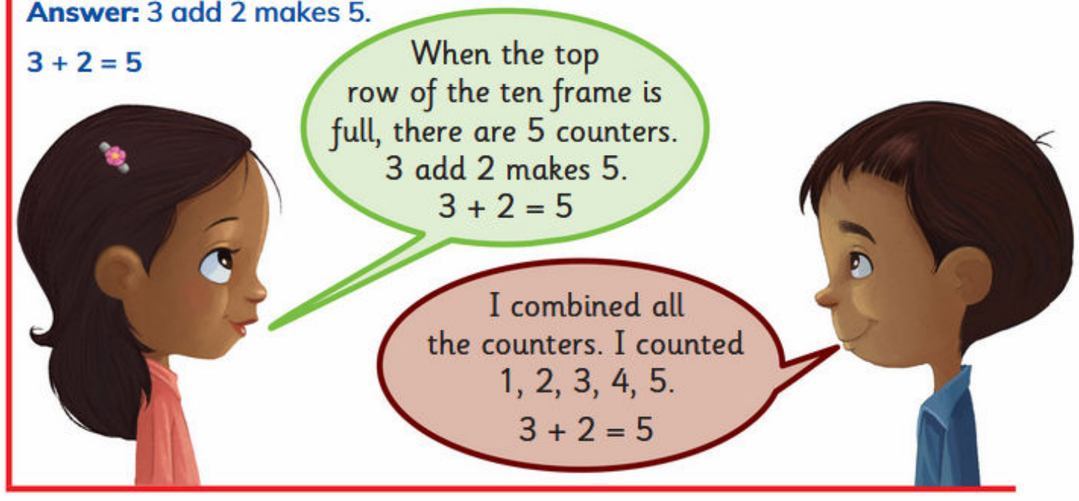
Put the counters on a ten frame to find out.

Write the number sentence.



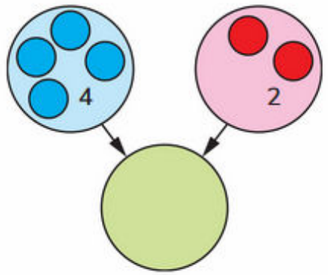
Answer: 3 add 2 makes 5.

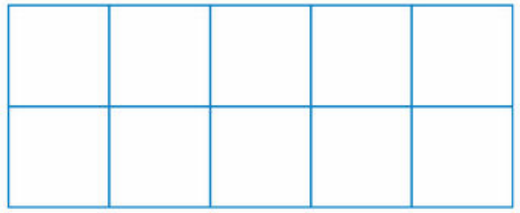
3 + 2 = 5



5 How many counters are there?

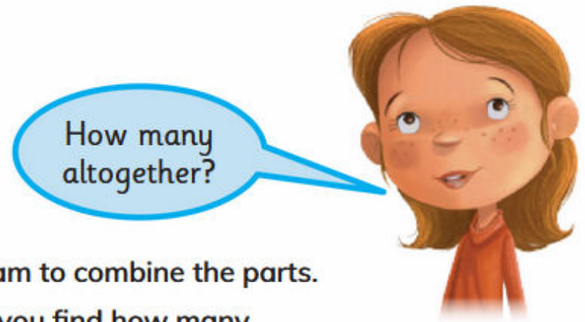
Combine the parts to find the whole.





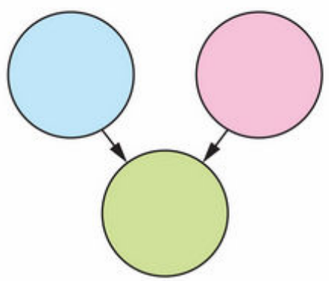
4 add 2 equals ☐.

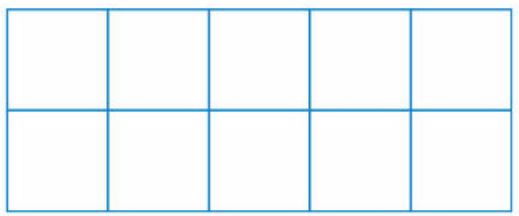
4 + 2 = ☐



6 Use the part-whole diagram to combine the parts.

Use the ten frame to help you find how many objects there are, which is called the total.





5 + 3 = ☐

6 + 4 = ☐

3 + 5 = ☐

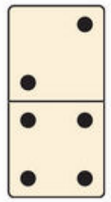
4 + 6 = ☐

7 Estimate the total number of spots on each domino.

Remember that an estimate is a good guess.

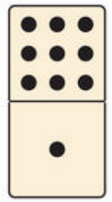
Write a number sentence for each domino.

Was your estimate close?



Estimate = ☐

☐ + ☐ = ☐

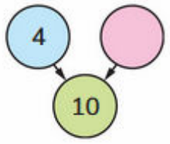


Estimate = ☐

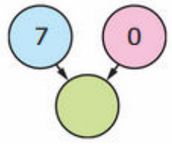
☐ + ☐ = ☐

8 Complete each part-whole diagram.

Write a number sentence for each diagram.



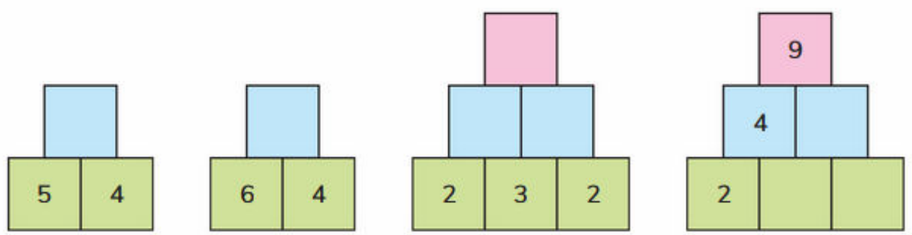
☐ + ☐ = ☐



☐ + ☐ = ☐

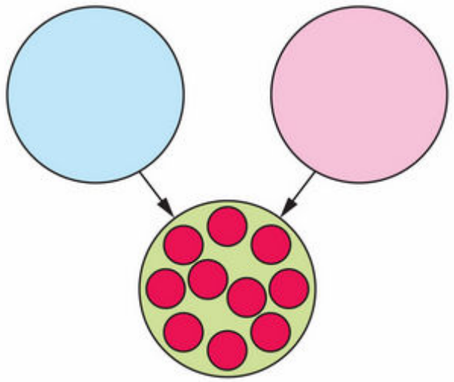
How did you find the missing part?
Ask your partner what they did.

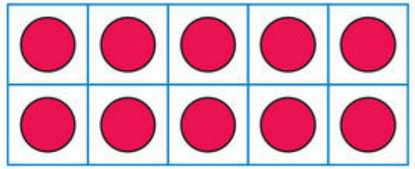
9 Complete each addition wall.



10 If 10 is the whole, what could the two parts be?

Use counters to help you find all the ways to make 10.





□ + □ = 10 □ + □ = 10

□ + □ = 10 □ + □ = 10

□ + □ = 10 □ + □ = 10

□ + □ = 10 □ + □ = 10

□ + □ = 10 □ + □ = 10

□ + □ = 10

Explain to your partner how you know you have found all the number sentences.

Let's investigate

Work with a partner. Choose a number from 5 to 9.

Make a poster showing all the number bonds for that number.

How will you show each number bond?

How will you know that you have included all the number bonds for your number?

Look what I can do!

- I can add quantities together by combining two sets.
- I am beginning to remember some number bonds.

5.2 Subtraction as take away

We are going to ...

- subtract by taking away a part from the whole.

If there are too many, you might need to take some away.

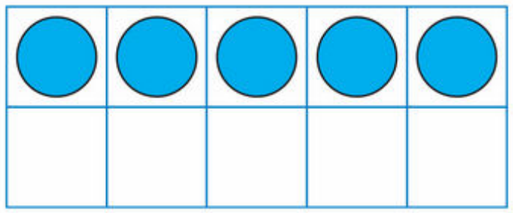
You can write your subtraction in words or in a number sentence.

subtract take away

Exercise 5.2

1 Cross out 1 bead and 1 counter. Count how many there are now.

7 take away 1 equals ☐



☐ take away ☐ = ☐

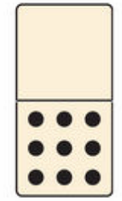
Let's investigate

Put 9 counters on the table in the domino pattern.

Take one counter away to make the domino pattern for 8.

Take one counter away to make the domino pattern for 7.

Repeat until there are no counters left.



Tell your partner what you were thinking about as you took each counter away.

Worked example 4

Write a sentence for the story.

First

Then

Now

First

5

First, then

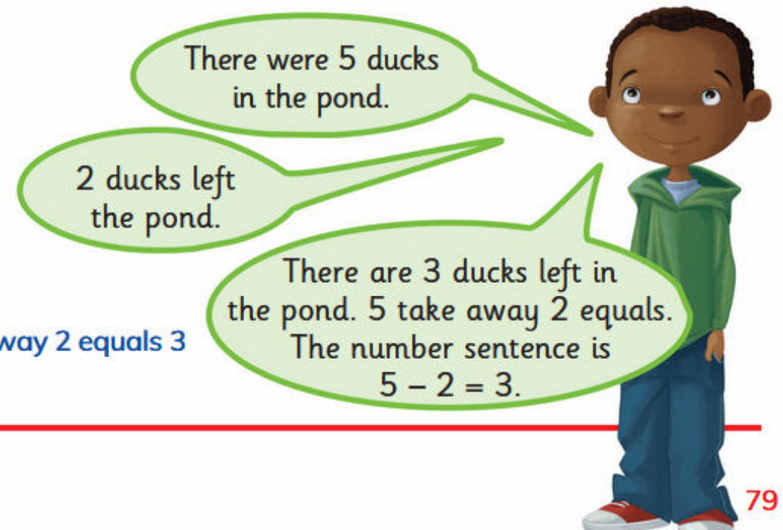
5 take away 2

5 – 2

First, then, now

Answer: 5 take away 2 equals 3

5 – 2 = 3



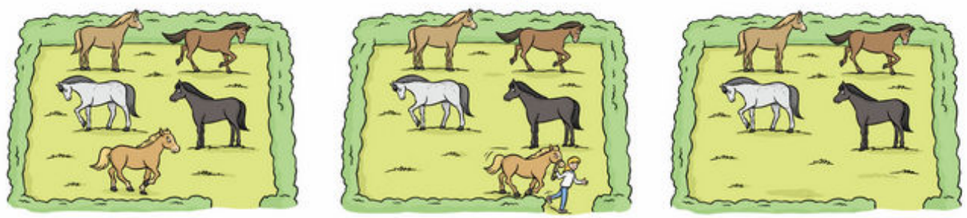
2 Tell your partner what is happening in this story.
Write the sentences.

First Then Now

☐ take away ☐ equals ☐.

☐ – ☐ = ☐

3 Write the number sentence for this story.



First Then Now

5 take away 1 equals 4.

☐ – ☐ = ☐

4 Write the number sentence for this story.

First Then Now

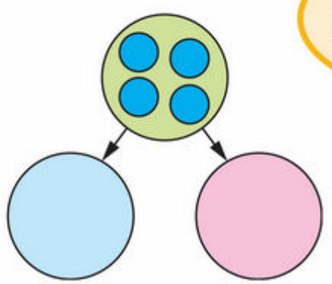
☐ take away ☐ equals ☐.

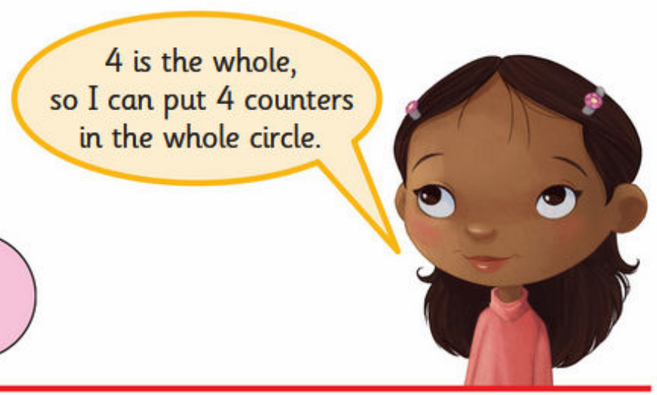
☐ – ☐ = ☐

Worked example 5

4 take away 3 equals ☐

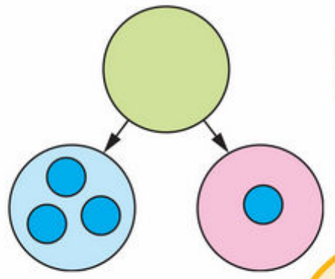
4 – 3 = ☐





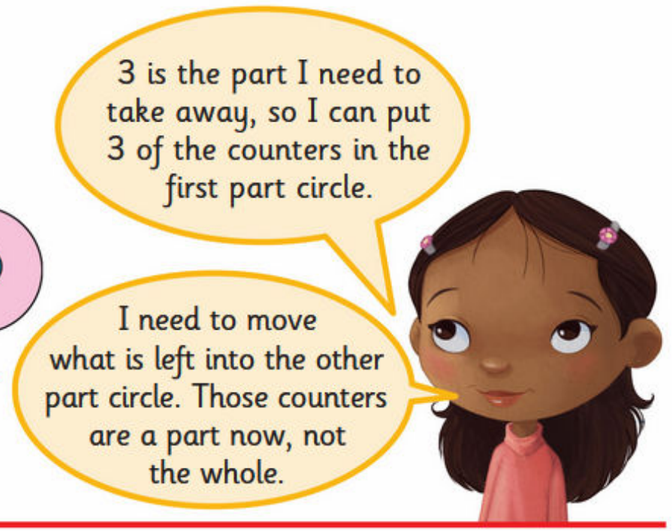
Continued

Answer:



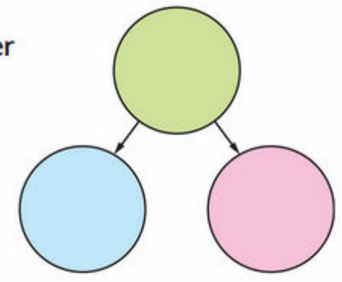
4 take away 3 equals 1.

4 – 3 = 1



5 Find out how many are left over after taking a part away from the whole.

Use the diagram to help you.
Estimate your answer first.



Estimate =

10 – 3 = ☐

Estimate =

9 – 4 = ☐

Estimate =

8 – 5 = ☐

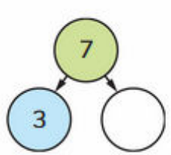
Estimate =

7 – 6 = ☐

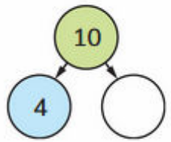
Can you take away a smaller number from a larger number?
Is the part-whole diagram helpful?

6 Complete each part-whole diagram.

Estimate your answer first. Write a number sentence for each diagram.



Estimate = ☐ – ☐ = ☐



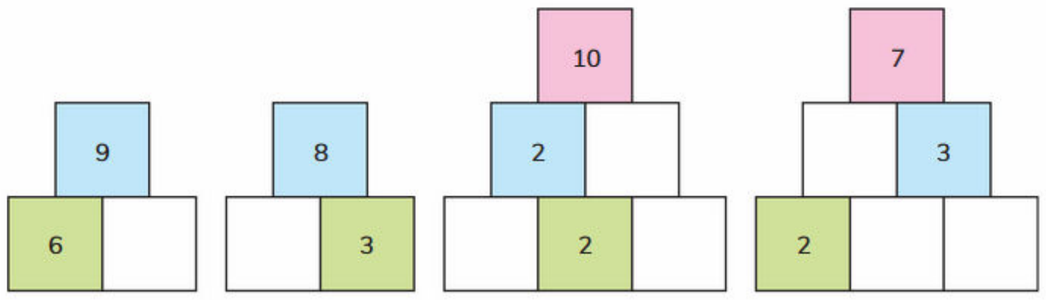
Estimate = ☐ – ☐ = ☐

How are these part-whole diagrams the same?

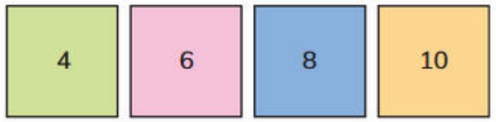
How are they different?

Do you use each diagram in the same way?

7 Complete each subtraction wall.



Let's investigate



Choose any **two** of these numbers.

Choose again. Subtract the smaller number from the larger number.

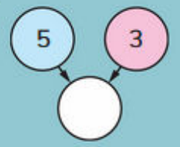
Do this at least 4 times. What do you notice?

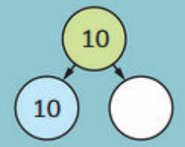
Look what I can do!

- I can subtract by taking away a part from a whole. 😐 😊

Check your progress

1 Complete each part-whole diagram. Write a number sentence for each diagram.





☐ add ☐ equals ☐

☐ + ☐ = ☐

☐ take away ☐ equals ☐

☐ − ☐ = ☐

2 Find all the number bonds for 7. What will you use to help you?

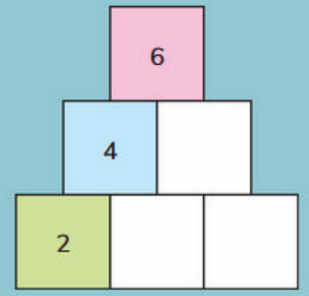
☐ + ☐ = 7 ☐ + ☐ = 7

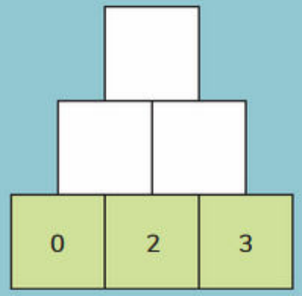
☐ + ☐ = 7 ☐ + ☐ = 7

☐ + ☐ = 7 ☐ + ☐ = 7

☐ + ☐ = 7 ☐ + ☐ = 7

3 Complete each wall.

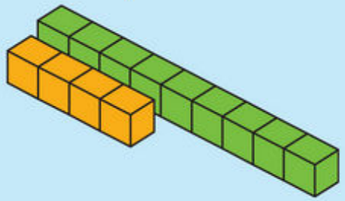




Project 2

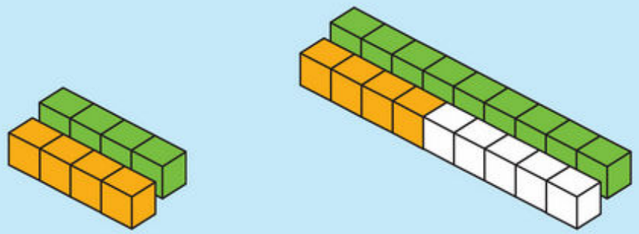
Compare the rows

Look at the rows of cubes in the picture.



Tell your partner about them.

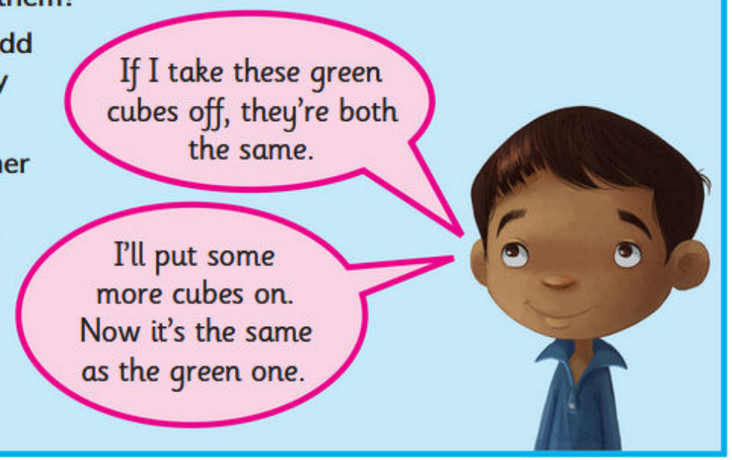
Once you've had the chance to talk about your ideas, have a look at what some other learners said.



Do you agree with them?

Would you like to add anything or ask any questions?

You may have further ideas of your own now that you have seen these.



6 Position

Getting started

1 Write in the missing numbers.

1	2		4	5		7	8		10

2 Draw a ring around the number **before** 6.

Colour the number **after** 6.

1	2	3	4	5	6	7	8	9	10

3 Draw a ring around the cars that are **next to** the green car.

You are learning about **position**.

Ordinal numbers help you to see the order that you do things in during your day.

For example, 1st you wake up, 2nd you get out of bed.

6.1 Position

We are going to ...

- recognise and use ordinal numbers
- use new words to describe position
- order ordinal numbers.

We need to know about position so that we can understand instructions.

We need to tell other people where we have put objects.

I put my ball under the chair.

Ordinal numbers tell us the position of numbers or objects.

They don't tell us how much there is or how many things there are.

above behind
below beside
in front of
next to on
ordinal
position under

Exercise 6.1

Worked example 1

There is a hot air balloon competition.

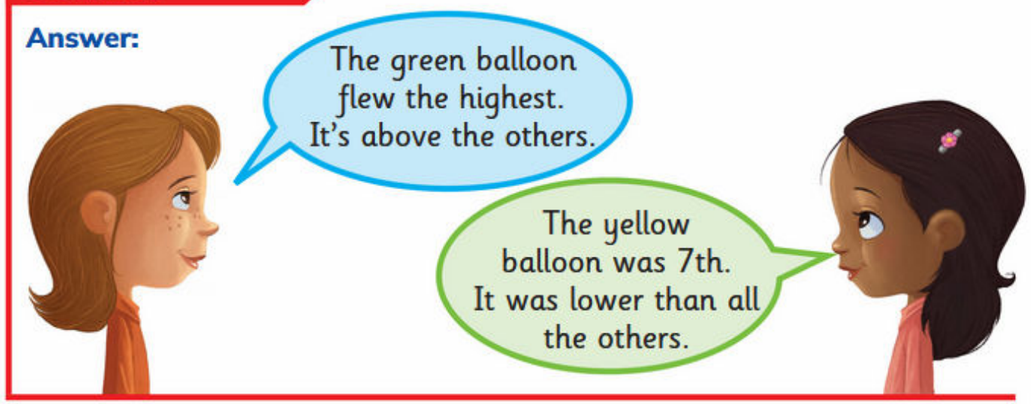
The balloon that flies the highest gets first prize.

Which balloon was 1st?

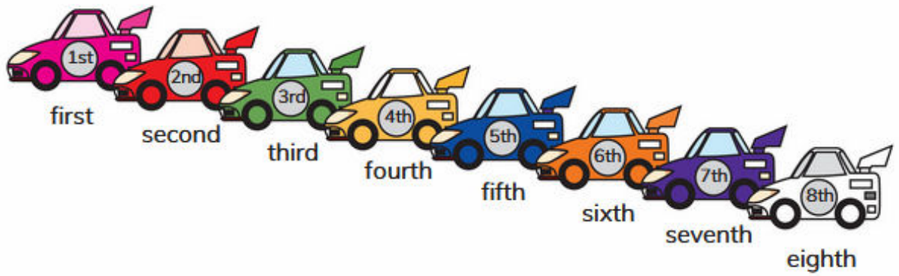
Which balloon was 7th?

Continued

Answer:



1 Look at the cars. For each question, write the position as a number and a word.



What colour is the car in front of the 5th car? _____

What position is the orange car? _____

What position is the white car? _____

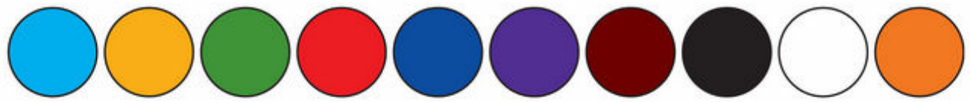
What position is the pink car? _____

What colour and position is the car behind the blue car? _____

_____

Which cars are beside the 3rd car? _____

2 These colours have been lined up.



1st

Which colour is 4th? _____

Which colour is after the 5th colour? _____

Which colour is before the 3rd colour? _____

Which colour is beside the 1st colour? _____

3 Put a ring around the child who came 1st in the race.
Colour the child who was 5th.

4 Join the words to match the position of the fox.

on next to in behind in front of

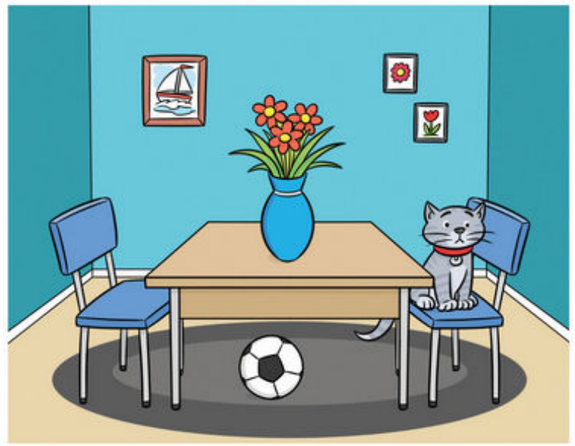
5 Join the words to match the position of the ball.

above below between

6 Write the ordinal number of the coloured cake in each row of cakes.
The first one is done for you.

1st 2nd 3rd 4th 5th

7 Draw a line from the word to the object.



on under in next to

Fill in the missing words.

The cat is _____ the chair .

The chair is _____ the table .

The ball is _____ the table .

The flowers are _____ the vase .

8

How many apples are there before the 3rd apple? _____

How many apples are there after the 7th apple? _____

How many apples are there after the 5th apple? _____

How many apples are there after the 8th apple? _____

Let's investigate

You will need 3 cubes of different colours.

Put them in the order of red 1st, blue 2nd, yellow 3rd.

What different patterns can you make with red 1st?

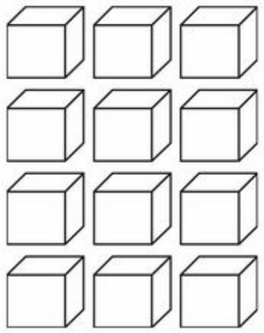
You could have 

Investigate the different patterns if you have yellow first.

Investigate the different patterns if you have blue first.

Colour the patterns you have made.

Label the cubes in each pattern 1st, 2nd, 3rd.



Now add a 4th cube colour. 

How many patterns can you make?

Look what I can do!

- I can recognise and use ordinal numbers.
- I can use new words to describe position.
- I can order ordinal numbers.

Check your progress

1 Write the number between.

3		5
7		9
5		7
8		10

2 Join the hats and scarves to the correct people.
Use the ordinal numbers on the hats to help you.

Continued

3 Draw or write what you see.

What is **on** the table?

What is **under** the table?

What is **between** the man and the table?

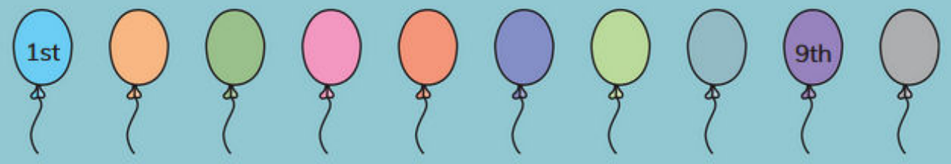
What is **behind** the chair?

What is **beside** the chair?

What is **in front of** the chair?

on	
under	
between	
behind	
beside	
in front	

4 Write in the missing ordinal numbers on the balloons.



7 Statistics

Getting started

1 Look at the bears.

How many  bears are there? ☐

How many other bears are there? ☐

Draw a ring around the correct answer.

There are **more / fewer**  bears than other bears.

How many different ways are there of sorting fruit and vegetables?

You are learning about sets and Venn diagrams so that you can:

- sort groups in different ways
- use and make sets and Venn diagrams of your own.

7.1 Sets

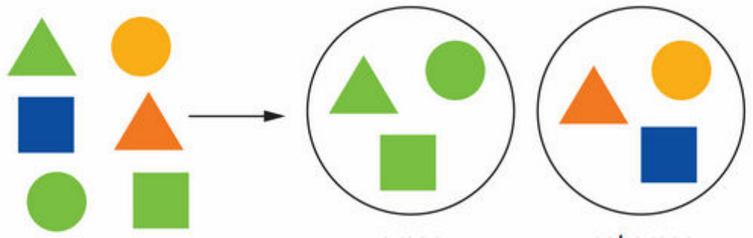
We are going to ...

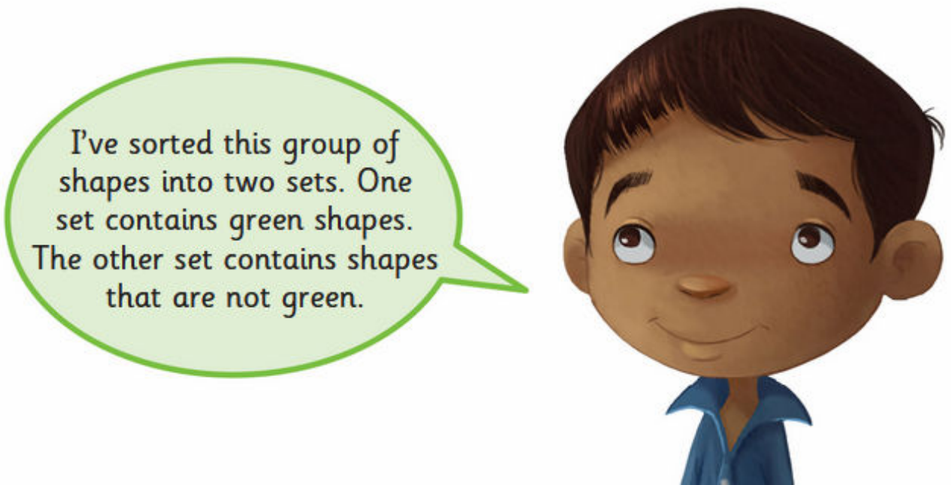
- sort and count objects into sets
- use the words **group** and **set**
- understand **data.**

We need to know about organising into sets so that we can sort objects into which things belong together and which don't.

data group set sort

When we sort we look for something that is the same.



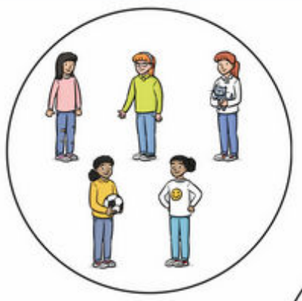


Exercise 7.1

Worked example 1

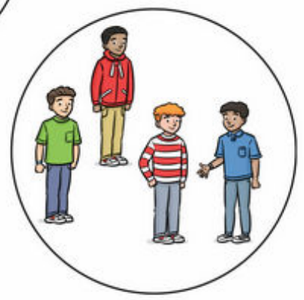
Here is a group of children. Sort them into two sets.

Some of the children are girls.
We label the circle **girls.**
All the girls belong in this circle.



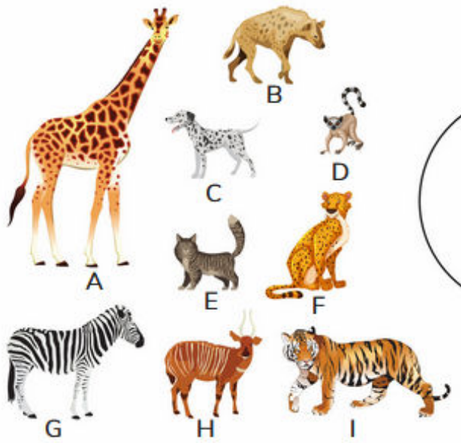
girls

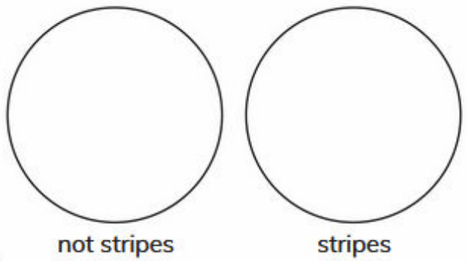
Some of the children are boys.
We label the circle **boys.**
All the boys belong in this circle.



boys

1 Sort these animals into the 2 sets by writing the letters in the correct circle.



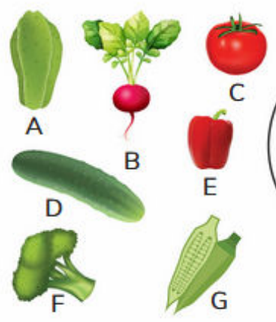


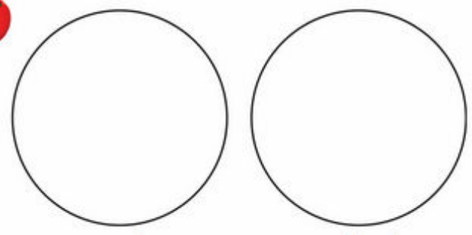
How many animals have stripes? ☐

How many animals do not have stripes? ☐

Tick the set that has more animals.

2 Sort these vegetables into the 2 sets by writing the letters in the correct circle.





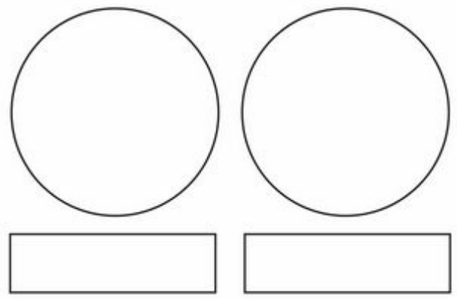
How many are red? ☐ How many are not red? ☐

Tick the set that has less.

Let's investigate

Work with a partner.

Find 2 different ways to sort the houses. Show 1 way in your book here. Your partner should show the other way in their book.



What have you learned about sets and sorting?

Write or draw one thing that you know now that you didn't know before.

Look what I can do!

- I can sort objects into sets.
- I can count objects in sets.
- I can use the words **group** and **set**.

7.2 Venn diagrams

We are going to ...

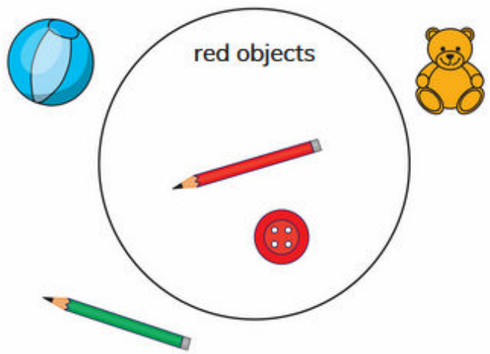
- record, sort and show data using Venn diagrams
- describe data
- discuss what we have found out.

A Venn diagram helps you to organise data.

It can help you to compare different groups of things.

We need to know about sorting into sets so that we can organise objects that fit together.

When we sort, we look for things that are the same.



Venn diagram

Exercise 7.2

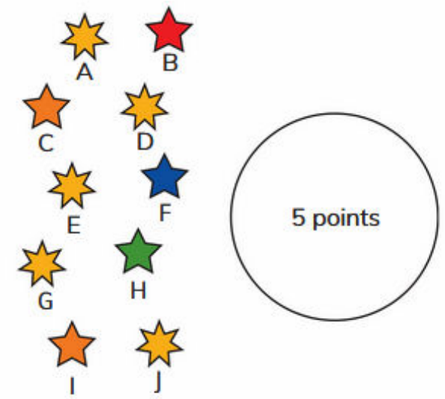
Worked example 1

Look at the stars.

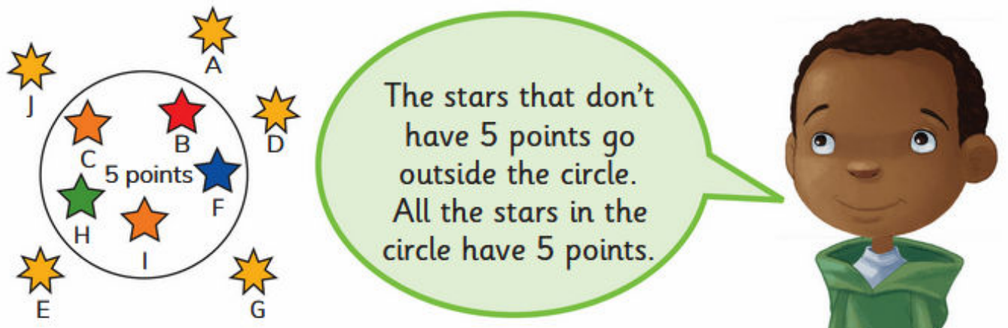
Some have 5 points. Some do not.

Sort the stars by writing the letters in the correct part of the Venn diagram.

What do you notice?



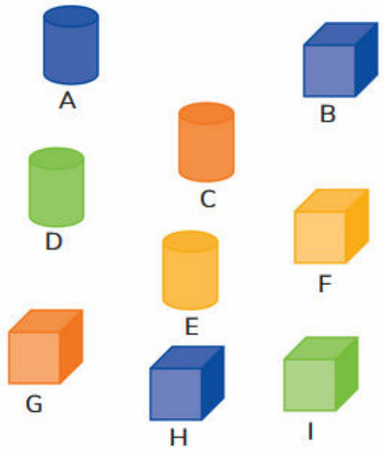
Answer:

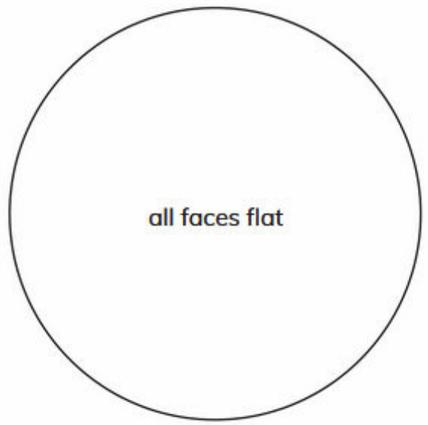


1 Work with your partner.

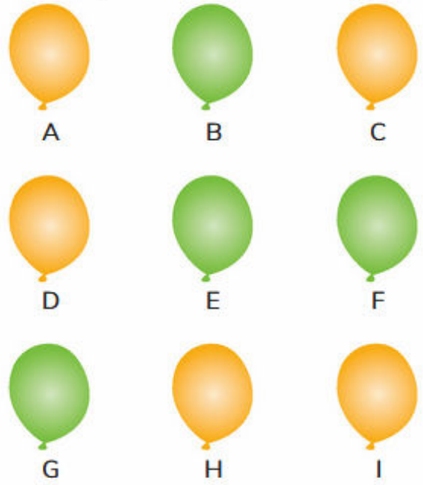
Here is a group of shapes.

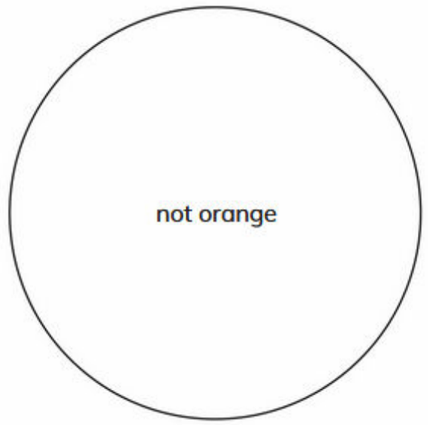
Sort the shapes by writing the letters into the correct part of the Venn diagram.



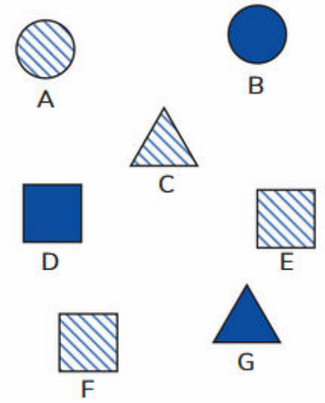


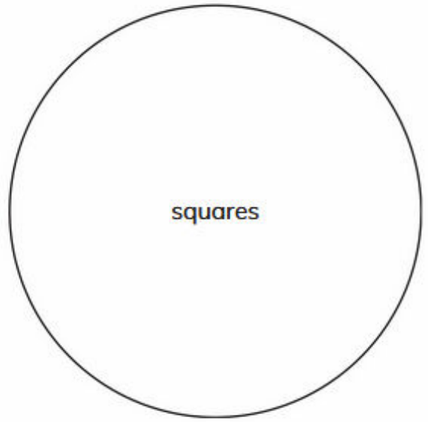
2 Sort the balloons by writing the letters into the correct part of the Venn diagram.





3 Sort the shapes by writing the letters into the correct part of the Venn diagram.





How many shapes are squares? ☐

How many shapes are stripy? ☐

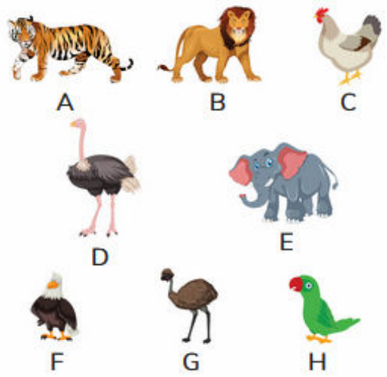
How many stripy squares do you have? ☐

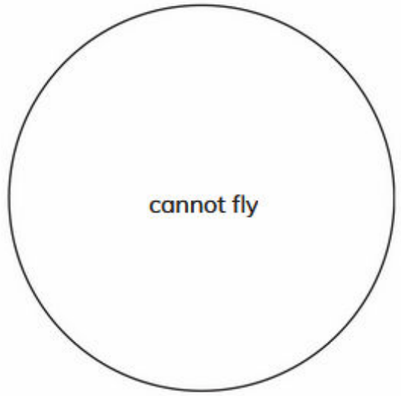
Draw a ring around the correct word to complete each sentence.

There are **more stripy shapes / square shapes.**

There are **fewer stripy shapes / square shapes.**

4 Sort the animals by writing the letters into the correct part of the Venn diagram.





5 Work with a partner.

How can you find and record your favourite food?

Talk to your partner about what you like to eat.

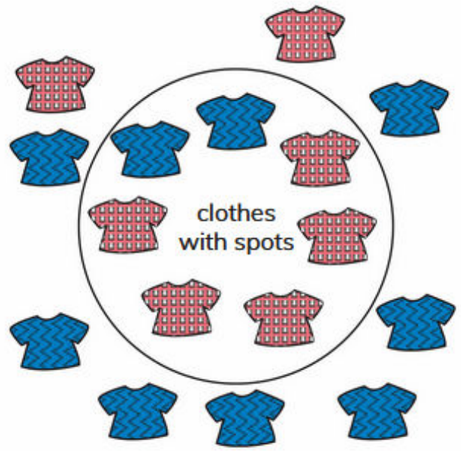
Draw or write things you like in your circle.

Draw or write things you don't like outside your circle.
Your partner should do the same in their book.

Now compare your answers with your partner's.

What did you both like most? Were they the same or different? What did you both like the least? Were they the same or different?

6 Draw a ring around each mistake in the Venn diagram.



Let's investigate

Look at this group of bugs.

Sort the bugs into a Venn diagram in 2 different ways.

Work with your partner.

Talk about the different ways you found.

Do you think there are more than 2 ways to sort the bugs?

Find 2 more different ways.

Use these labels.

Draw or write what you think.

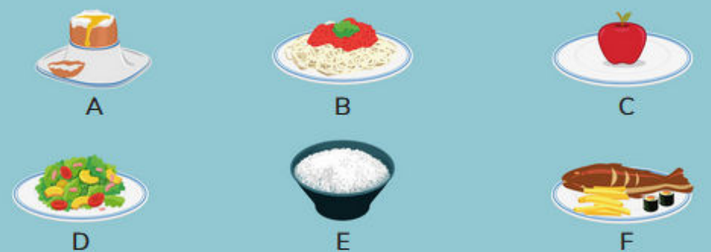
How did your partner help you with Venn diagrams?
How did you help your partner?
What didn't you like doing? Why was that?

Look what I can do!

- I can record, sort and show data using Venn diagrams.
- I can describe data.
- I can discuss what I have found out.

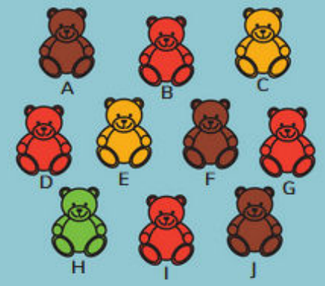
Check your progress

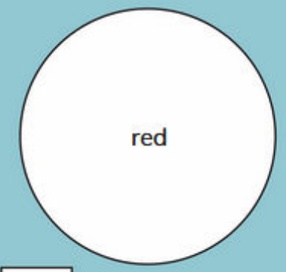
1 Sort this food into what you like and what you don't like.
Write the letters in the circles.



Continued

2 Sort the bears by writing the letters into the correct part of the Venn diagram.





How many bears are red?

How many bears are not red?

3 Sort the ice creams and ice lollies by writing the letters into the correct part of the Venn diagram.

How many chocolate lollies are there?

How many chocolate ice creams are there?

How many items are not ice cream or lollies?

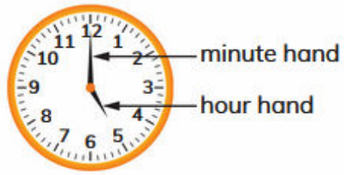
8 Time

Getting started

1 When do you get up?

2 When do you go to bed?

Being able to tell the time and work with time is very important.
You will be learning about the days of the week and the facts about clocks.
A clock has numbers and hands.
The long hand is the minute hand.
The short hand is the hour hand.
On a clock we measure time in minutes and hours.
On a calendar we measure time in days.
There are 7 days in a week.



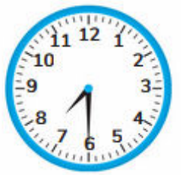
8.1 Time

We are going to ...

- learn about the days of the week
- learn about clocks
- learn how to tell the o'clock and half past times.

Telling the time is an important thing to know how to do and can be very useful. Clocks can help you:

- wake up in time for school
- tell you when it is time for lunch
- tell you when your favourite TV show is about to start.



Once you have learned how to read a clock, you can use it every day of your life.

afternoon clock evening half past hands hour minute
morning o'clock today tomorrow week yesterday

Exercise 8.1

1 Complete each sentence by drawing a line from the word to the space.

In the _____ I get out of bed.

In the _____ I get into bed.

Today is _____.

Tomorrow will be _____.

Yesterday was _____.

morning	afternoon
evening	Monday
Tuesday	Wednesday
Thursday	Friday
Saturday	Sunday

Worked example 1

What is the same about all of these clocks?

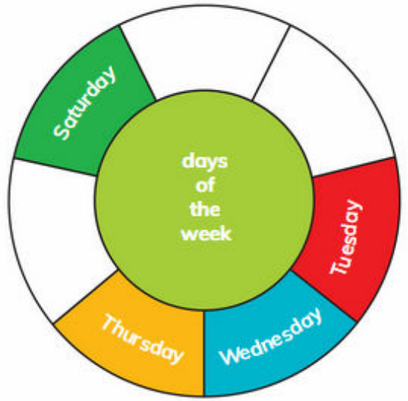
Answer:

2 There are 7 days in a week.

Write the missing days.

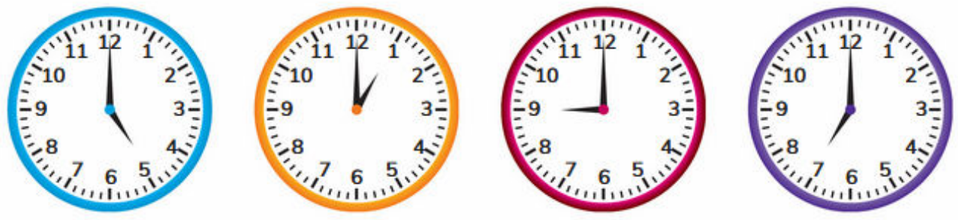
Use the list to help you.

Monday	Tuesday
Wednesday	Thursday
Friday	Saturday
Sunday	



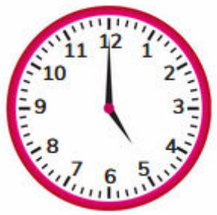
3 Write the times under these clocks.

4 Write the o'clock time under each clock.



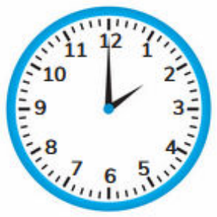
5 What o'clock time does the clock show?

6 Draw a ring around the correct time.



4 o'clock 5 o'clock 6 o'clock

7 o'clock 8 o'clock 9 o'clock



1 o'clock 2 o'clock 3 o'clock

7 The long hand is pointing to 6.

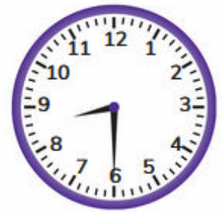
What half past time does the clock show?

_____

8 The long hand is pointing to 6.

What half past time does the clock show?

_____



Let's investigate

Work with a partner.

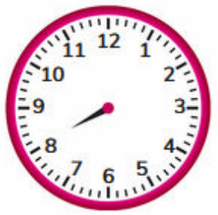
All of these clocks have a hand missing.

Sometimes it is the hour hand.

Sometimes it is the minute hand.

Write the time you think the clock is showing.

_____



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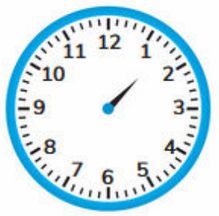

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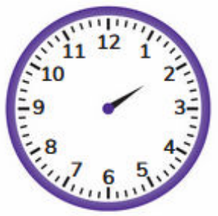


_____

How do you know that you have made the right choices?

What did you already know about clocks and telling the time?

Look what I can do!

	😐	😊
• I can tell the o'clock time.	○	○
• I can tell the half past time.	○	○
• I can say the days of the week in order.	○	○

Check your progress

1 Look at the calendar for this week.
The days are in the wrong order.
Write them in the correct order.

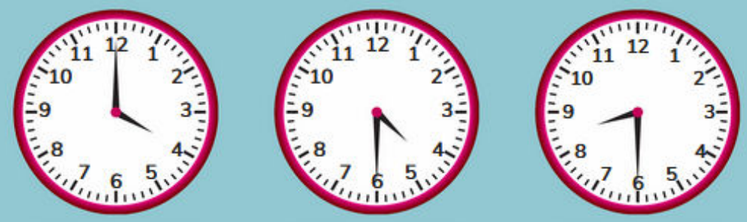
Tuesday	
Thursday	
Saturday	
Monday	
Friday	
Wednesday	
Sunday	

2 The shop has opened a café.
It only opens on Tuesday, Wednesday and Thursday.
Colour the days when the café is closed.

Monday	Tuesday	Wednesday	Thursday
Friday	Saturday	Sunday	

Continued

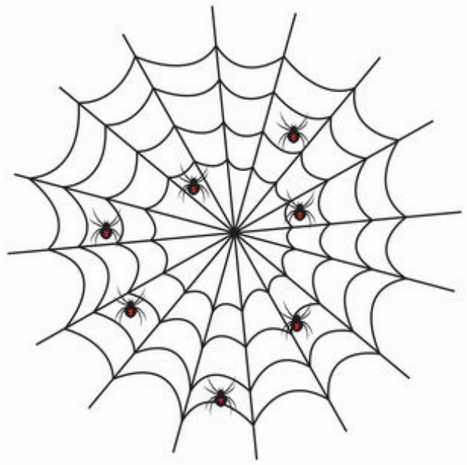
3 Write the time shown on each clock.



9 Numbers to 20

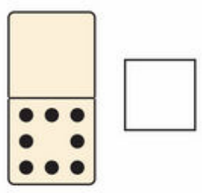
Getting started

1 How many spiders? Estimate then count.

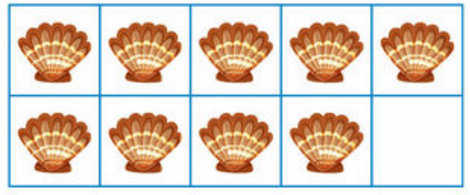


estimate ☐ count ☐

2 How many in each set?



☐



☐

3 Which is fewer, 0 or 6? ☐

Which is greater, 7 or 1? ☐

You have already explored numbers to 10.
Now you will explore numbers to 20.
These are often called the **teen numbers**.

› 9.1 Counting to 20

We are going to ...

- say, read and write numbers and number words to 20
- recognise that teen numbers are made up of a ten and some ones.

In this unit you will look at numbers to 20. These are often called teen numbers because they are made up of a ten and some ones.

place value cards
teen numbers

20 is the name for two tens.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Exercise 9.1

Worked example 1

1	2	3	4	5	6	7	8	9	10
11	12		14	15	16		18	19	20

Count to find the missing numbers.

Answer:

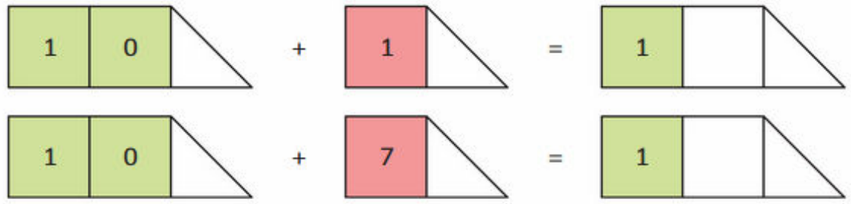
1 Write the missing numbers.

1	2	3	4	5	6	7	8	9	10
11			14		16	17			20

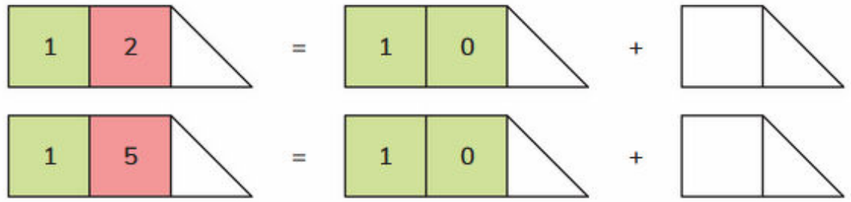
2 Write the missing numbers.

12	17	16
14	20	18

3 Which numbers do these place value cards make?



4 Which place value cards were used to make each number?



Let's investigate

Tomas has place value cards for 1 to 10.
He says he can make 20 different numbers with them.

Is Tomas correct? How will you find out?

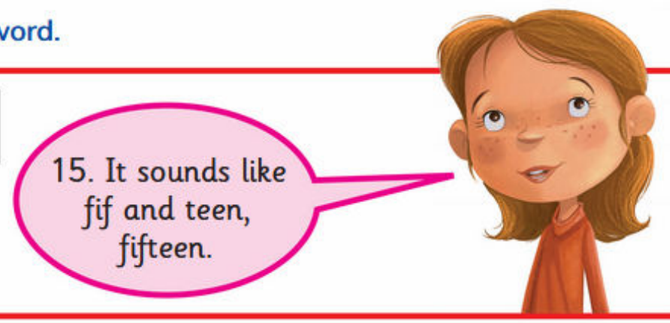
There is no card for 0 in a set of place value cards.
Talk to your partner about why that might be.

Worked example 2

Say 15.

Write the word.

fifteen



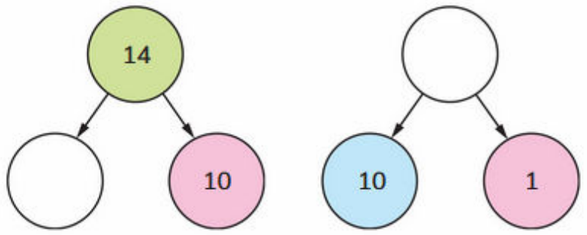
5 Say each number. Write the word.

11		16	
12		17	
13		18	
14		19	
15	fifteen	20	

6 Write the missing number words.

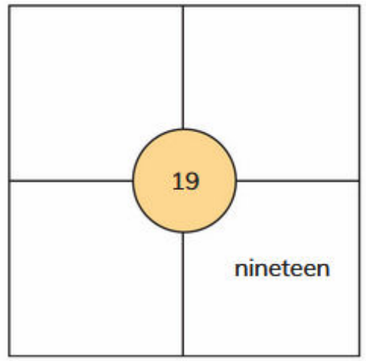
eleven ☐ ☐ fifteen ☐ ☐ fourteen

7 Complete these part-whole diagrams.



8 What are the different ways you can represent the number 19?

Write or draw one way in each square.



Tip

Could you use a different pattern of spots?

Look what I can do!

- I can say, read and write numbers and number words to 20. 😐 ☐ 😊 ☐
- I can show that teen numbers are made up of a ten and some ones. ☐ ☐

› 9.2 Counting, comparing, ordering and estimating

We are going to ...

- count up to 20 objects
- compare and order quantities
- estimate how many then count to check.

It is important to understand what each of the numbers mean.

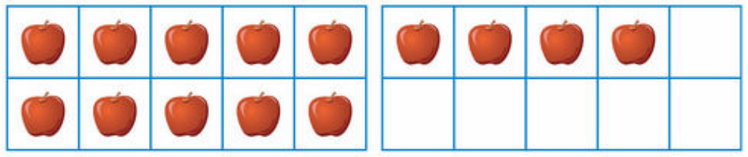
digit number line

You can use what you know about numbers to decide which pack of marbles to buy.

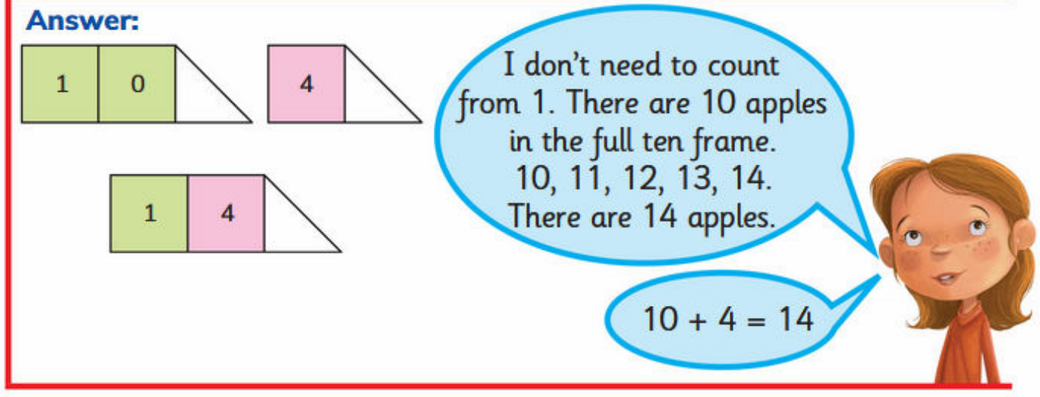
Exercise 9.2

Worked example 3

How many?

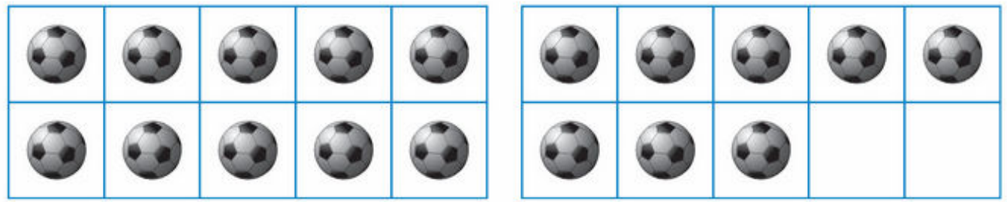


Answer:

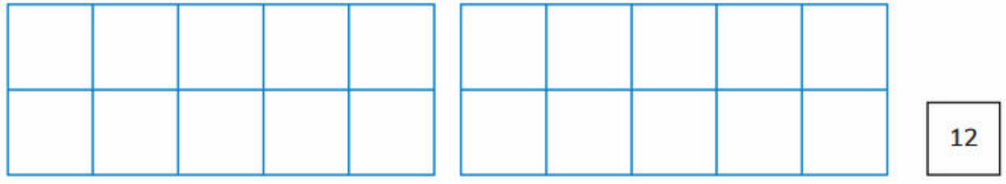


1 How many objects are there? Write each number.

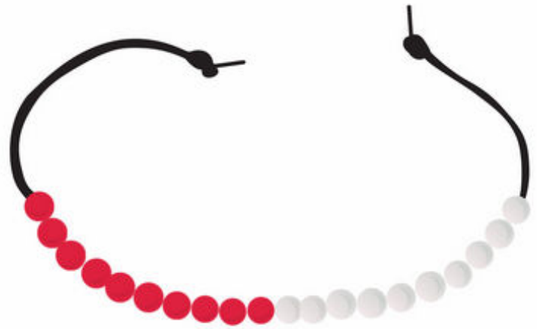
Use place value cards to help you.



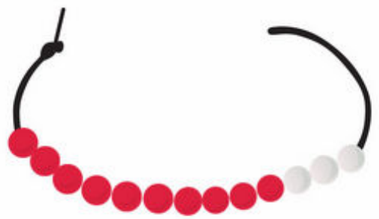
2 Draw the correct number of counters.



3 This is a bead string.
The first 10 beads are red.
The next 10 beads are white.
How many beads are there?

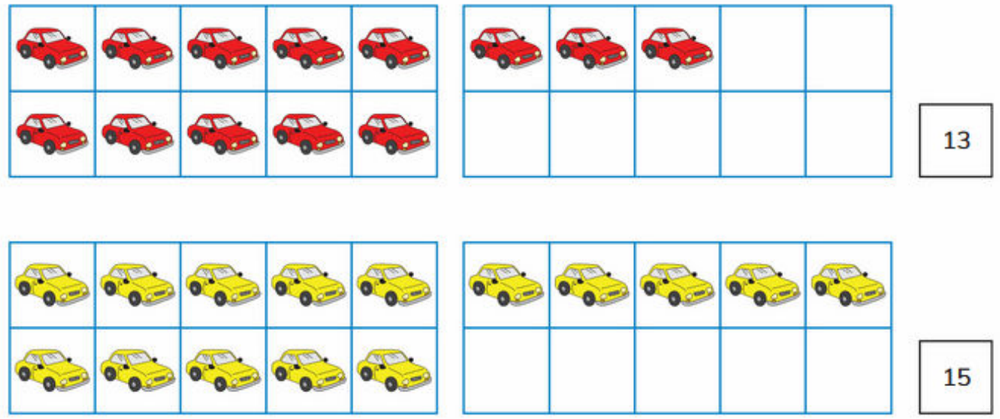


How many beads can you see on each bead string?

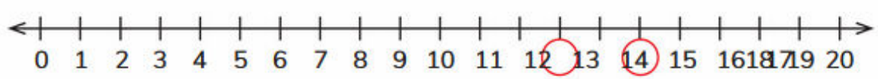


Worked example 4

Are there more red cars or more yellow cars?

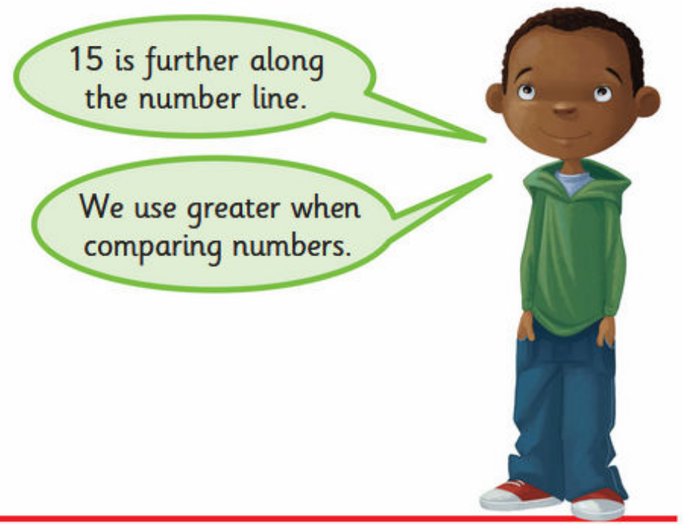


Answer:

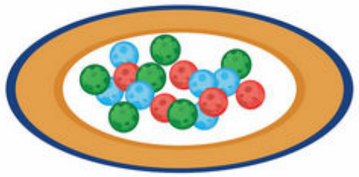


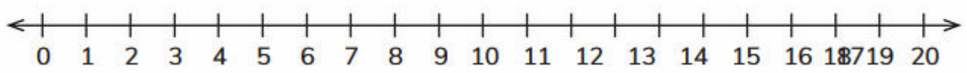
There are more yellow cars than red cars.

15 is greater than 13.



4 Are there more marbles or stickers?





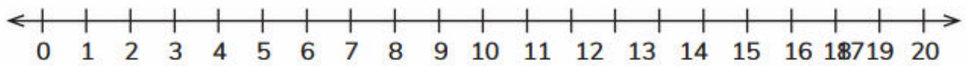
There are _____ marbles.

There are more _____ than _____.

There are _____ stickers.

_____ is greater than _____.

5 Are there fewer lollipops or children?



There are _____ lollipops.

There are fewer _____ than _____.

There are _____ children.

_____ is less than _____.

Can every child have a lollipop? _____

6

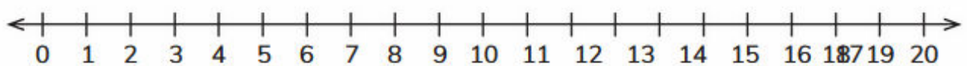
Estimate how many children. ☐

Estimate how many sweets. ☐

Can every child have a sweet?

Count the children and the sweets to see if you were correct.

7



Write **less** or **greater** to complete the sentences.

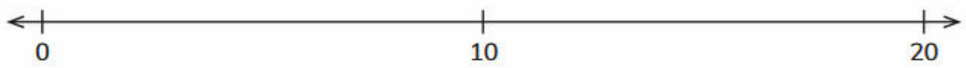
19 is _____ than 16.

16 is _____ than 19.

11 is _____ than 15.

15 is _____ than 11.

8 Mark 3 and 18 on the number line.



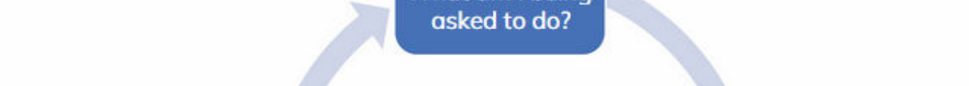
Let's investigate

Choose any 3 numbers between 10 and 20.

Put them in order from smallest to greatest.

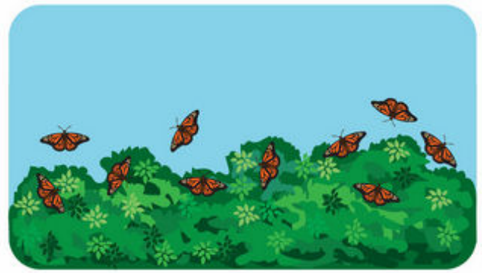
Now look at your numbers on the number line. Talk to your partner about what you notice.

Repeat with 3 new numbers.



Talk with your partner about your investigation.
Answer all the questions in the diagram.

9 Write your estimate in the number box.
Then count the butterflies and the dragonflies and write how many.



Estimate

Fewer than 10	Between 10 and 20	Number

Count

Estimate

Fewer than 10	Between 10 and 20	Number

Count

Estimate

Fewer than 10	Between 10 and 20	Number

Count

Look what I can do!

	😐	😊
• I can count up to 20 objects.	○	○
• I can compare and order quantities.	○	○
• I can estimate how many then count to check.	○	○

9.3 Number patterns

We are going to ...

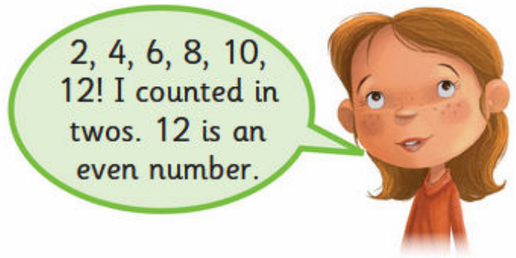
- recognise and use odd and even numbers to 20
- count on and back in ones, twos and tens from any number to 20.

There are many different patterns in number.

Some patterns are made by counting in twos or tens.

Some patterns are so well known they have their own names, like odd and even numbers.

counting back
counting on



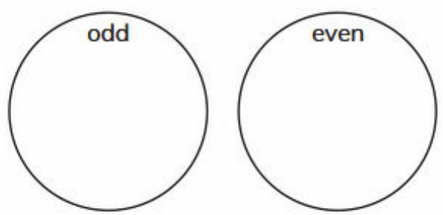
Exercise 9.3

1 In Unit 1, you coloured even numbers red and odd numbers blue.
Continue the pattern to 20.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

2 Sort each number into the correct circle.

12	8	3	6	18	15



Let's investigate

Jamal said, 'There are 4 odd numbers between 3 and 13.
I wonder if there will always be 4 odd numbers between a number and the number that is ten more.'

What do you think?
Work in a small group so you can talk about your investigation.

3 Mr Even always puts an even number of socks on his washing line.

He washes 17 socks.

Will he put them all on the washing line?

How do you know?

4 Count in twos to find out how many pencils.

5 Bicycles have 2 wheels.

A bicycle maker has 14 wheels.

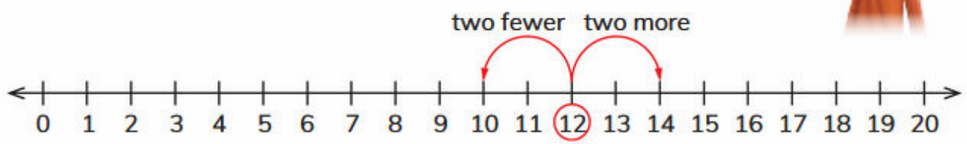
How many bicycles can she make?

Worked example 5

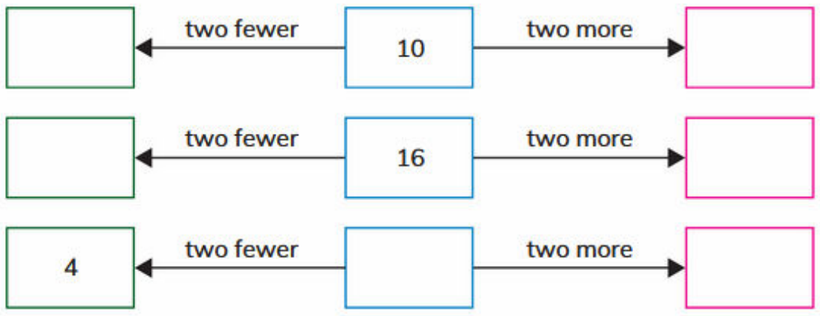
Write the missing numbers.

Answer:

Count back 2 to find 2 fewer. 2 fewer than 12 is 10.
Count on 2 from 12 to find 2 more.
2 more than 12 is 14.



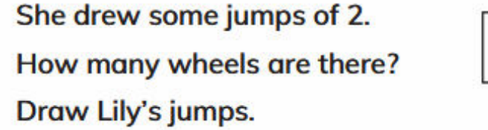
6 Write the missing numbers.

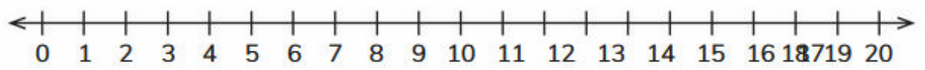


Draw a ring around the correct word to complete this sentence:

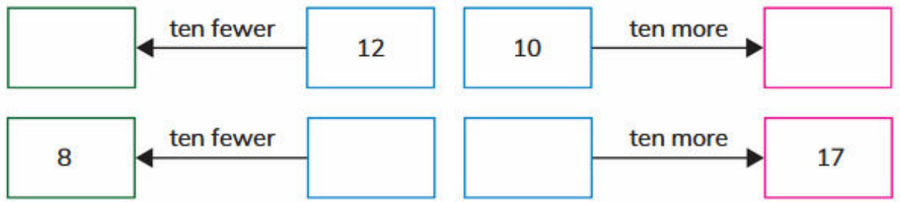
When I count in twos from zero I say **odd / even** numbers.

7 Lily wanted to find out how many wheels are on 9 bicycles.
She drew some jumps of 2.
How many wheels are there?
Draw Lily's jumps.

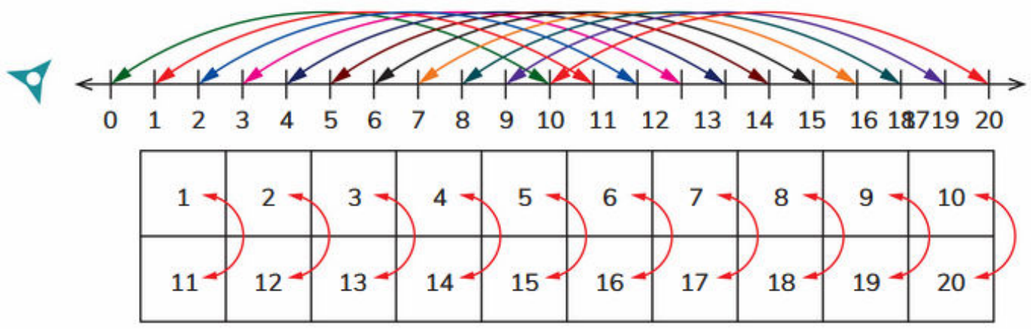




8 Write the missing numbers.



Look at the number line and the number track.
They both show 10 fewer and 10 more.
Which one do you like best?
Explain why to your partner. Listen to their reasons too.



Look what I can do!

- I can recognise and use odd and even numbers to 20.
- I can count on and back in ones, twos and tens from any number to 20.

Check your progress

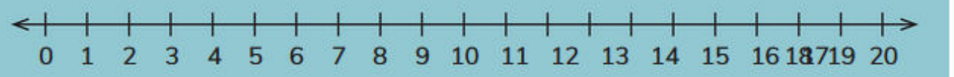
1 Sort each number into the correct circle.

13 | 18 | 5 | 8 | 15 | 1

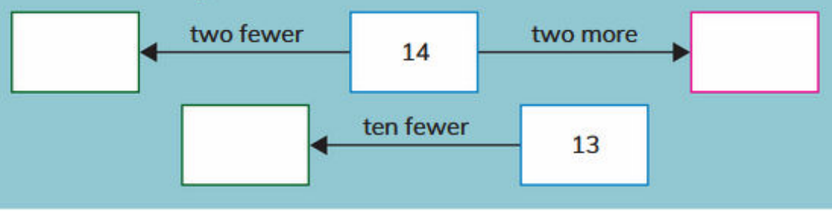
odd | even

2 Mrs Odd always pegs an odd number of socks on her washing line.
She washes 14 socks.
Will she peg them all on the washing line?
How do you know?

3 There are 6 pairs of shoes on the shelf in the shoe shop.
How many shoes is that?
Show how you found out on the number line.



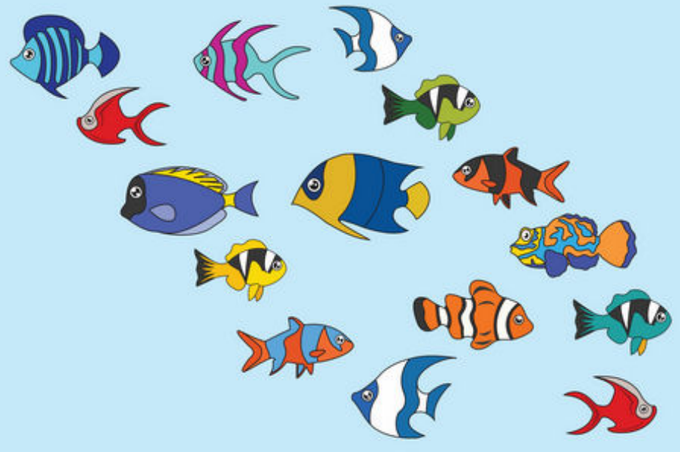
4 Write the missing numbers.



Project 3

Counting fish

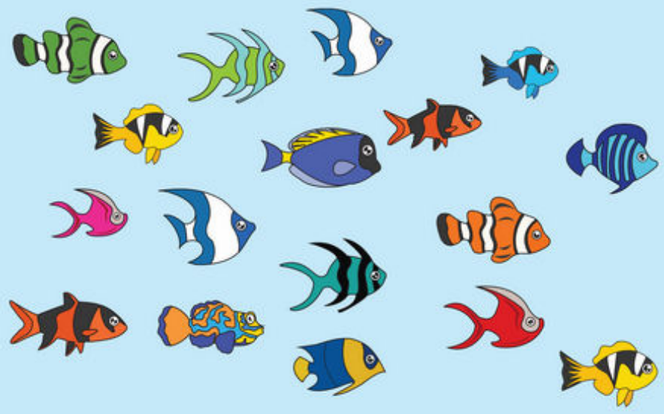
How many fish are there in this picture?



How did you count them?

What about your friends? How did each of them count the fish?

Now have a look at this picture.

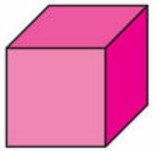


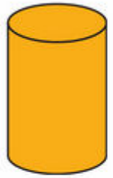
How many fish are there now?

10 Geometry (2)

Getting started

Match the shapes to their name.

cylinder 

cube 

sphere 

A cylinder has _____ faces and _____ curved surface.

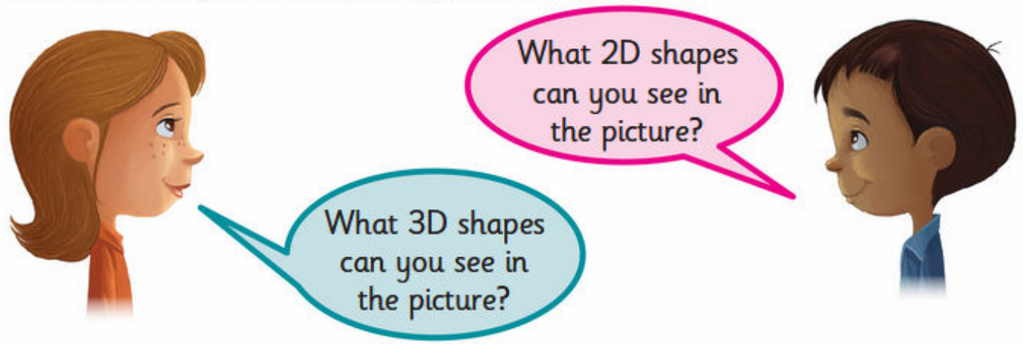
A cube has _____ faces and _____ edges.

A sphere has _____ faces and _____ curved surface.

Some shapes are 2D.

2D shapes have straight or curved lines.

Sometimes they have both straight and curved lines.



Some shapes are 3D. 3D shapes are solid objects.

We can see length, height and width.

Some 3D shapes have edges and faces and some have curved surfaces.

Some shapes are big.

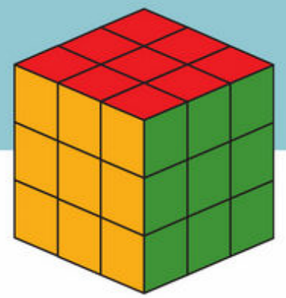
Some shapes are small.

Some look the same all the time, others look different when we turn them.

10.1 3D shapes

We are going to ...

- explore 3D shapes
- identify, describe and sort 3D shapes
- identify faces and edges.

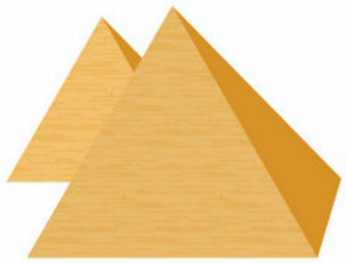


A 3D shape takes up space.

A cube is a 3D shape with 6 faces. Each face is a square.

All the edges of a cube are the same length.

The base of a pyramid can be any straight-sided shape, such as a square or a triangle.



The other faces are triangles that meet at the top.

The number of faces depends on the shape of the base.

Cylinders have two flat ends that are both the same size and are circles.

The flat ends are joined by a surface that is curved, not flat.

A cuboid is a 3D shape with 6 flat faces.

There are lots of other 3D shapes for you to explore.

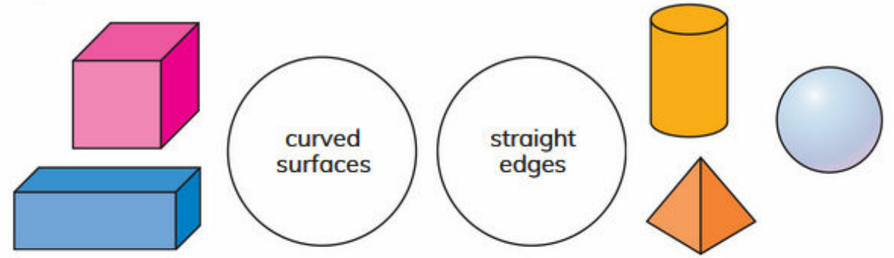
cuboid pyramid

Exercise 10.1

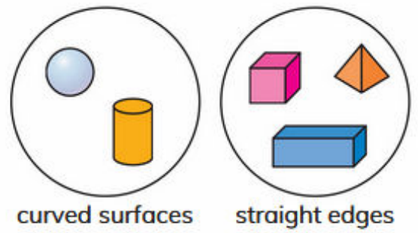
Worked example 1

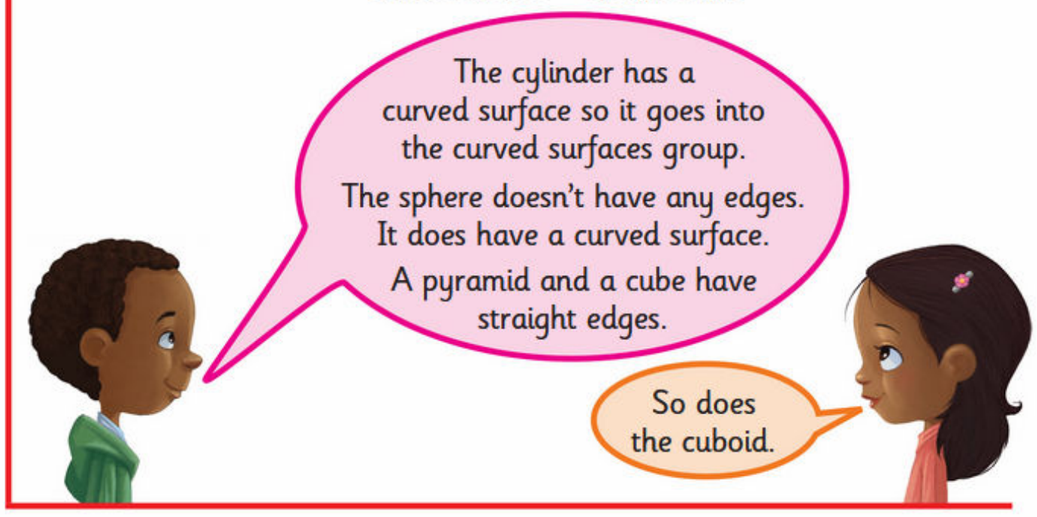
Sort these shapes into 2 groups:

- shapes with straight edges
- shapes with curved surfaces.



Answer:

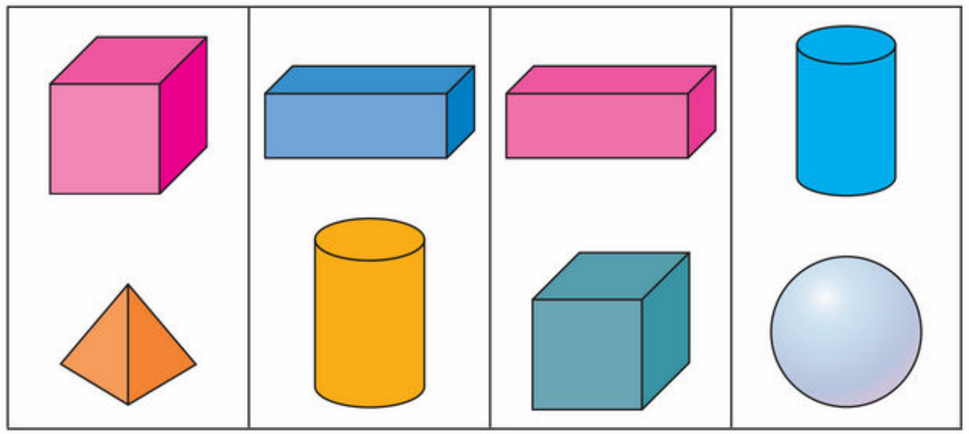




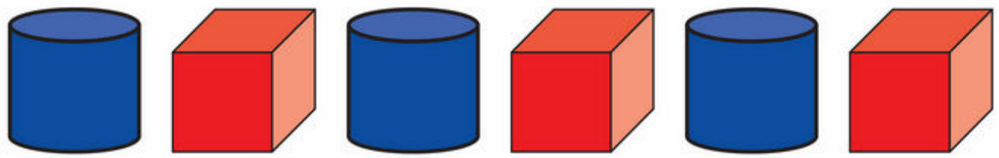
1 Work with a partner.

Look at these pairs of shapes.

What is the same and what is different?



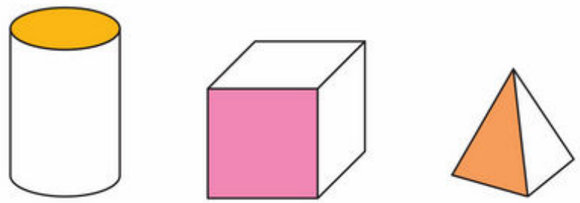
2 Misha has made a pattern with some shapes.



Make your own pattern with shapes.

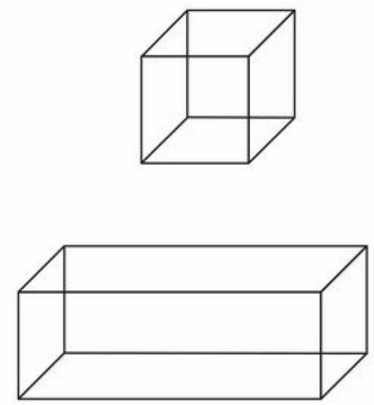
Tell your partner about your pattern. Can they make it longer?

3 Name the shapes of the faces that are coloured.



_____ _____ _____

4



How many faces does the cube have? ☐

How many edges does the cube have? ☐

How many faces does the cuboid have? ☐

How many edges does the cuboid have? ☐

Let's investigate

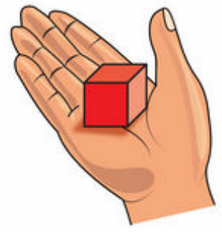
Pick a shape and hold it up to your partner.

Ask your partner to name the shape of the face they see.

Turn the shape.

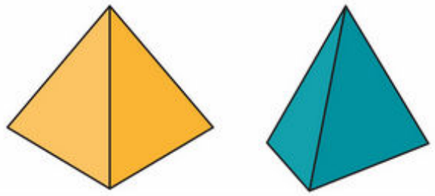
Your partner needs to say 'same' when they see a face with the same shape.

Try with different shapes. What do you notice?

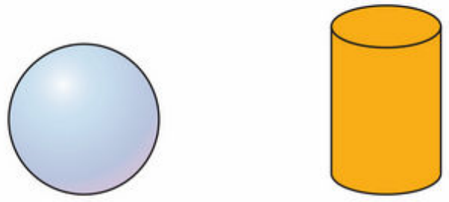


5 Salif has 2 different pyramids.

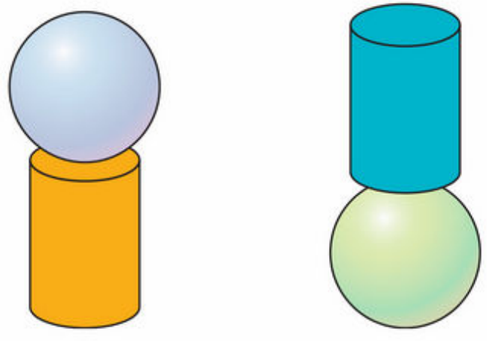
Draw the shapes that could be the bases.



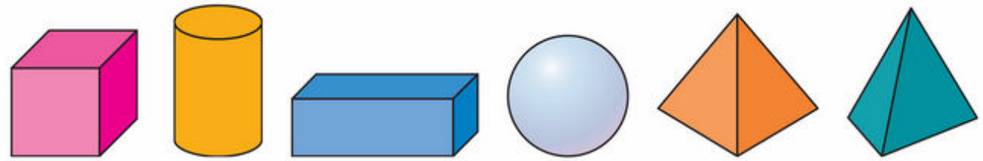
6 What is the same and what is different about a sphere and a cylinder?



Draw a ring round the model that would fall over if you built it on a table.



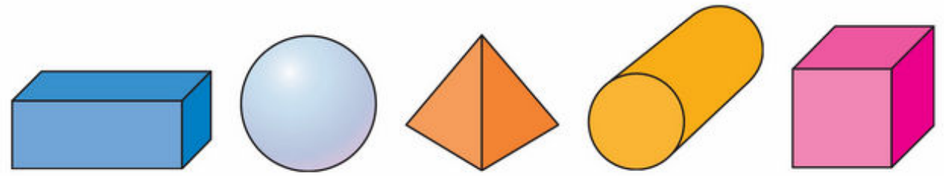
7 Look at these shapes.



Choose four of them to build a tower.

Show your tower to your teacher.

8



What shape am I?

I have 6 flat faces.

All my faces are square. _____

I have 5 flat faces.

1 face is a square and 4 faces are triangles. _____

I have 2 flat faces and 1 curved surface.

My flat faces are circles. _____

Choose a 3D shape and write a set of clues for it.

_____

_____

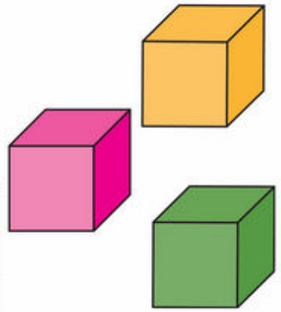
_____

Let's investigate

Work with a partner.

You need 5 cubes of the same size.

Pick up one cube. Count how many faces it has.
Write your answer in the table.

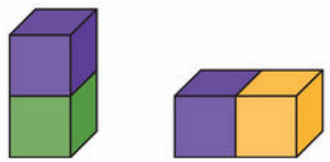


Number of cubes in the shape	Number of faces
1	
2	
3	
4	
5	

Now put two cubes together. Count how many faces the new shape has. Is there a different number of faces?

Keep adding cubes and counting the number of faces.
Write your findings in the table.

What happens to the number of faces when you add more cubes?



What have you found out about faces of 3D shapes?

Look what I can do!

- I can identify, describe and sort 3D shapes.
- I can explore faces and edges.

10.2 2D shapes

We are going to ...

- identify, describe and sort 2D shapes
- identify when a 2D shape looks the same when it is turned around
- find what is the same and what is different between 2D and 3D shapes.

Playing with and making patterns using 2D shapes will help you to learn much more about them.

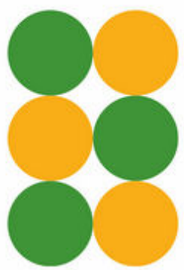
Make a pattern using the same shape but turning it around.

We can rotate the shape.

Some 2D shapes fit together with no spaces.

Some 2D shapes will always have spaces between them.

This is important when you want to make patterns for buildings, floors or sewing.



hexagon pentagon
rectangle rotate

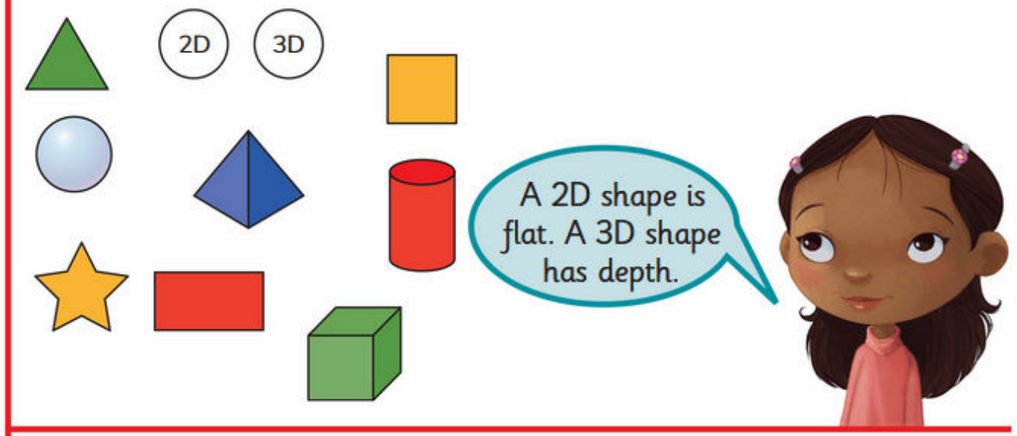
Some shapes look different when they are turned around, but they are still the same shape.

Exercise 10.2

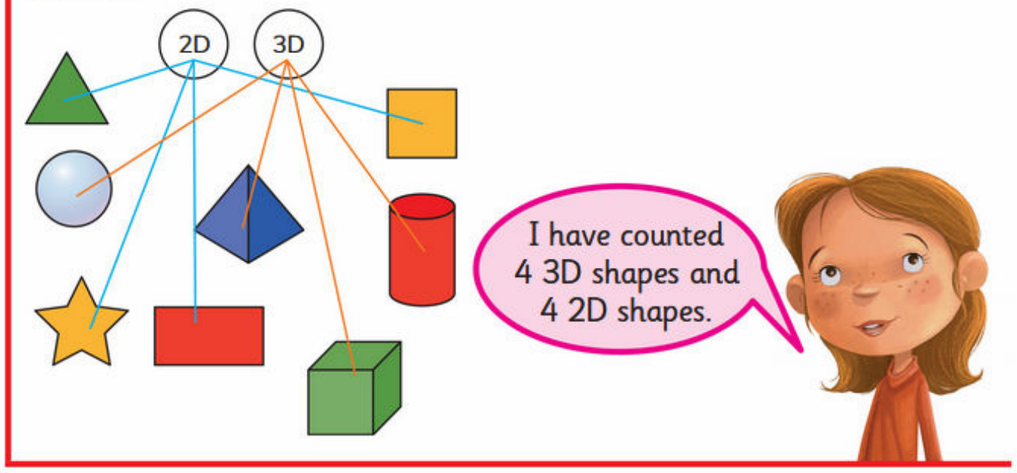
Worked example 2

Draw lines from the shapes to the correct circles.

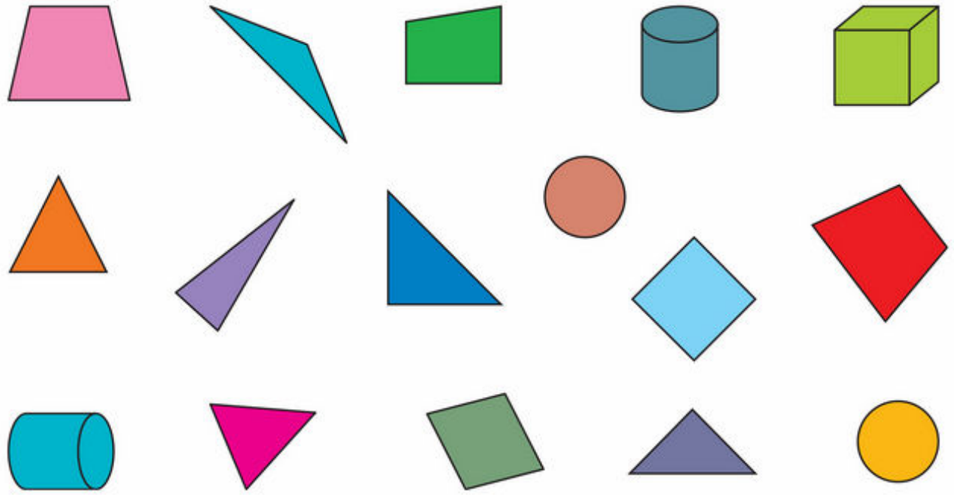
Count how many 2D and 3D shapes there are.



Answer:



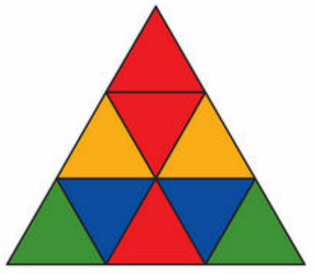
1 Draw a ring around the triangles.



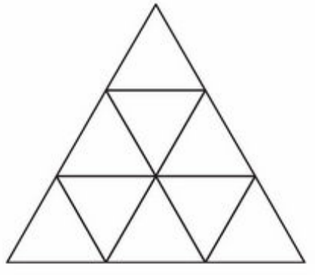
There are _____ triangles.

There are _____ shapes that are not triangles.

2 Big triangles can be made by using lots of small triangles.



Use just 2 colours to make your own triangle pattern.



3 Play this game with a partner.

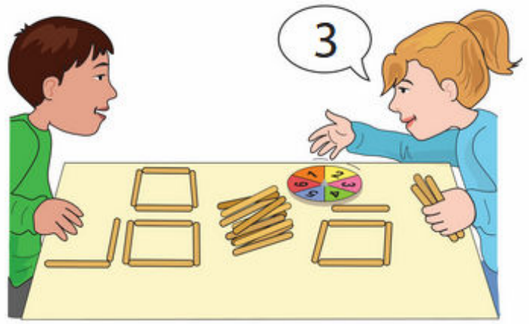
You are trying to make squares.

Take turns to spin a spinner.

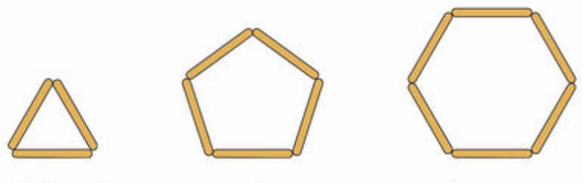
Take that number of sticks to make a square.

You may not have enough or you may have too many.

The first person to make 4 squares is the winner.



You can make other shapes.

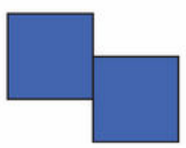


triangle pentagon hexagon

4 Put together two squares to make a new shape.

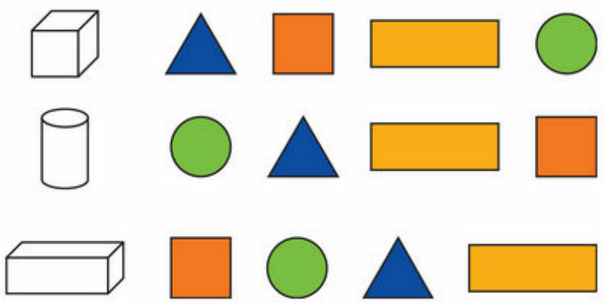
How many different shapes or patterns can you make with two squares?

Draw 2 different ones that you can make.



5 Draw around a face of the 3D shape.

Then draw a ring around the shape of the face.



Let's investigate

You will need lots of triangles.

Make a star shape with some triangles.

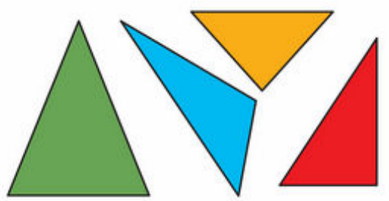
How many different star shapes can you make?

How about this one?

Or this one?

What other shapes can you make?

What if you used different types of triangles together to make a star?

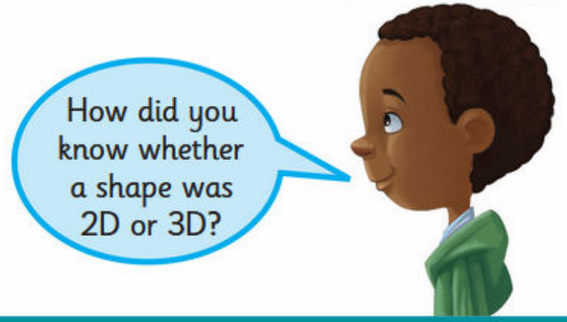


Where have you seen these 2D shapes before?

When you made patterns with squares and triangles, did they look like anything you had seen before?

6 For each shape, tick if it is a 2D shape or a 3D shape.

	2D	3D
		
		
		
		
		
		
		
		

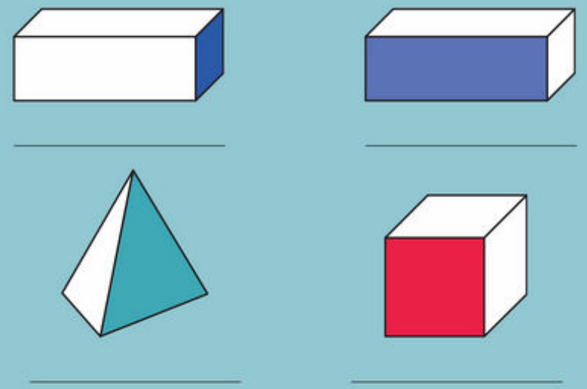


Look what I can do!

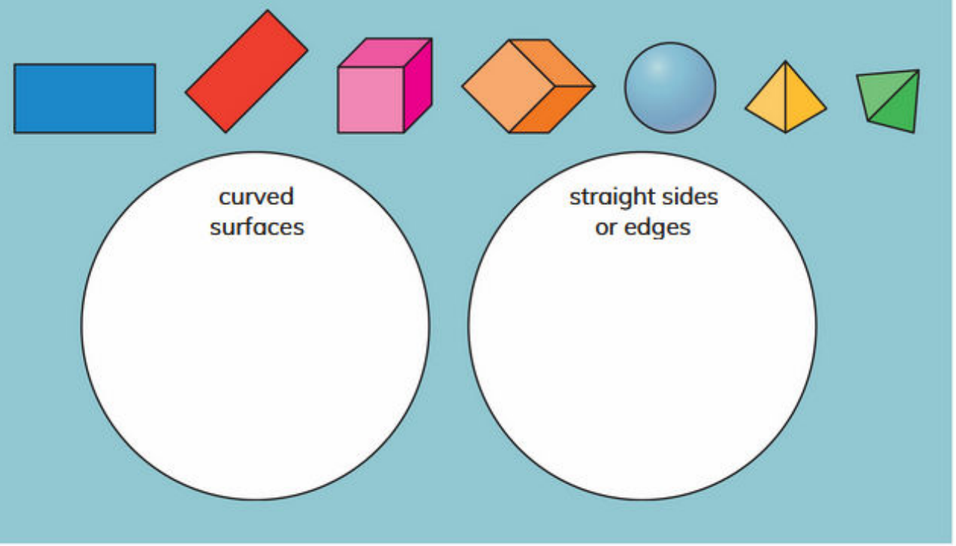
	😐	😊
• I can identify and name 2D shapes.	○	○
• I can identify when a 2D shape looks the same when it is turned around.	○	○
• I can find what is the same and what is different between 2D and 3D shapes.	○	○

Check your progress

1 Name the shape of each coloured face.



2 Draw lines to sort these shapes into these groups:
- shapes with straight sides or edges
- shapes with curved surfaces.



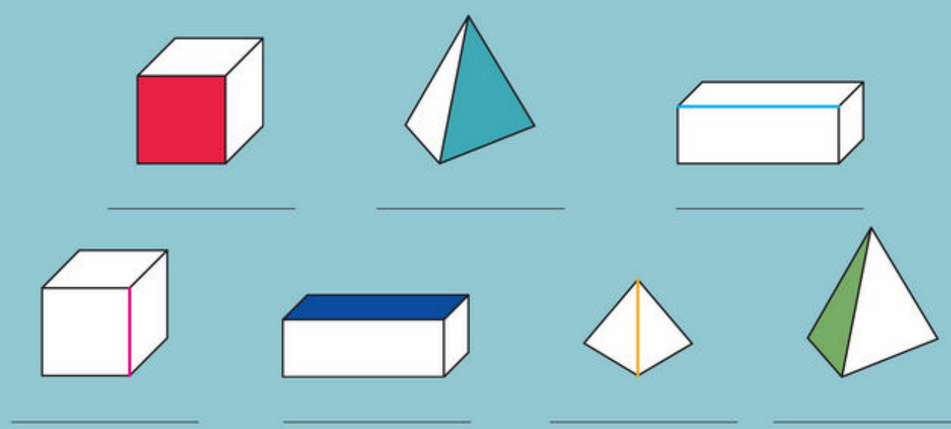
Continued

3 Put together 4 triangles to make a picture or a pattern.

Draw 2 different patterns you can make.
Use the colours to make different patterns.

4 Name the coloured parts of these shapes. Use these words:

- face
- edge



› Project 4

Which one doesn't belong?

Look at this group of shapes.

Which one doesn't belong?

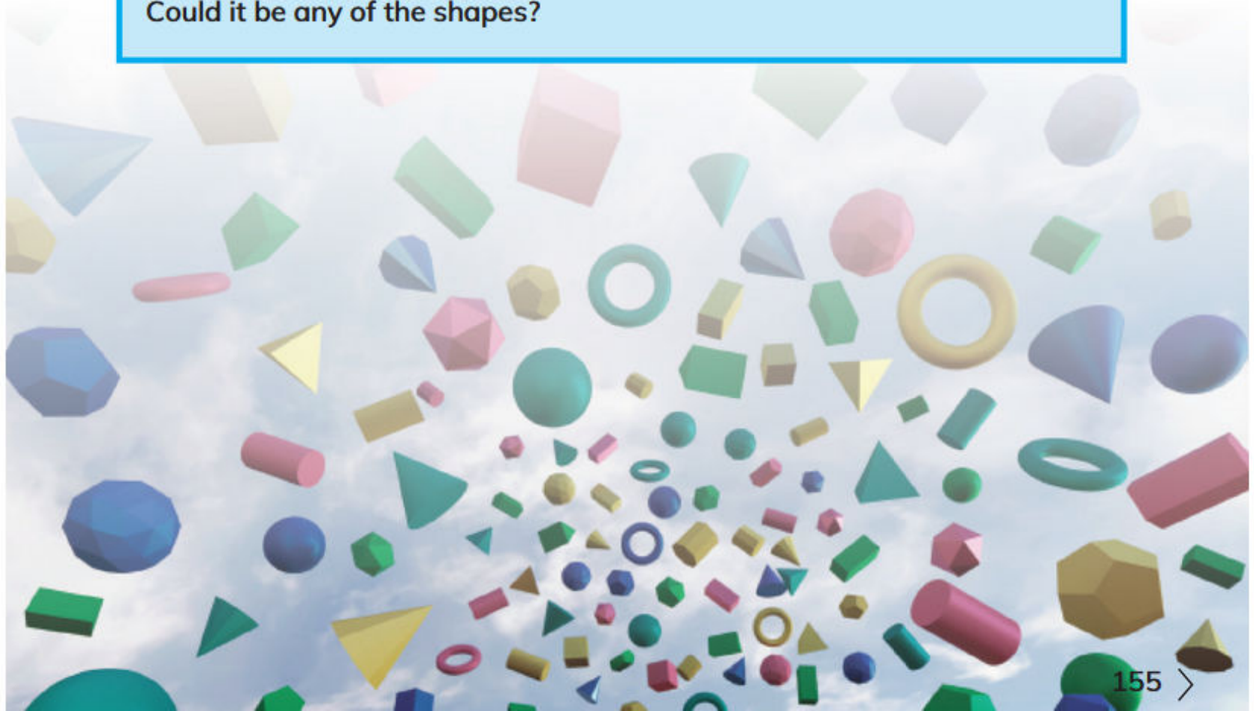
Why?

Talk to your partner about these shapes.

Which one do they think doesn't belong?

Can you find a way for another shape to be the one that doesn't belong?

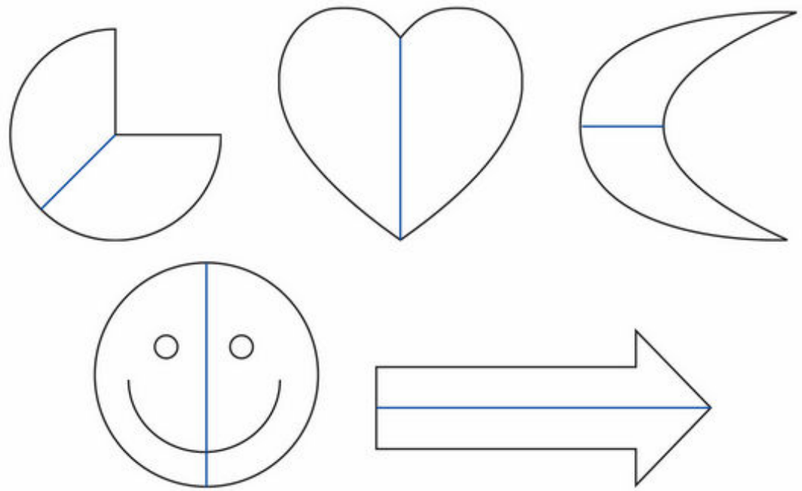
Could it be any of the shapes?



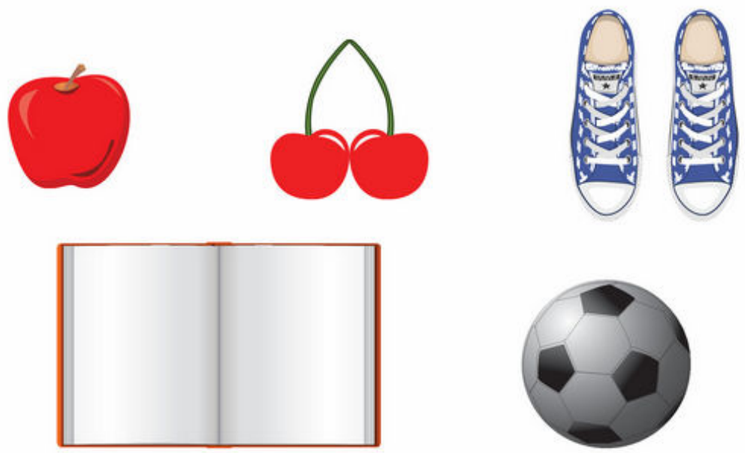
11 Fractions (2)

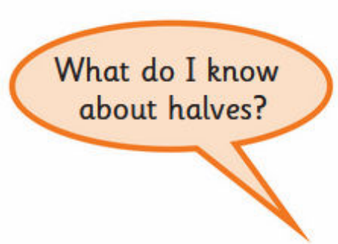
Getting started

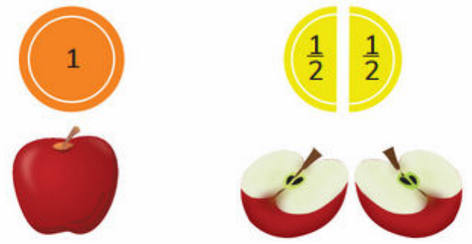
1 Colour one half of each shape.

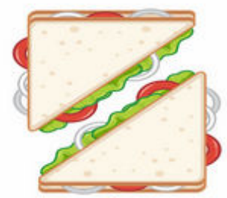


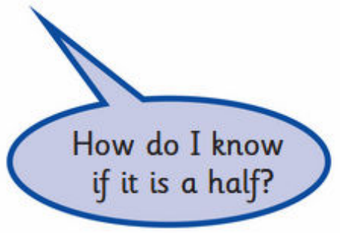
2 Draw lines to show a half.











A fraction is a part of a whole.

This can be numbers or objects or sets of objects.

You need to know about halves when sharing your sweets, your toys and even your pizza.

A full jug can be halved into 2 equal glasses of juice and then poured back into the jug to make the whole again.

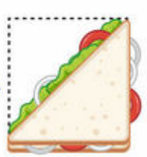
You need to know about a half when telling the time.

11.1 Halves

We are going to ...

- find halves of objects, sets and quantities
- put halves together to make a whole
- record halves using half, $\frac{1}{2}$, equal and the same as.

We need to know about wholes and halves for all sorts of different reasons.

Half of a sandwich. 

Half a jug of water. 

At half past 4 I go swimming. 

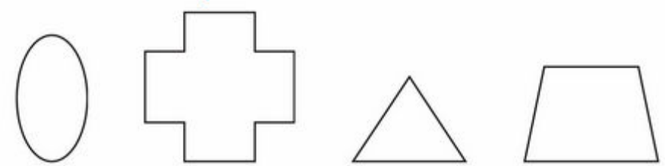
You can also halve numbers. Half of 10 is 5.

10 → 5 5

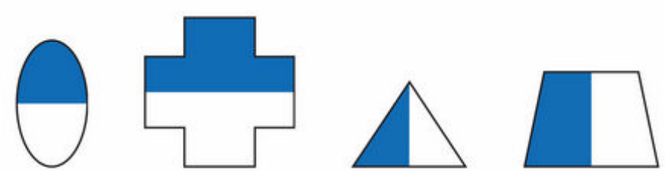
$\frac{1}{2}$ halve

Worked example 1

Colour one half of each shape.



Answer:



Exercise 11.1

1 When you cut something into two parts and both are the same size, each one is a half.

We can write it as $\frac{1}{2}$.

Here is $\frac{1}{2}$ of a cake. 

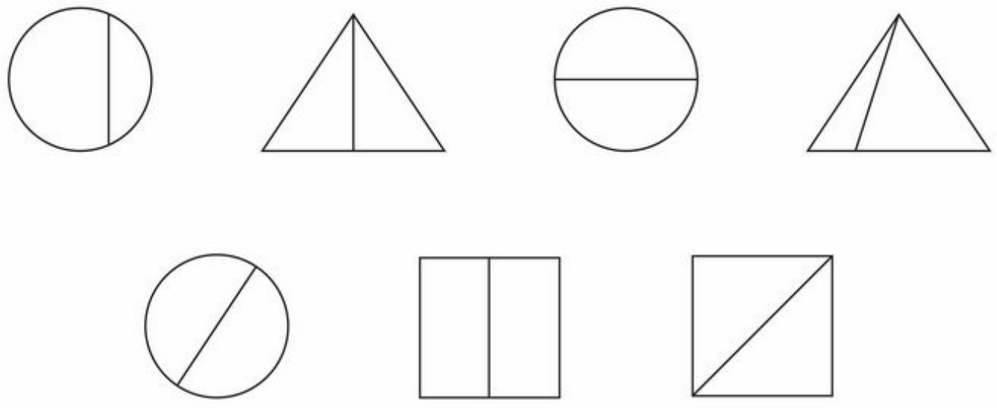
Here is $\frac{1}{2}$ of another cake. 

Do the two halves make a whole cake?

2 Draw the other half of this face.

3 Join the word **half** to the shapes that show a half.

half



4 A half is part of a whole.

A half is part of a set.

Draw a line through each set to show $\frac{1}{2}$.

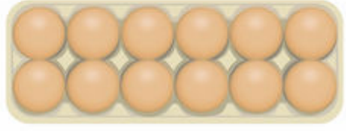
How many snails in the whole set? ☐

How many snails in half the set? ☐

5 Remember when you share **equally** between two, both sets have **the same** amount.

Jamil needs $\frac{1}{2}$ of these eggs for his cakes.

Sairah needs $\frac{1}{2}$ of these eggs for her cookies.



Draw a line to show half.

How many eggs are needed for the cakes? ☐

How many eggs are needed for the cookies? ☐

6 How many?

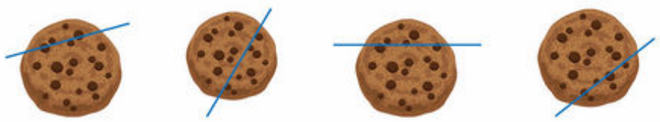
= _____ apples

= _____ apples

= _____ cakes

Let's investigate

How can you **halve** each cookie?



Work with a partner.

Draw lines to show the two halves of each cookie.

7 Use counters to find half of these numbers:

4 ☐ 8 ☐ 18 ☐

Working in pairs, tell your partner how you would halve a cookie.

How would you make both parts the same size?

What would you do if they were not the same size?

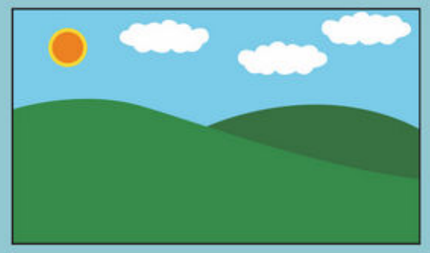
Look what I can do!

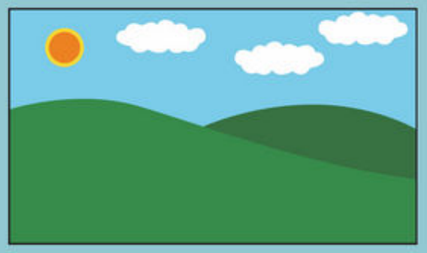
	😐	😊
• I can find halves of objects, sets, quantities and numbers.	○	○
• I can put halves together to make a whole.	○	○
• I can record halves using half, $\frac{1}{2}$, equal and the same as.	○	○

Check your progress

1 A farmer has 10 sheep.

He has 2 fields.





He puts $\frac{1}{2}$ of the sheep in each field.

How many sheep are in each field? ☐

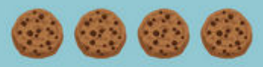
Continued

2 Lomi goes for a picnic. Her friend goes with her.
This is what she takes:

2 bottles of water 

4 apples 

6 sandwiches 

4 cookies. 

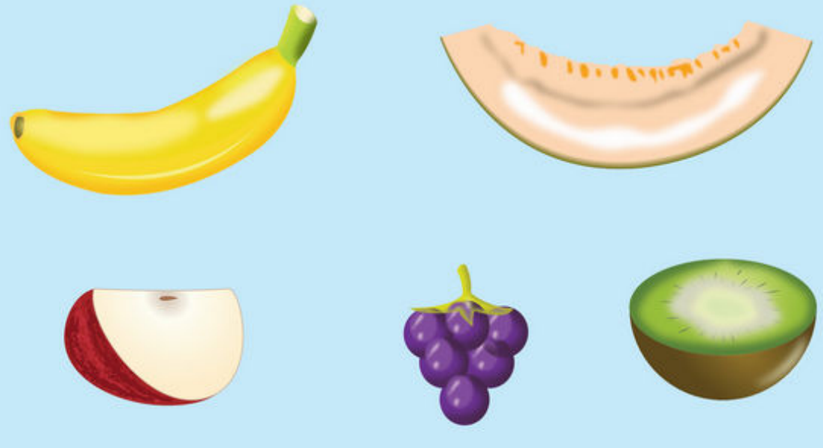
They share everything equally.
Draw what Lomi has on this picnic cloth.

Draw what her friend has on this picnic cloth.

› Project 5

Fair fruit

Meera and Sachin are going to share this fruit equally.



What will each of them have?
Can you explain how you know?

12 Measures (2)

Getting started

1 Draw a ring around the heaviest animal.

2 Draw a ring around the shortest pencil.

3 Draw a ring around the tallest tree.

This unit is about measuring length, mass, capacity and temperature.
We measure different things in different ways.
Length looks at how long, short or high something is.
It can also be used to measure distance.
Mass looks at how heavy something is.
Capacity looks at how much something can hold.
It looks at the space inside a container.
Temperature looks at how hot or cold something is.

12.1 Mass and capacity

We are going to ...

- explore and compare mass
- explore and compare capacity.

The more mass an object has, the heavier it is.

Capacity is how much an object can hold.

This jug can hold more water than the cup. It has a bigger capacity.

balance scales capacity empty full heavy light mass

Worked example 1

Which is heavier?

Answer:

The shoe is heavier than the cube.

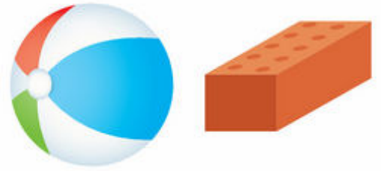
The cube is lighter than the shoe.

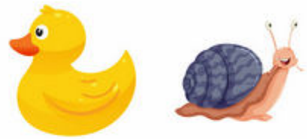
Exercise 12.1

1 Talk to your partner.

Which is heavier? Which is lighter?

How do you know?



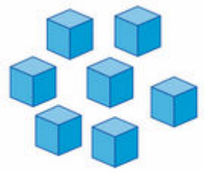


2 Talk to your partner.

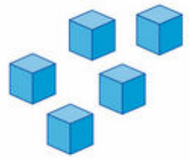
Which is heavier? Which is lighter?

How do you know?

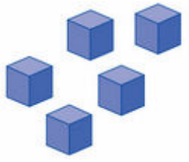
Draw a ring around the correct answer.



are heavier / lighter than



are heavier / lighter than



3 Draw a ring around the correct word.

The  is heavier than / lighter than / the same as the  .

The  is heavier than / lighter than / the same as the  .

4 To **balance** the scales you need the same mass on both sides.

These scales balance.

The car has the same mass as 4 cubes.

These scales balance.

The mug has the same mass as 7 cubes.

How many cubes will balance the car and the mug?

5 Draw a ring around the objects that hold the most in each box.

Let's investigate

Work with your group.

You will need:

- 5 cups of the same size and shape.
- 6 cups in different sizes and shapes.
- a jug, a funnel and some rice.

Challenge 1

Use cups that are the same shape and size.

Share out all the rice equally between the cups.

Draw a line on the side of the cups to show where the rice comes to.

As a group, talk about how you can share out the rice equally.

Challenge 2

Repeat the challenge using cups of different sizes.

What do you notice?

Did you change your mind about the way you shared the rice?

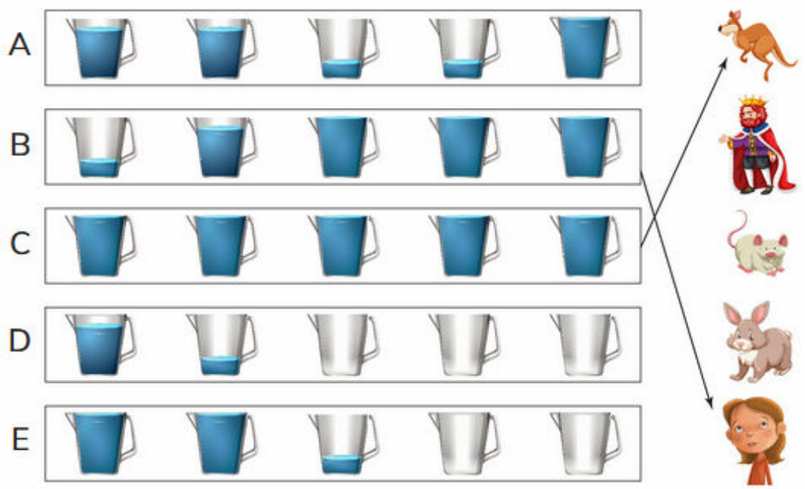
If you did this again, would you do it the same or differently? Explain why.

What did you find difficult about these challenges?

What did you learn in Challenge 1 that helped you in Challenge 2?

6 Solve the puzzle to help the king find his drink.

A nearly empty jug and a nearly full jug will make a full jug.



Match the jugs to the characters.

The kangaroo drinks the jugs that are full.

The mouse has 3 empty jugs.

The rabbit has 2 empty jugs.

The king drinks more than the mouse but less than the girl.

The girl drinks less than the kangaroo.

Does the king drink A B C D E?

Draw a ring around the correct answer.

Look what I can do!

- I can explore and compare mass.
- I can explore and compare capacity.

› 12.2 How do we measure?

We are going to ...

- explore instruments with numbered scales
- choose the correct instrument to measure different things.

You use mass and capacity when cooking, and temperature when baking.

You use height and length when you buy new clothes or shoes.

When you keep yourself warm or cool, you are using what you know about temperature.

You need to know about weight when lifting heavy or light objects.

This section explores how you measure each of these things.

temperature thermometer

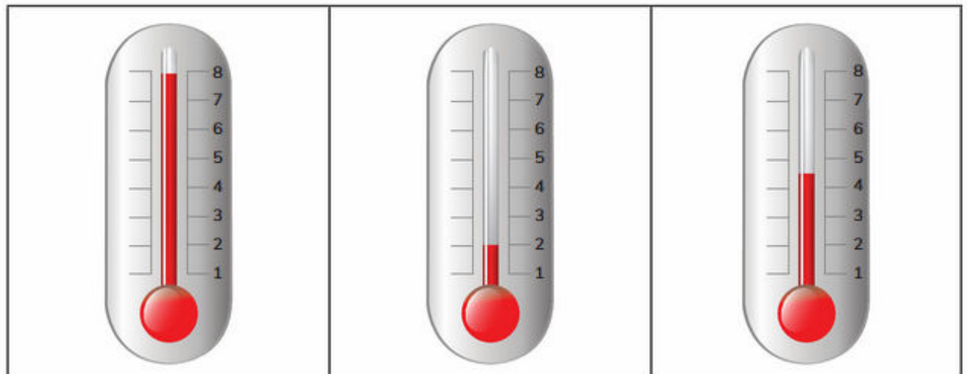
Exercise 12.2

1 Which ruler would be most helpful for measuring the length of a pencil?

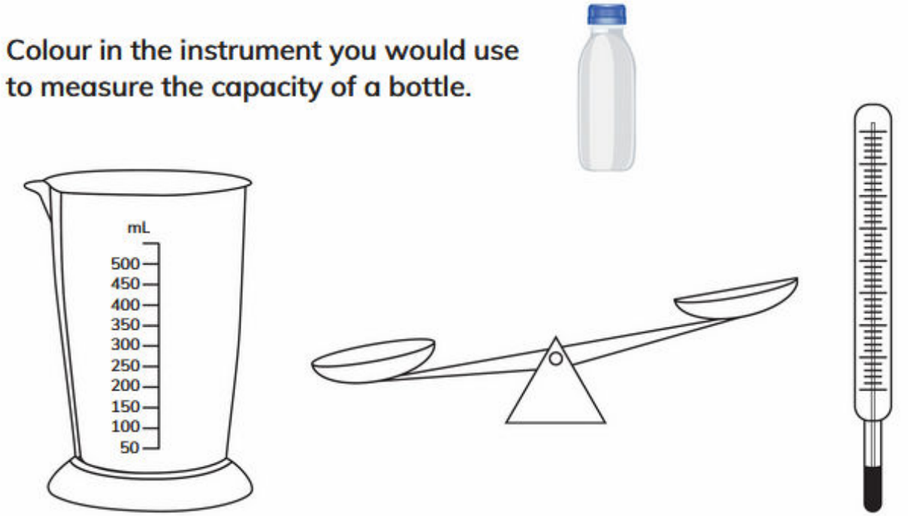
Why?

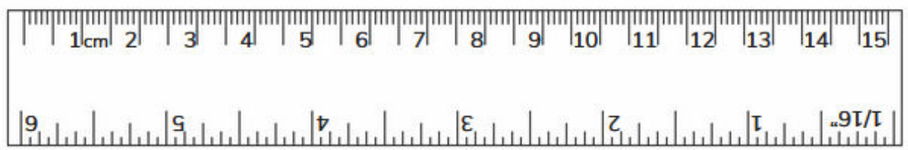
2 Look at each thermometer and draw a ring round the word that matches the temperature.

Is it hot, cold or warm? Talk to your partner.



3 Colour in the instrument you would use to measure the capacity of a bottle.





4 Draw a ring around the jug containing the most juice.

Look what I can do!

- I can choose the correct instrument to measure length, mass, capacity and temperature.

Check your progress

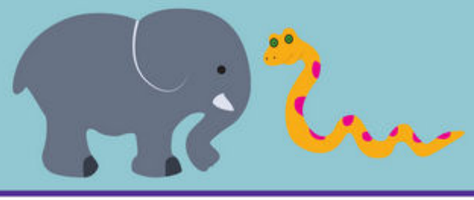
1 Draw the objects on the balance scales.

Which is heavier? Which is lighter?

The elephant is _____ than the snake.

The flower is _____ than the tree.

The car is _____ than the plane.



Continued

2 Use lines to join the objects to the correct measuring instrument.

The capacity of a bucket

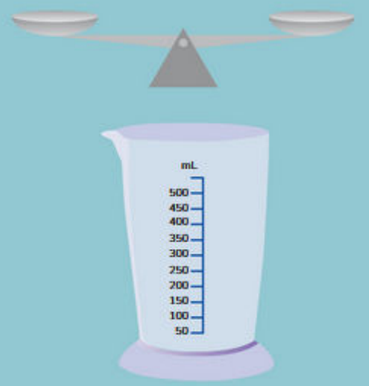
The length of a snake

The capacity of a bottle

The mass of a bag of flour

The capacity of a carton

The mass of the apples

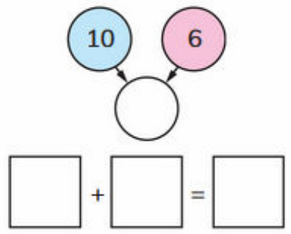


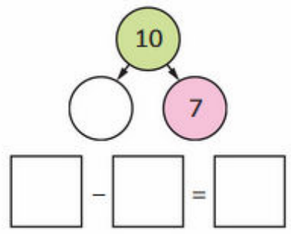
13 Working with numbers to 20

Getting started

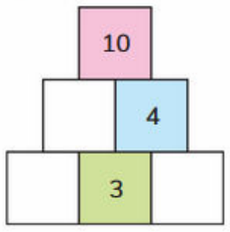
1 Complete each part-whole diagram.

Write a matching number sentence for each diagram.



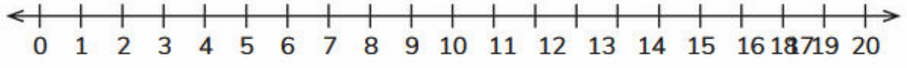


2 Add and subtract to complete the wall.



3 Use the number line to help you compare these numbers.

Write **fewer** or **greater** to complete the sentences.



9 is _____ than 12. 12 is _____ than 9.

16 is _____ than 11. 11 is _____ than 16.

There are different methods to add and subtract.

You will use a number line to help you count on or back from any number.

You will begin to explore money.

You need to recognise what you have so that you can spend it on the things you want to buy.

13.1 Addition by counting on

We are going to ...

- add by counting on, using a number line to help
- separate numbers into smaller numbers to help with addition
- use complements to 10 to help with addition.

We often add some more to what we have.
If you have 9 marbles and win 4 in a game, it is better to count on 4 from 9 to see that you have 13 rather than have to count them all.

Using a number line to help, you will be able to count on from a number instead of having to count everything.

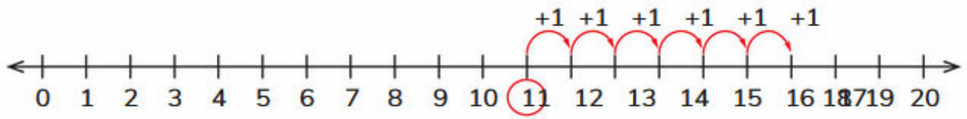
calculation complement
method regroup solve

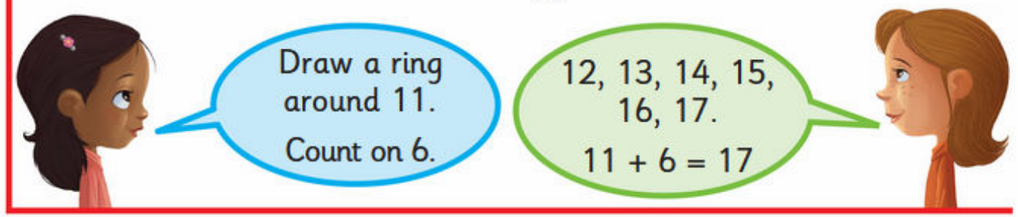
Exercise 13.1

Worked example 1

11 + 6 = ☐

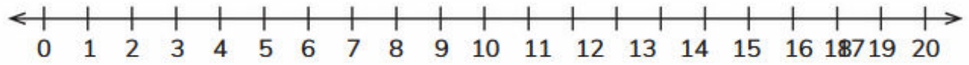
Answer: 11 + 6 = 17



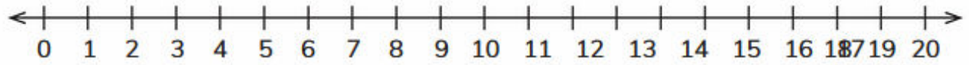


1 Count on in ones. Draw your jumps.

13 + 4 = ☐

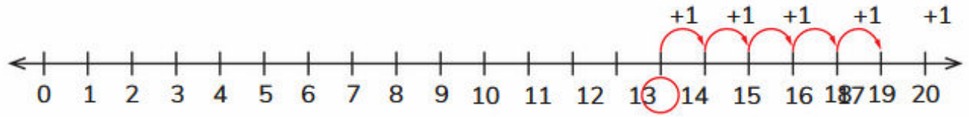


9 + 7 = ☐



2 Here is Erin's number line.

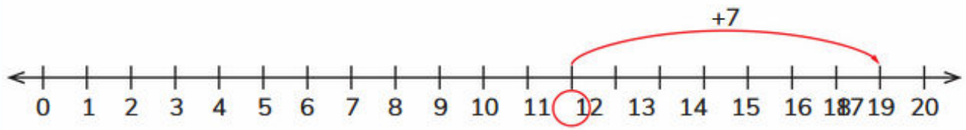
What calculation is she solving?

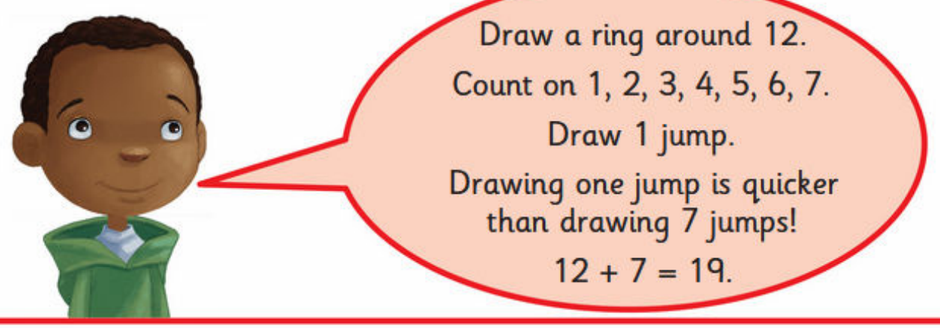


Worked example 2

12 + 7 = ☐

Answer: 12 + 7 = 19

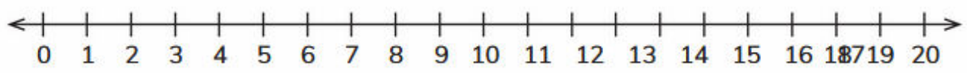




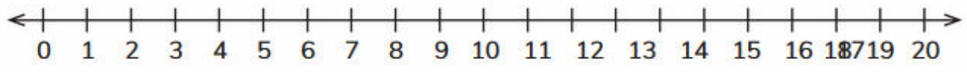
3 Count on in ones.

Draw and label **one** jump to find each total.

6 + 9 = ☐

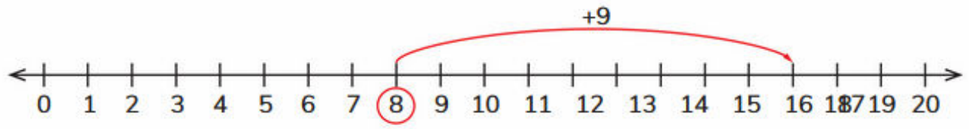


11 + 8 = ☐



4 Here is Tomas' number line.

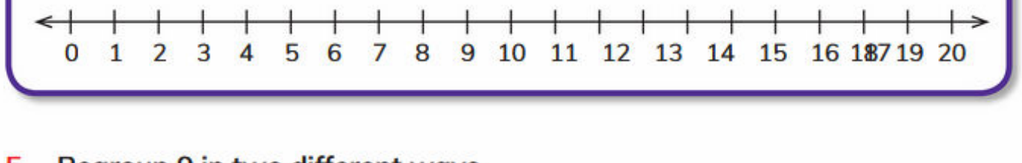
What calculation is he solving?



Let's investigate

What happens when you add 0 to a number?

How could you show adding to 0 on a number line? For example, 0 + 4.



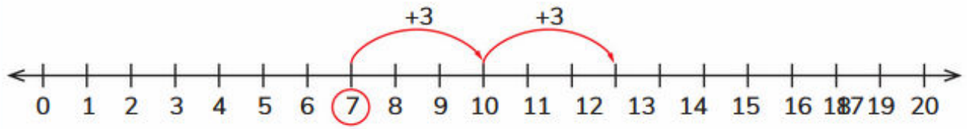
5 Regroup 9 in two different ways.

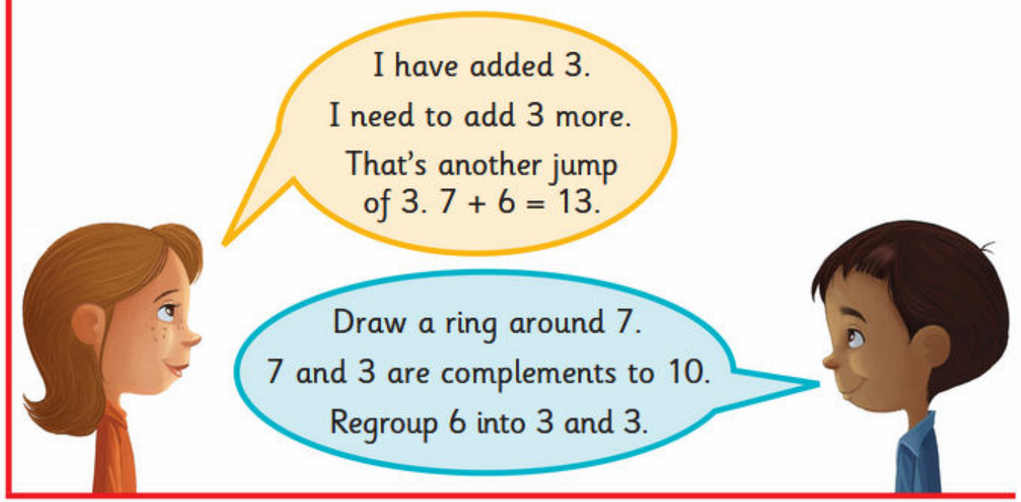
Regroup 15 in two different ways.

Worked example 3

$7 + 6 = \square$

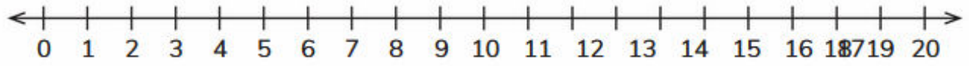
Answer: $7 + 6 = 13$



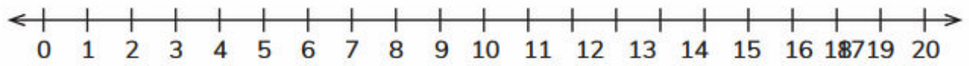


6 Use **complements to 10** to help you add.

$8 + 7 = \square$



$9 + 5 = \square$



What makes the number line useful when adding by counting on?
Share your ideas with a partner.

Let's investigate

Work in a small group to make a poster to show the three methods you have used to add using a number line.

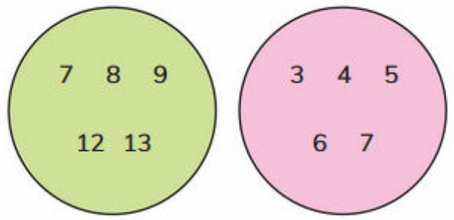
How will you make each **method** easy to understand?

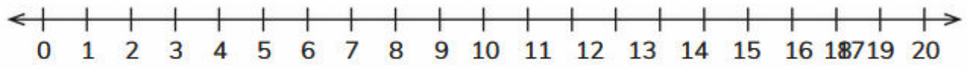
7 Aliya drew a jump of 3 and a jump of 2. She started from number 7.
What was her calculation?

8 Choose a number from each circle to add together on a number line.

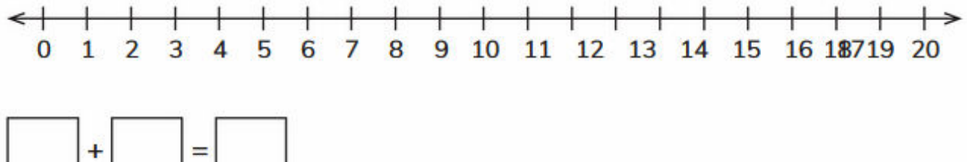
Do this twice. Choose which method to use each time.

Write your number sentence.





□ + □ = □



□ + □ = □

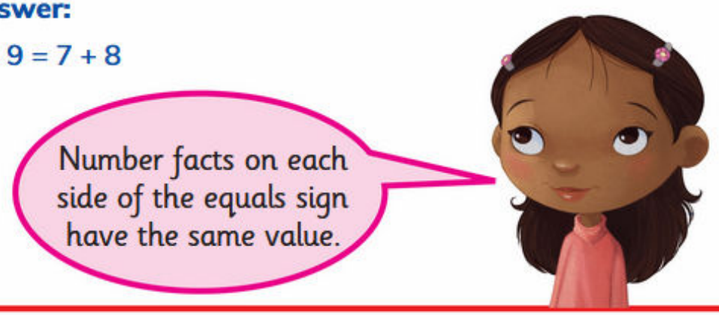
Worked example 4

6 + 9 = 15 7 + 8 = 15

6 + 9 = □ + □

Answer:

6 + 9 = 7 + 8



9 Work in a group of 4.

Use the calculations from question 8 to help you find equivalent facts.

□ + □ = □ + □ □ + □ = □ + □

□ + □ = □ + □ □ + □ = □ + □

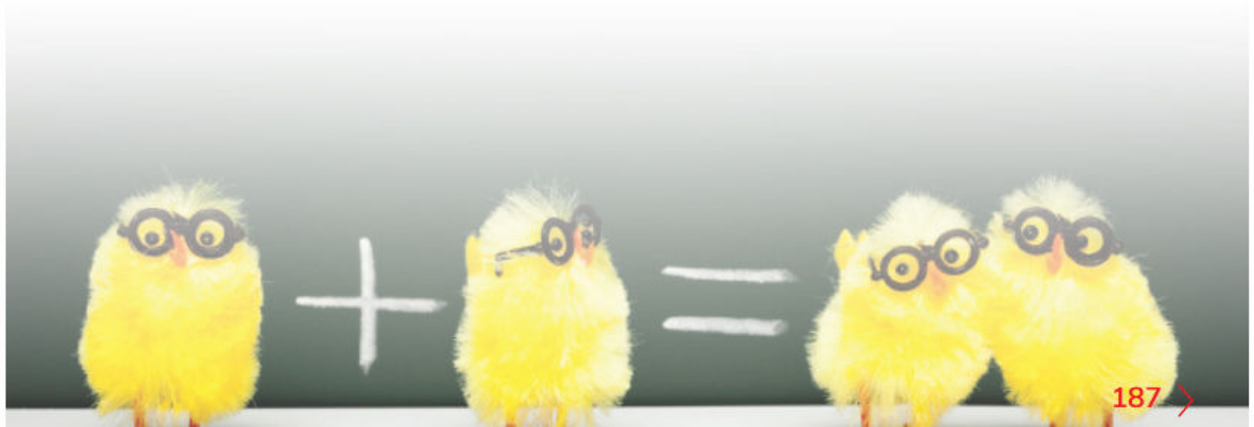
Let's investigate

Sumi says you can always use any of the three methods to add on a number line. It does not matter what the numbers are.

Do you agree? Explain your thinking to your partner.

Look what I can do!

	😐	😊
• I can add by counting on, using a number line to help.	○	○
• I can split numbers into smaller numbers to help with addition.	○	○
• I can use complements to 10 to help with addition.	○	○



13.2 Subtraction by counting back

We are going to ...

- subtract by counting back, using a number line to help
- split numbers into smaller numbers to help with subtraction
- use complements to 10 to help with subtraction.

Sometimes we need to find how many objects are left.

If there are 14 biscuits and 9 are eaten, are there enough left for 6 people to have 1 each?

You can work out if you need to buy more biscuits when you are shopping.

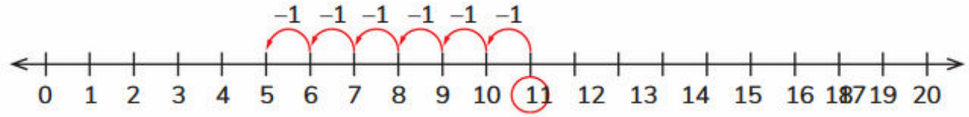
compose decompose

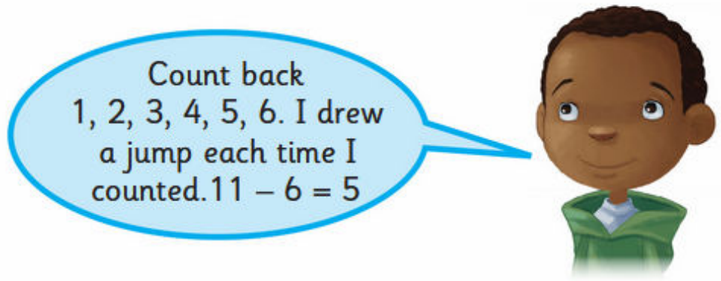
Exercise 13.2

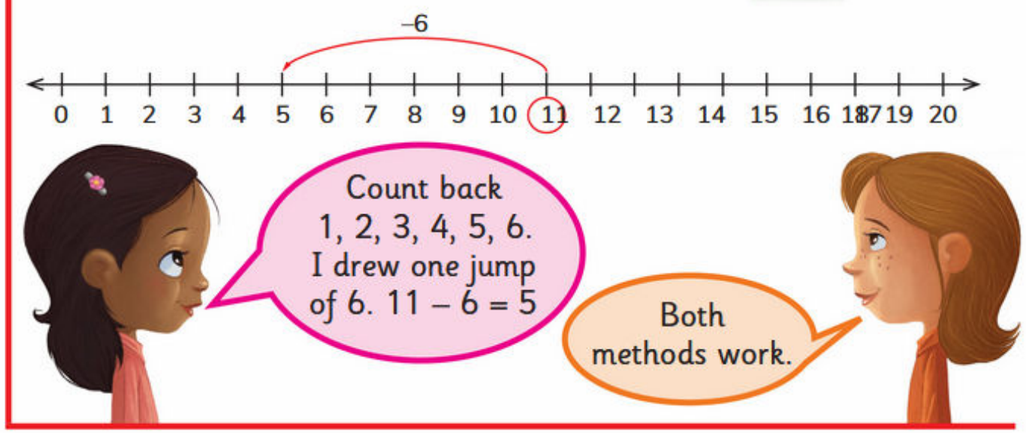
Worked example 5

$11 - 6 = \square$

Answer: $11 - 6 = 5$

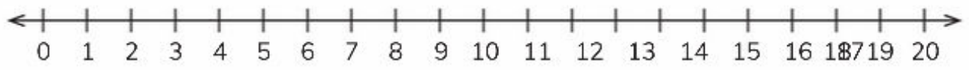




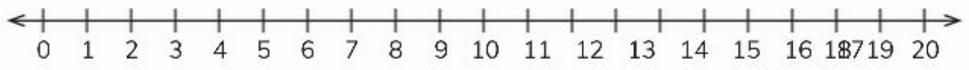


1 Count back. Draw your jumps.

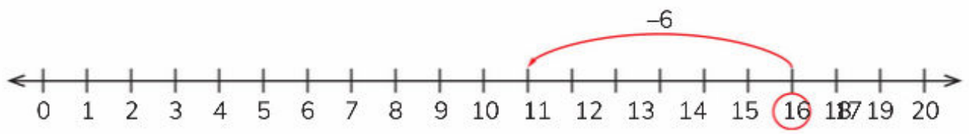
13 − 4 = ☐



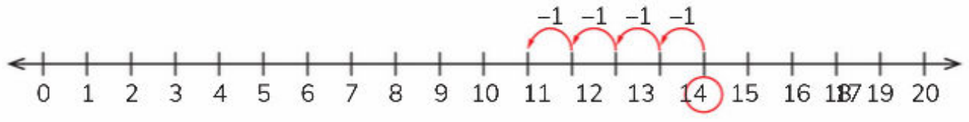
9 − 6 = ☐



2 This is Sammy's number line. What calculation is he solving?



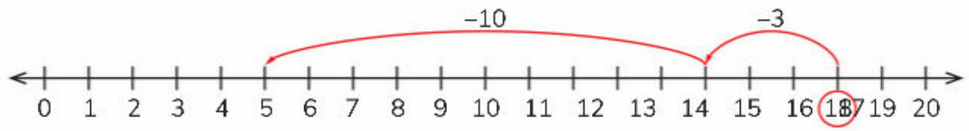
3 This is Erin's number line. What calculation is she solving?

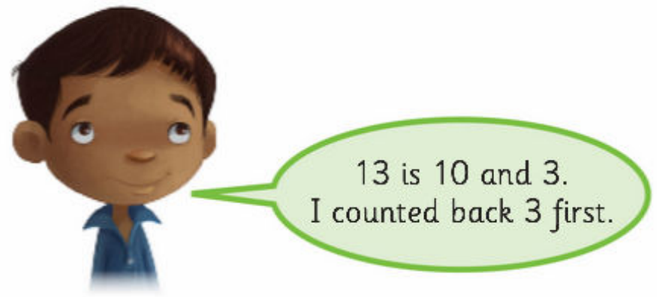


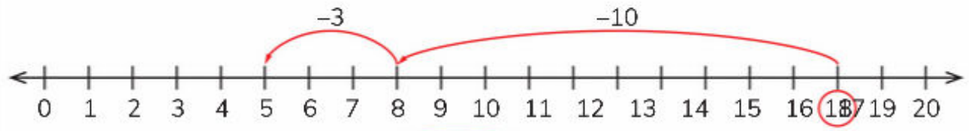
Worked example 6

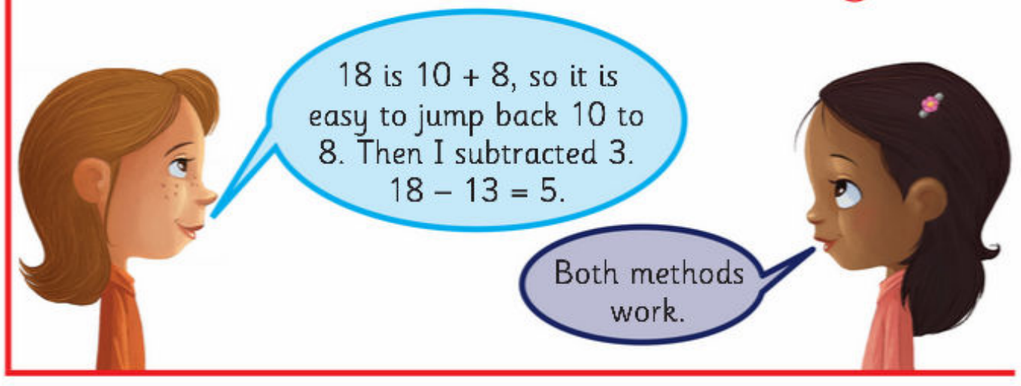
18 − 13 = ☐

Answer: 18 − 13 = 5



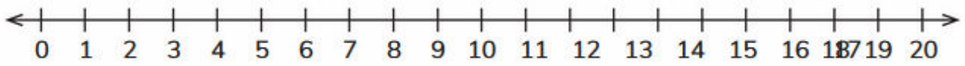






4 Draw your jumps.

19 – 14 = ☐

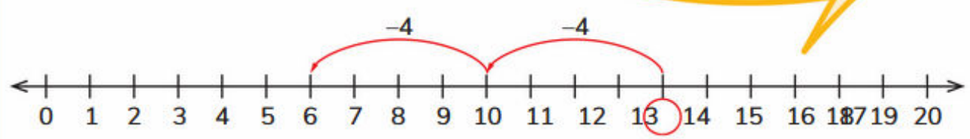


Worked example 7

14 – 8 = ☐

Answer: 14 – 8 = 6

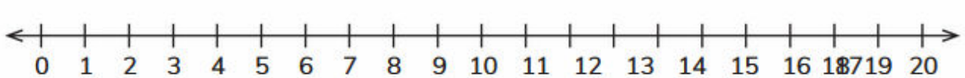
8 is 4 and 4.
First I counted back 4 to 10.
Then I used complements to 10.
14 – 8 = 6.



5 Draw your jumps.

Remember to check you subtracted the correct amount by adding (regrouping) your jumps together.

13 – 7 = ☐



Let's investigate

What happens when you subtract 0 from a number?

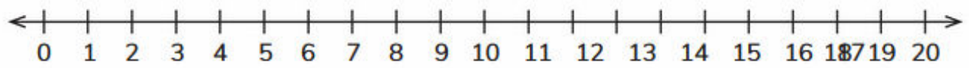
How could you show subtracting 0 on a number line?

6 Choose a number from each circle.

Subtract the smaller number from the larger number.

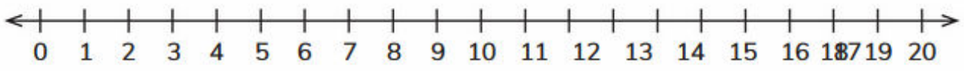
Do this twice. Choose which method to use.

Write your number sentence.



Share your work on question 6 with your partner.
Did you do the calculations in different ways?
Talk about both of your methods.
Is one method better or more efficient than the other?

7 Find the difference.



18 − 14 = ☐ 9 − 4 = ☐

The difference between 8 and 11 is _____.

The difference between 3 and 9 is _____.

Look what I can do!

	😐	😊
• I can subtract by counting back, using a number line to help.	○	○
• I can split numbers into smaller numbers to help with subtraction.	○	○
• I can use complements to 10 to help with subtraction.	○	○

13.3 Using the number line

We are going to ...

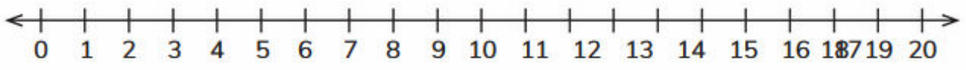
- use what we know about addition and subtraction to solve word problems
- use what we know about numbers to estimate solutions
- work out doubles up to double 10.

When you use addition and subtraction, it is usually to solve a problem you have. Problems are often in words. You can write a number sentence to help solve word problems.

double word problem

Exercise 13.3

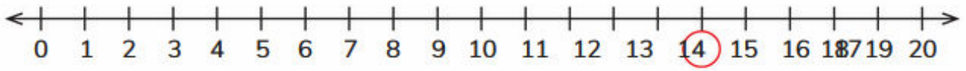
1 Solve these calculations.



8 + 0 = ☐ 0 + 3 = ☐ 14 + 0 = ☐

8 − 0 = ☐ 3 − 0 = ☐ 14 − 0 = ☐

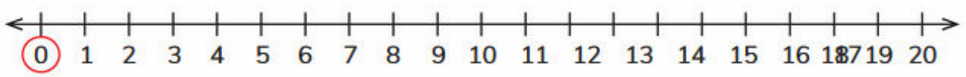
2 Your target is 15. Record your own way to get from 0 to 15.



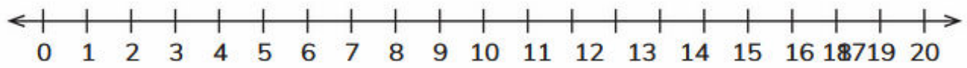
Write your number sentences.

3 Start at 11. Your target is 0.

Record your own way to get from 11 to 0.

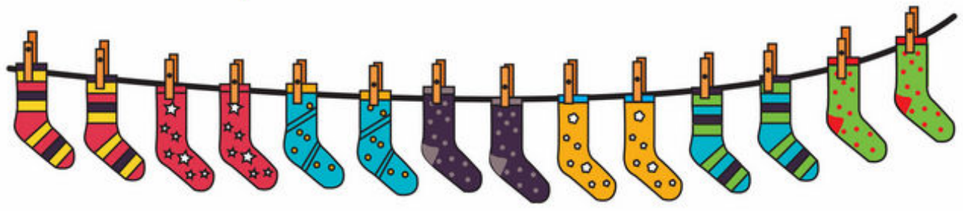


4 Write the number sentence for each word problem.
Estimate the answer. Then solve your number sentence.



There were 3 biscuits in the tin.
Mum emptied a packet of 10 biscuits into the tin.
How many biscuits are in the tin now?

There were 14 socks on the washing line.
5 socks blew away.



How many socks are left on the washing line?

5 Complete the doubles table. What will you use to help you?

Number	0	1	2	3	4	5	6	7	8	9	10
Double						10					

Let's investigate

Aliya says all **doubles** are even numbers.
Is Aliya correct? Explain why.

Do you think using a number line is better than using counting objects?
Explain your thinking to your group or partner.

Look what I can do!

	😐	😊
• I can use what I know about addition and subtraction to solve word problems.	○	○
• I can use what I know about numbers to estimate solutions.	○	○
• I can recall or quickly work out doubles up to double 10.	○	○

13.4 Money

We are going to ...

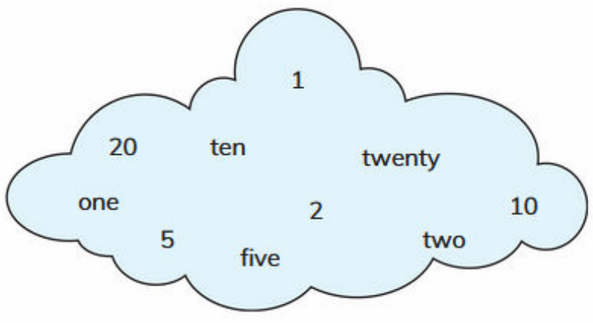
- look at coins and banknotes
- sort coins in different ways
- use coins in a class shop.

We use money to buy things. You need to recognise which coins or banknotes you have so that you can spend them on the things you want to buy.

banknote coin money price value

Exercise 13.4

1 Draw a ring around the words or numbers you can see on your coins or banknotes.

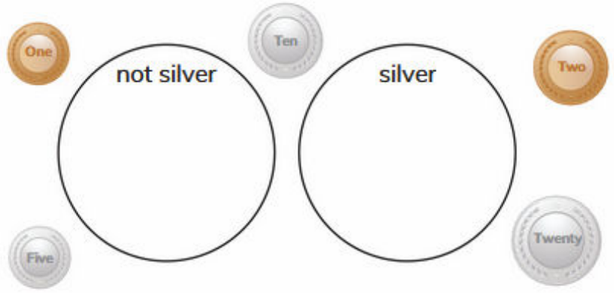


2 Here are some made-up coins.

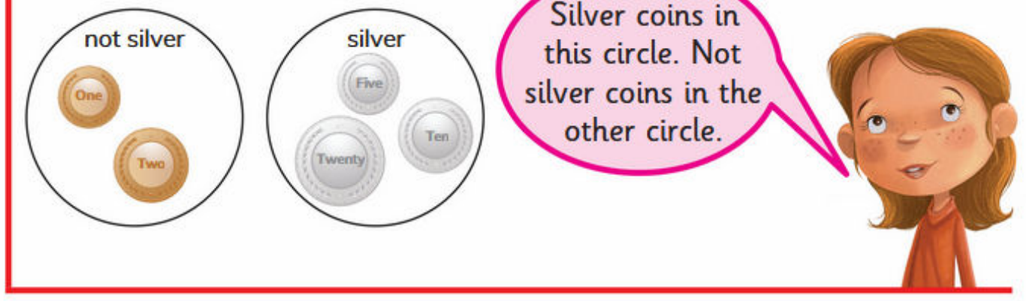
Match each coin to its **value**.

Worked example 7

Sort these coins.



Answer:

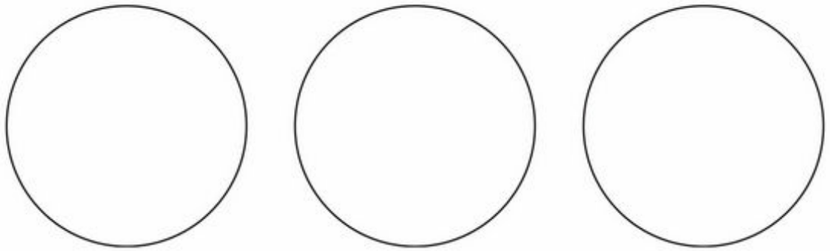


3 You will need some coins.

Sort the coins. Use 2 or 3 circles.

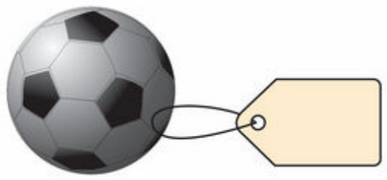
Draw or rub the coins you put in each circle.

Label each circle.



4 Write your own price for the ball.

Which coins and banknotes could you use to pay for it?



Draw each coin and banknote.
Or you could do a rubbing of each coin.

Let's investigate

You will need some coins.

Show your partner the side of the coin with no number or number word on it. Can your partner say the value of the coin?

Swap over.

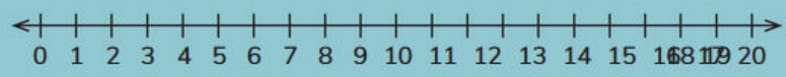
Can you name each of the coins?

Look what I can do!

	😐	😊
• I can recognise different coins and banknotes.	○	○
• I can sort coins in different ways.	○	○
• I can use coins to buy things in our class shop.	○	○

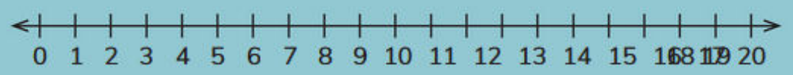
Check your progress

1 Add 6 and 9.



Continued

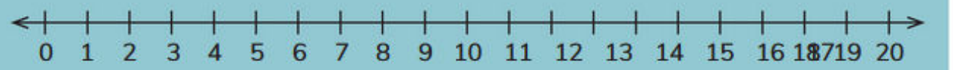
2 Subtract 7 from 12.



3 Decompose the number you are subtracting.

Draw your jumps.

17 − 13 = ☐



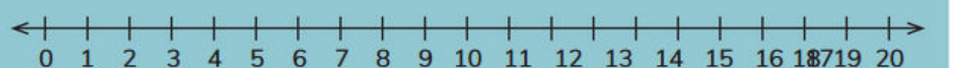
4 Write the number sentence for this word problem.

Estimate the answer then solve your number sentence.

There were 16 cookies on a plate.

9 were eaten.

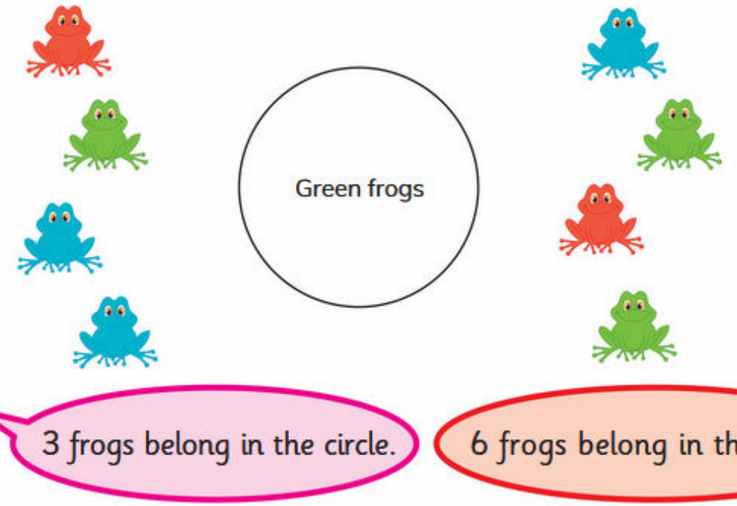
How many cookies were left on the plate?



14 Statistics (2)

Getting started

1 What do you think?



2 Work with a partner.

How many different ways can you sort these bears?

How do we know how many of each sweet is sold?

What would be the best way to record the sales?

How do we know the favourite thing to buy?

How could we find out?

This unit will show you different ways to sort and show data so that you can choose the best way when you have collected information.

You will revisit Venn diagrams and will learn about pictograms, Carroll diagrams, lists, tables and block graphs.

› 14.1 Venn diagrams, Carroll diagrams and pictograms

We are going to ...

- develop understanding of Venn diagrams
- explore Carroll diagrams and pictograms.

A **pictogram** is a chart that uses pictures to show **data**.

Pictograms use columns or rows of pictures to show the numbers involved.

A pictogram must have a title to show what each picture means.

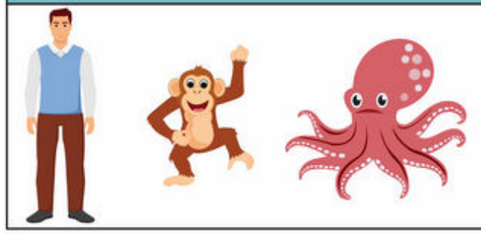
Sunshine hours ☀ = 1 hour of sunshine

Friday	☀☀☀☀
Saturday	☀☀☀☀☀
Sunday	☀☀☀☀☀☀☀☀

Carroll diagram label pictogram title

A **Carroll diagram** is used to organise data using a set of rules.

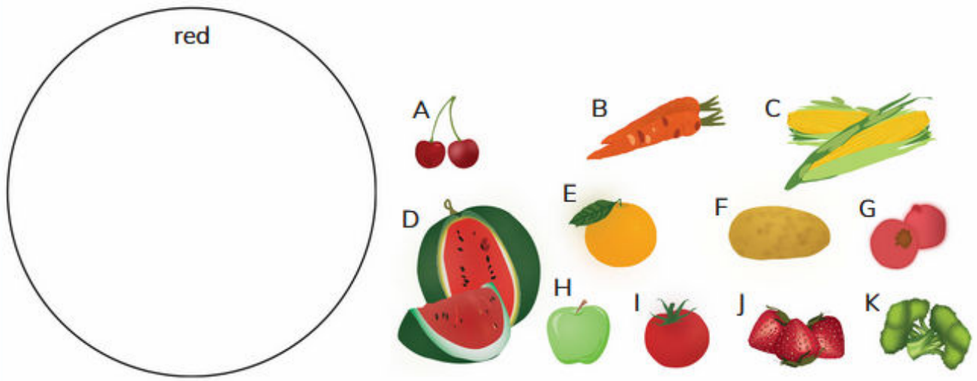
For example, you can sort a set of shapes into shapes with curved sides and shapes with straight sides.

Has legs and arms	Does not have legs and arms
	

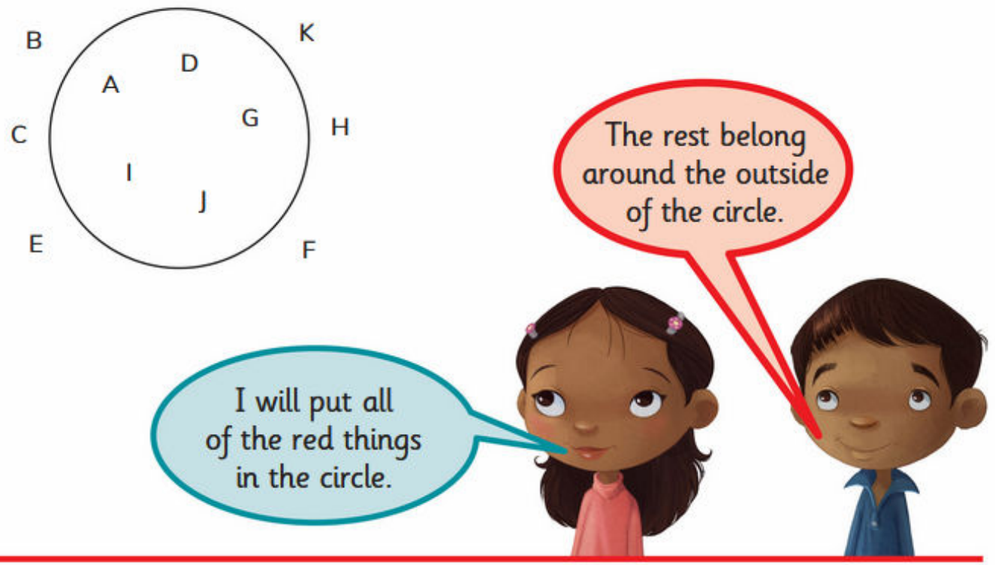
Exercise 14.1

Worked example 1

Where would you put the fruit and vegetables in this Venn diagram?
Write the letters in the correct place on the diagram.

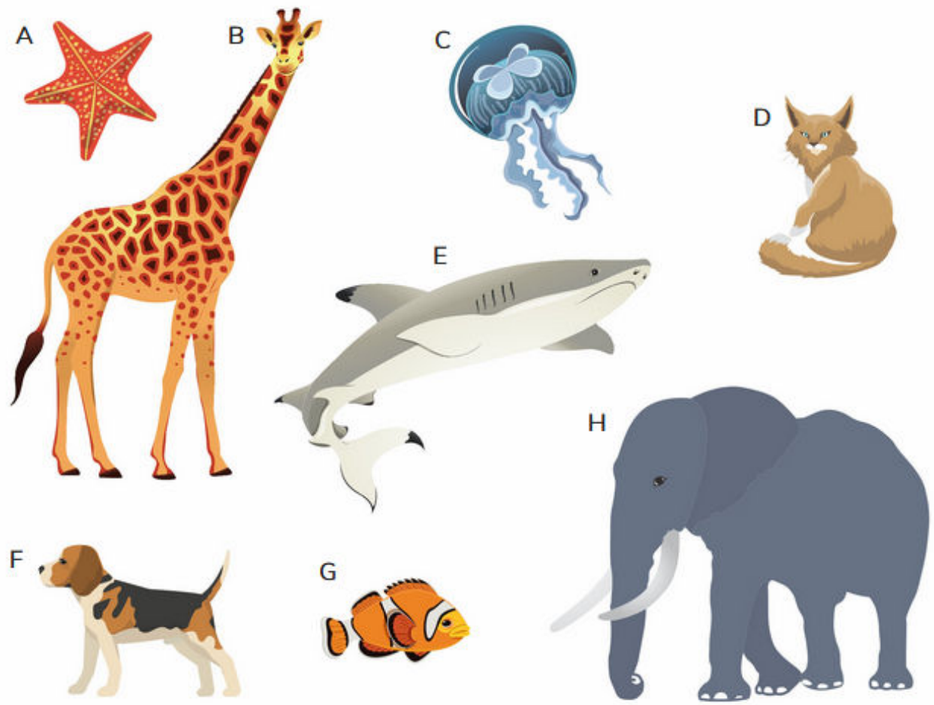


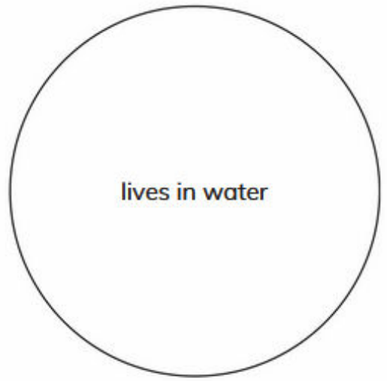
Answer:



1 Talk to your partner.

Where would you put these animals in the Venn diagram?
Write the letters in the correct places in the diagram.





2 Draw lines to sort the pairs of shoes into the circles.

brown black red

Complete the pictogram by drawing the pairs of shoes in the table.

brown					
black					
red					

Which colour has the most shoes? _____

3 Draw lines to sort the toys into the correct boxes using the Carroll diagram.

wheels	not wheels

4 Work with a partner.

Sort the numbers into odd and not odd.

Write them on the Carroll diagram.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

odd	not odd

5 This pictogram shows favourite sports.

Write 3 things you can see from the pictogram.
Use the words **more, less/fewer, most** and **least/fewest.**

Favourite sports

Favourite sport	Number of children who chose it
Swimming	
Riding a horse	
Archery	
Running	

1 picture = 1 child

_____

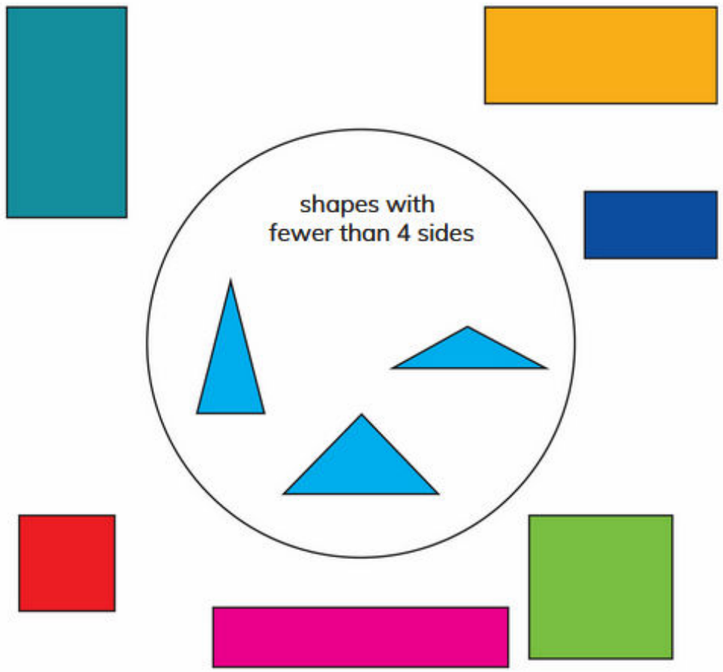
_____

_____

6 This Venn diagram shows how shapes have been sorted.

Write 3 things you can see from the Venn diagram.

Use the words **more**, **less/fewer**, **most** and **least/fewest**.



Let's investigate

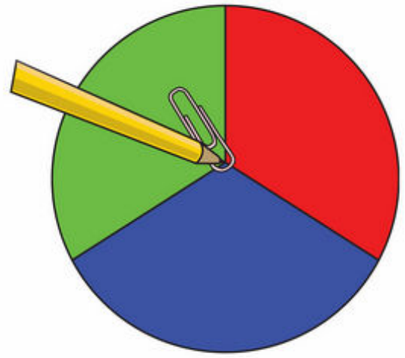
Here is an empty pictogram.

It needs a **title**.

Talk to your partner.

What could the title be?

red									
blue									
green									



Spin a spinner 5 times each.

After each spin, draw a matching colour ball in a square of your pictogram.

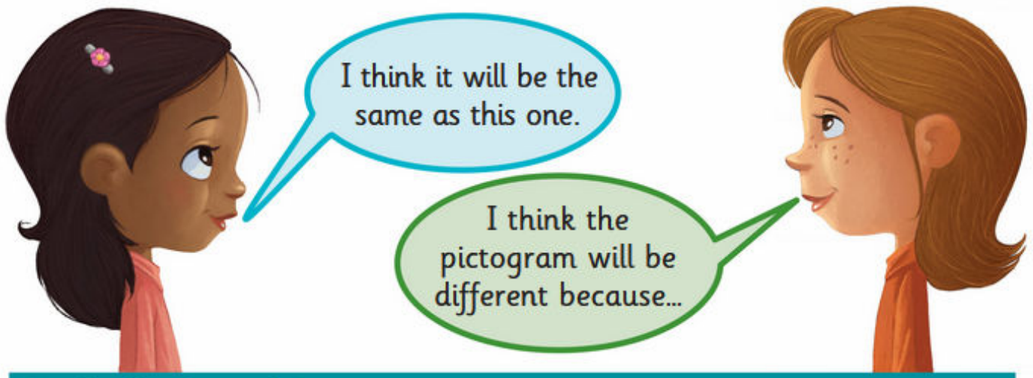
Always start from the left. Do not leave a gap.

Which colour did you spin the most?

Which line is the longest?

What did the pictogram show you?

If you played the game again, would the pictogram look the same?



Look what I can do!

	😐	😊
• I can use a Venn diagram to record and show data.	○	○
• I can use a pictogram to record and show data.	○	○
• I can use a Carroll diagram to record and show data.	○	○

› 14.2 Lists, tables and block graphs

We are going to...

- learn how to write lists
- learn how to complete and use tables and block graphs
- describe data using lists, tables and block graphs.

We use **lists** and **tables** to show images rather than use lots of words.

We often use lists to remind ourselves about things we need to buy at the shops.

A list has a heading to tell you what the list is about.

A table is a way of showing data using rows and columns.

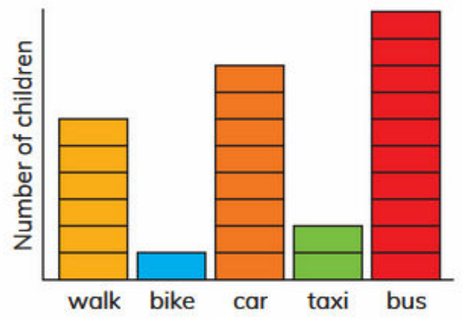
A **block graph** uses 1 block for each object or answer.

It is an easy way to find the most, the least, less, more or the same when using data.

Shopping list

milk
bread
tea
apples
beans
butter
soup
eggs

block graph list table



A block graph to show how we travel to school

Exercise 14.2

1 Here is a list of ice creams that Sandeep sells.

Sandeep made a table to show how many ice creams he sold on Monday and Tuesday.

Flavour	Monday	Tuesday
chocolate	8	4
vanilla	5	8
strawberry	12	6

How many chocolate ice creams did Sandeep sell on Monday? ☐

How many strawberry ice creams did he sell on Tuesday? ☐

How many vanilla ice creams did he sell all together? ☐

2 Make a list of your 3 favourite toys.

_____

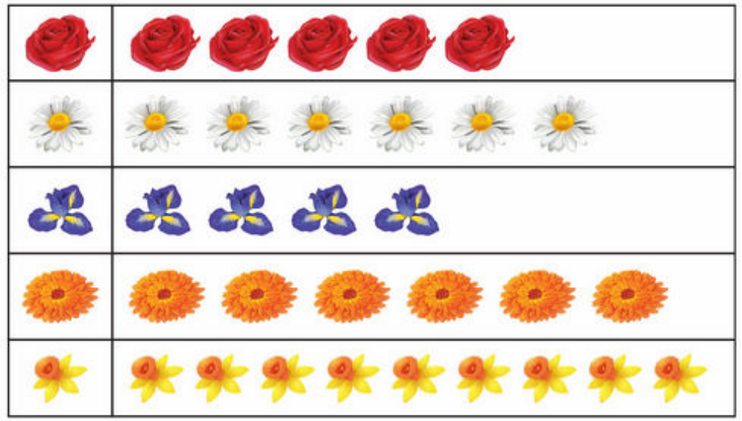
_____

_____

Swap your list with a partner. Do you have any of the same things?
How can you find out what toy is liked most by the whole class?

_____

3 Here is a pictogram to show the flowers that Izabelle sold on Wednesday.



1 picture = 1 flower

Count the flowers in each row.

Fill in the table to show how many flowers Izabelle sold on Wednesday.

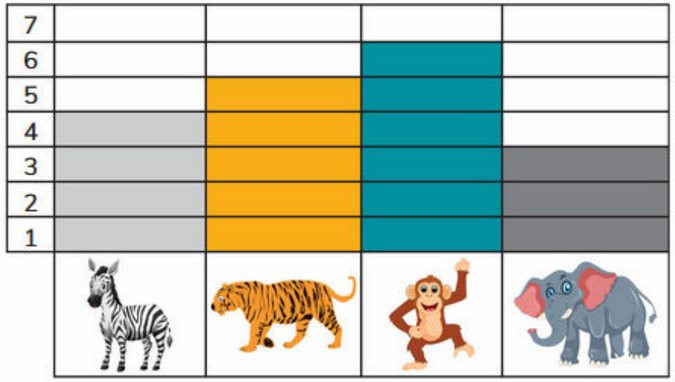
Flower	Wednesday
	5
	
	
	
	

Draw a ring around the flower that sold the most.

Draw a cross through the flower that sold the least.

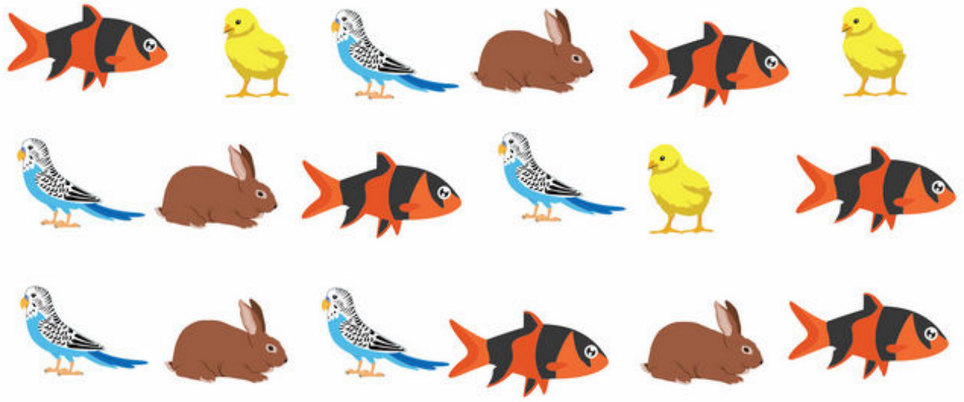
4 This block diagram shows people's favourite animals in the zoo.

Use it to fill in the table.



Favourite animals in the zoo	
	
	
	
	

5 The pet shop has some animals for sale.



Complete the block graph to show how many different pets there are.

Number of pets				
6				
5				
4				
3				
2				
1				
0				
	 rabbit	 fish	 chick	 bird

Let's investigate

Play this game with a partner.

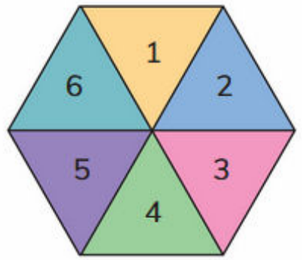
You will need a paper clip for the spinner.

Take turns to spin the spinner twice.

Add the 2 numbers together.

Colour the block with the matching total.

Have 10 turns each.



1	2	3	4	5	6	7	8	9	10	11	12

Do you think you will always get the same graph?

Tell your partner why you think that.

Why did number 1 not have any blocks filled in?
Play the game again and see if you can get number 1.
Do you know why?

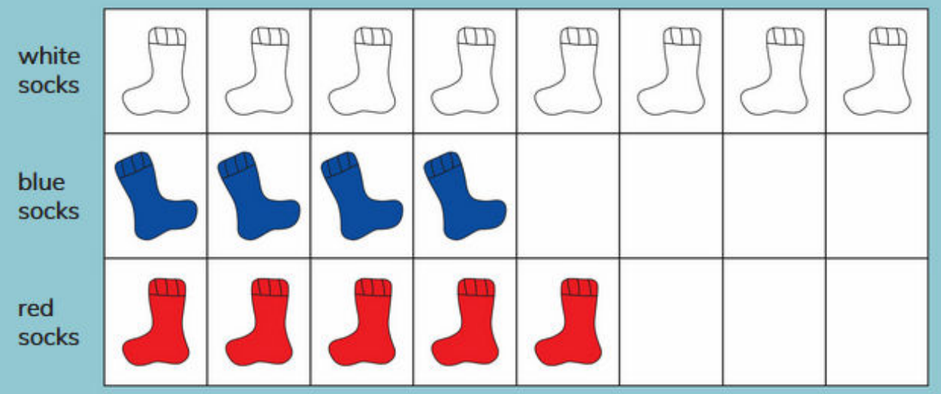
Look what I can do!

	😐	😊
• I can write lists.	○	○
• I can complete and use a table.	○	○
• I can complete and use a block graph.	○	○

Check your progress

1 Here is a pictogram showing the colour of socks worn by the children in class 1.

Each sock = 1 learner



Complete the sentences about the socks.

_____ children wore white socks.

_____ children wore blue socks.

_____ children wore red socks.

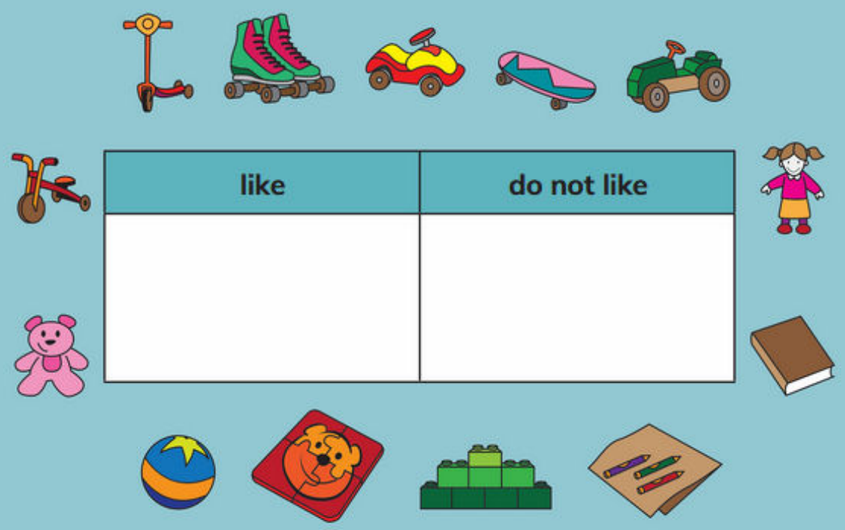
_____ more children wore white socks than blue socks.

_____ was the most popular colour of socks.

Continued

2 Sort the toys into the Carroll diagram.

Draw lines to join them to the right box.



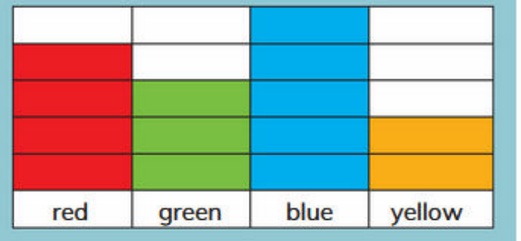
like	do not like

3 Look at this block graph.

It shows the favourite colours of 14 children in the class.

Count the blocks.

Draw a ring around the correct answer.



Most children like: **red / green / blue / yellow.**

Write how many:

children like red _____

children like yellow _____

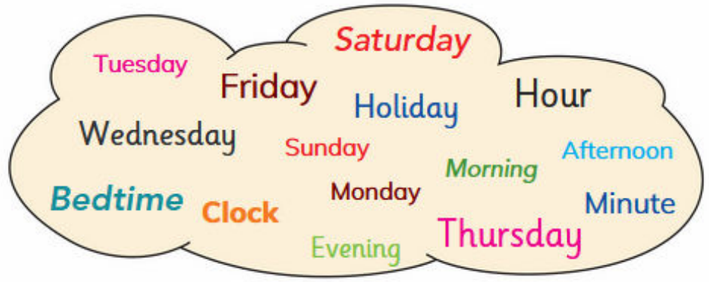
children like green. _____

15 Time (2)

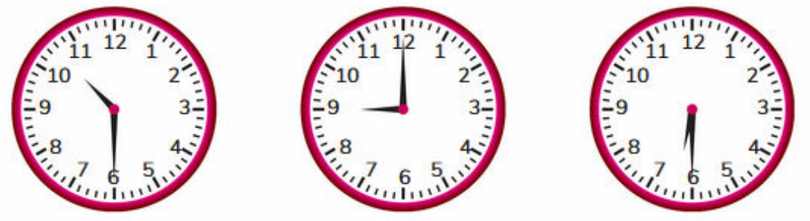
Getting started

1 All the days of the week have 'day' at the end of their name.

Write one day of the week in each box.



2 What time is it?



_____ _____ _____

It is very important to be able to tell the time.

You need to be at school, the doctor's, the dentist and many other places at the correct time.

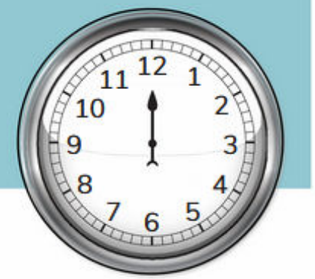
You need to know the order of the days of the week and the months of the year.

You don't want to go to the dentist on the wrong day!

› 15.1 Time

We are going to ...

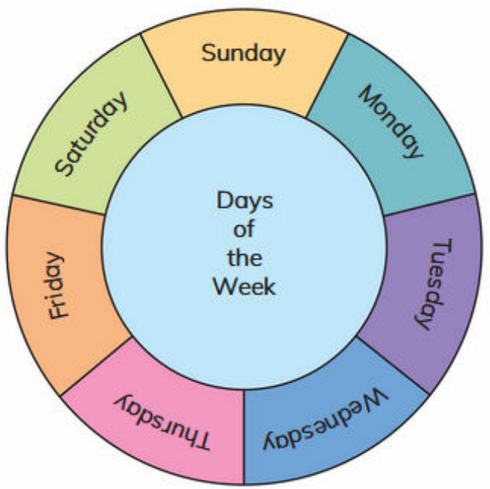
- know the position of the clock hands for o'clock and half past times
- know the days of the week and the months of the year
- recognise and use the repeating patterns of the days of the week and months of the year.

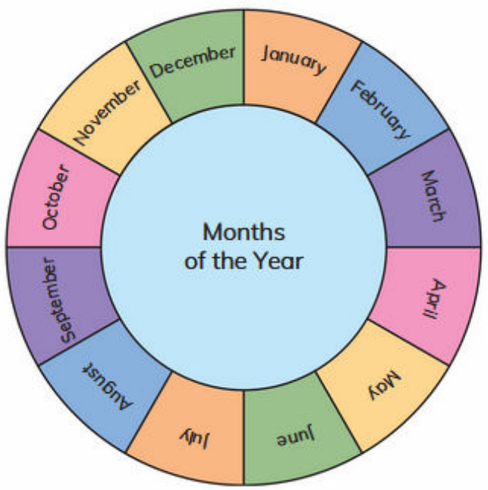


Look more closely at the position of the hands on a clock. Many years ago, clocks only had one hand.

The days of the week and the months of the year always come in the same order, just like numbers.

month year

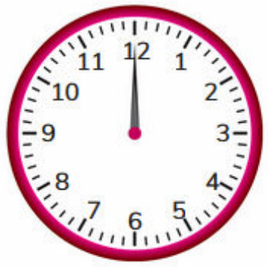




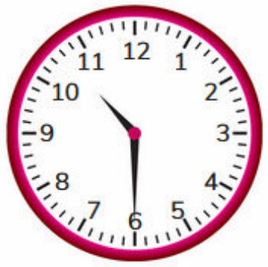
Exercise 15.1

1 What time is it?

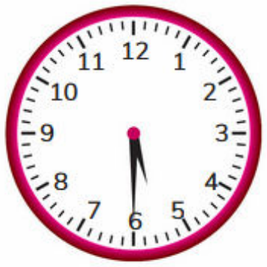
Write the time in words below each clock.



_____



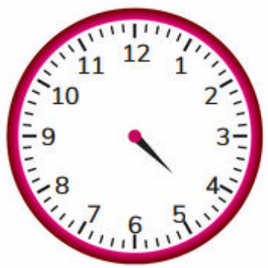
_____



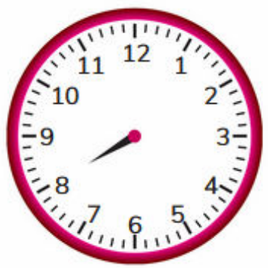
_____

2 What time is it?

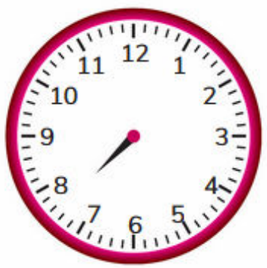
These clocks only have one hand.
Write the time in words below each clock.



_____



_____



_____

Is it easier to tell the time on a clock with one hand or two hands?

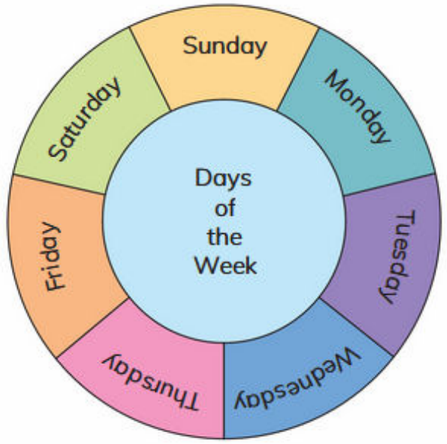
Why do you think that is?

3 Today is Monday. What day will it be **tomorrow**? _____

Today is Friday. What day was it **yesterday**? _____

Today is Thursday. What day will it be in 2 days' time? _____

Today is Monday. What day was it yesterday? _____



4 Complete these sentences.

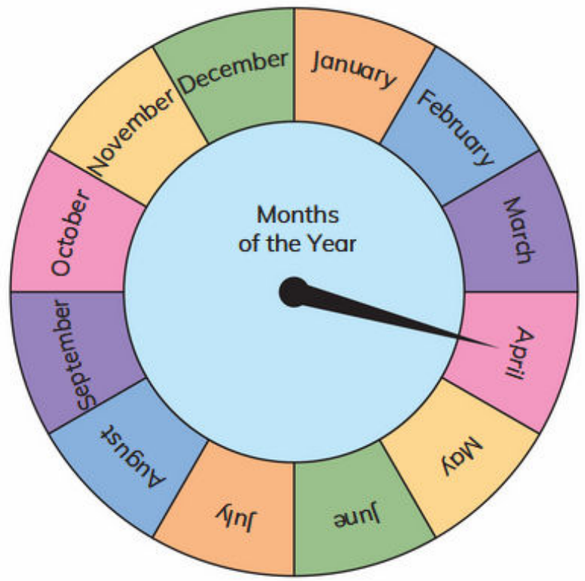
There are _____ days in a week.

Two days of the week begin with S.

They are _____ and _____.

Worked example 1

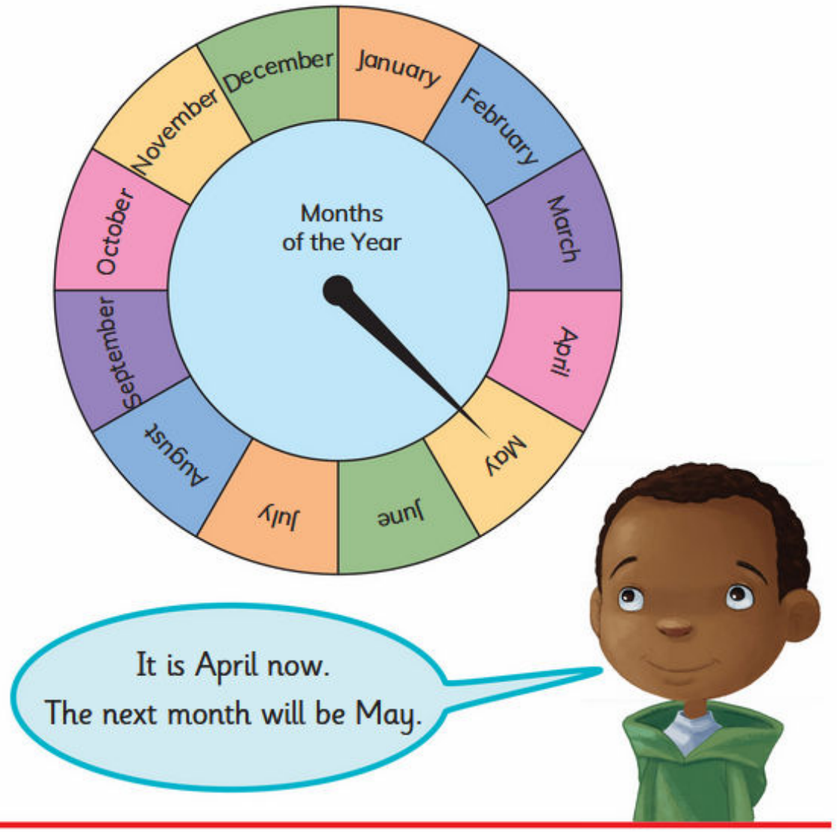
It is April. Which **month** will it be next?



_____

Continued

Answer:



5 It is February.

What is the next month? _____

It is August.

Which month was it last month? _____

It is October.

Which month was it last month? _____

6 Complete these sentences.

There are _____ months in a year.

Two months begin with the letter A.

They are _____ and _____.

Let's investigate

What is your age in months and years?

Use your months of the year wheel to help you find out.

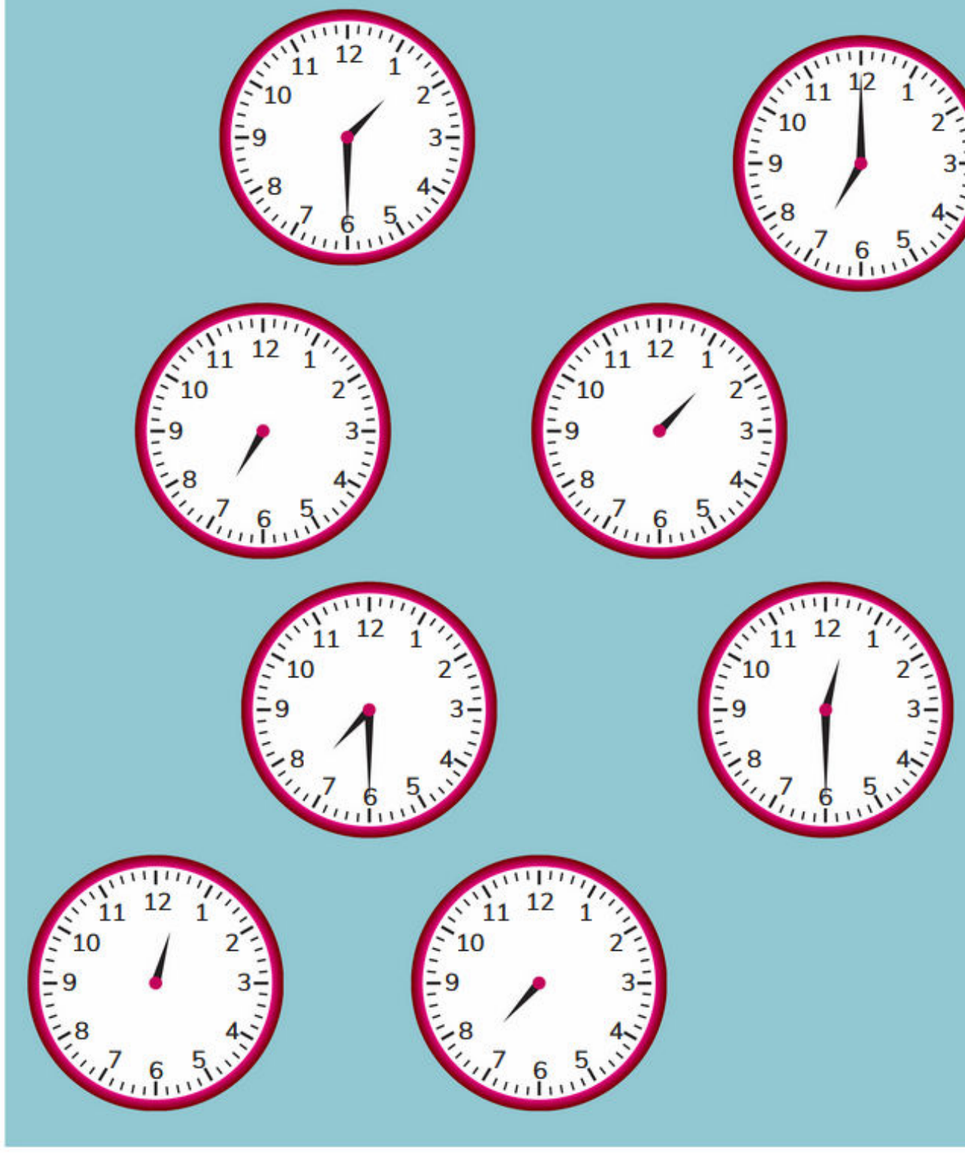
Are you older or younger than Zara?

Look what I can do!

	😐	😊
• I know the positions of the clock hands for o'clock and half past times.	○	○
• I know the days of the week and the months of the year.	○	○
• I can use a days of the week wheel and a months of the year wheel to help me answer questions.	○	○

Check your progress

1 Draw lines to match the times that are the same.



Continued

2 Complete the sentences.

Today is Tuesday.
Yesterday was _____ and tomorrow will be _____.

Today is Friday.
Yesterday was _____ and tomorrow will be _____.

3 Here are the days of the week and the months of the year.
Find the 12 months of the year.
Draw a ring around each month.

July
Tuesday
November
Sunday
May
June
January
Thursday
September
Monday
March
Wednesday
Saturday
August
April
Friday
December
February
October

16 Position, direction and patterns

Getting started

Where is the  in the queue? _____

Who is between the  and the  ? _____

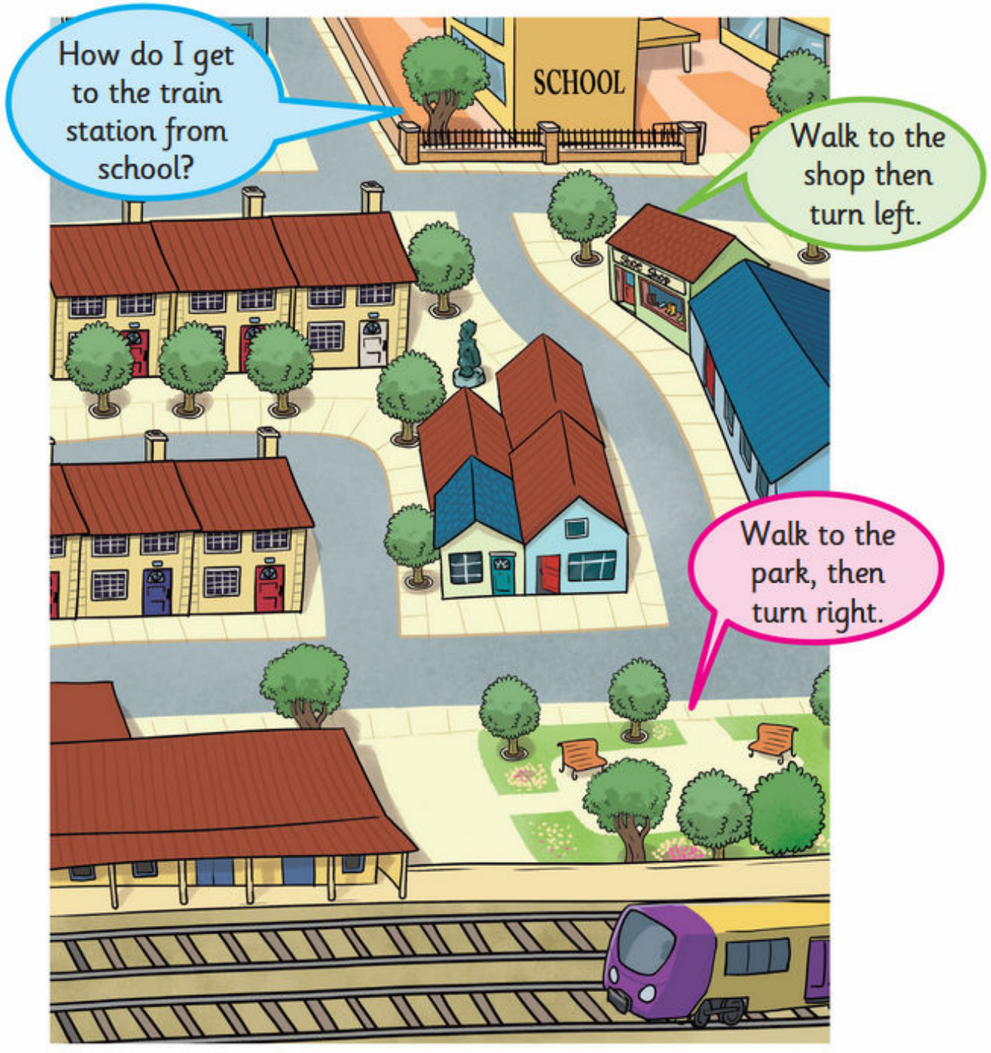
Where is the  in the queue? _____

Who is between the  and the  ? _____

Where is the  in the queue? _____

Who is between the  and the  ? _____

Where is the  in the queue? _____



You are learning about position, pattern and direction so that you can use them during your everyday life.

You need to be able to find your school, the shops or the park.

If you don't know when to turn left or right you will walk a straight line forever!

16.1 Position, direction and patterns

We are going to ...

- use words to describe and continue patterns
- use words and actions to describe direction
- use words to describe position.

A sequence is a list of objects or numbers that are in a special order.

This order could be going forwards or backwards.

A sequence has a rule.

Sometimes it can have two rules.

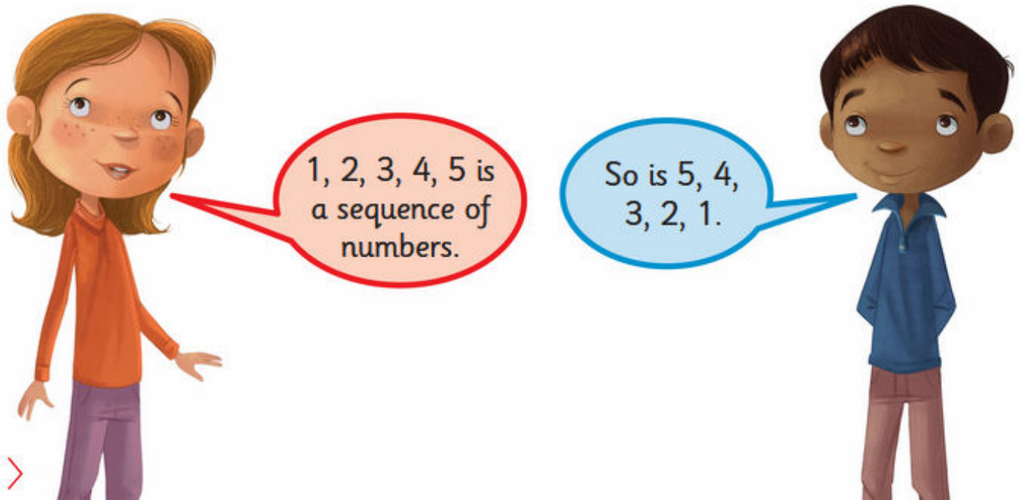
Sequences and patterns have rules that we need to understand so we know what comes next.

Patterns are everywhere.

We see them on our clothes, on our walls, on our buildings and on flowers and trees.

We see lots of patterns in maths too.

left right sequence



Exercise 16.1

1 Describe the pattern that you can see.

Draw a repeating pattern of your own. Describe it to a partner.

2 Look at the row of learners.

Draw the next 2 learners at the end of the row.

Keep the pattern of their arms the same.

Make your own pattern using arms.

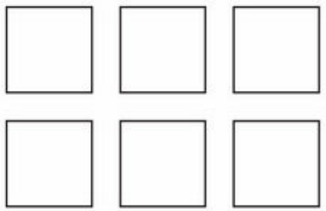
3 Draw and colour your own pattern.

Use shapes or objects.

Worked example 1

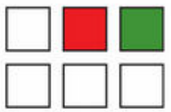
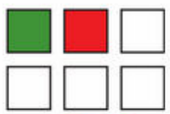
Use the clues to colour each shape.

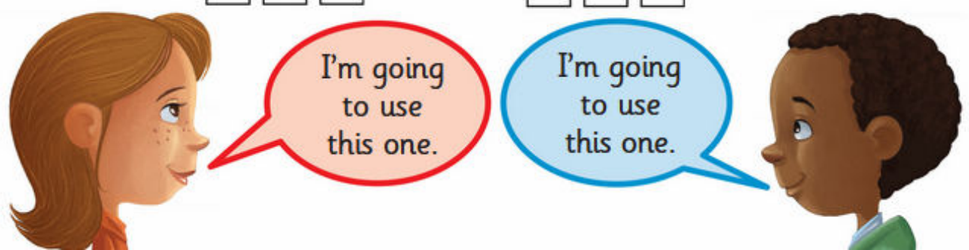
1. Red is next to green.
2. Green is above yellow.
3. Blue is between yellow and purple.
4. Purple is below orange.



Answer:

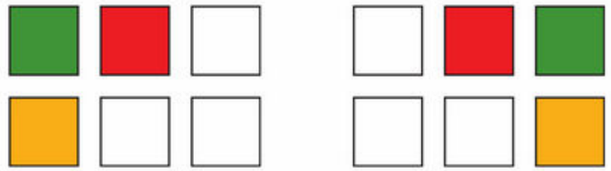
Red is **next to** green.

It could be this  or this  or something else.

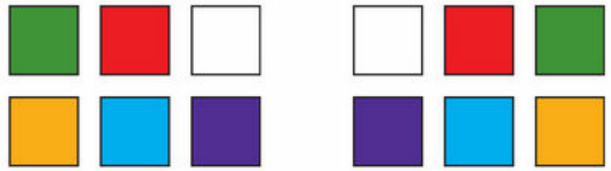


Continued

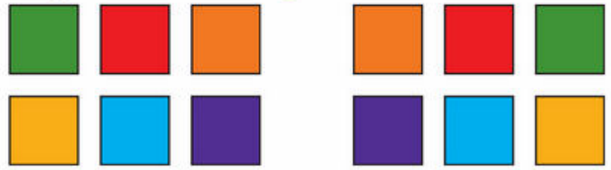
Green is **above** yellow.

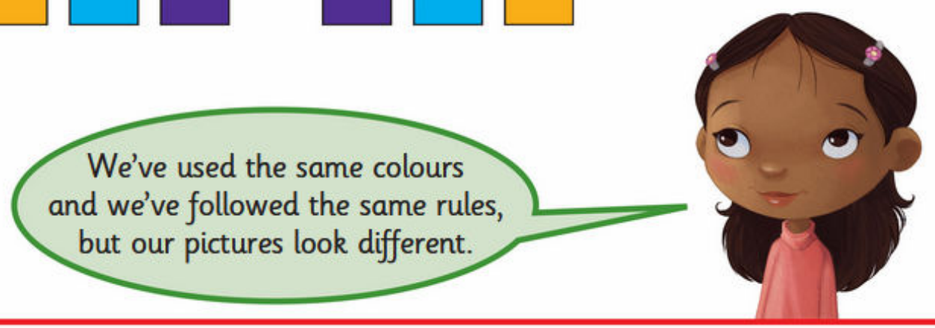


Blue is **between** yellow and purple.



Purple is **below** orange.





4 Work with a partner.

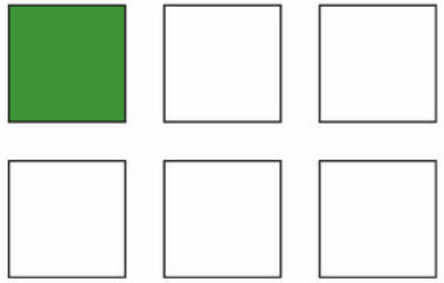
Solve the clues to colour the squares.

Orange is below green.

Yellow is between green and purple.

Yellow is above blue.

Red is next to blue.



5 Work with a partner.

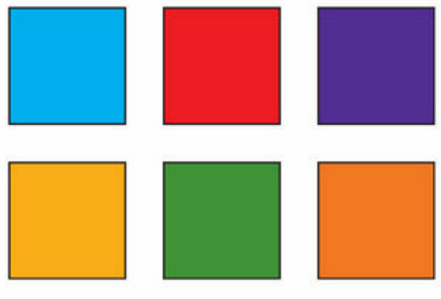
Fill in the missing words.

next to above below between

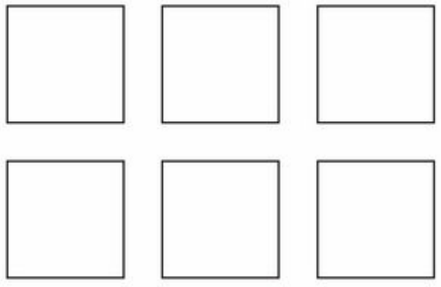
The green square is _____ the red square.

The blue square is _____ the yellow square.

The yellow square is _____ the blue square.

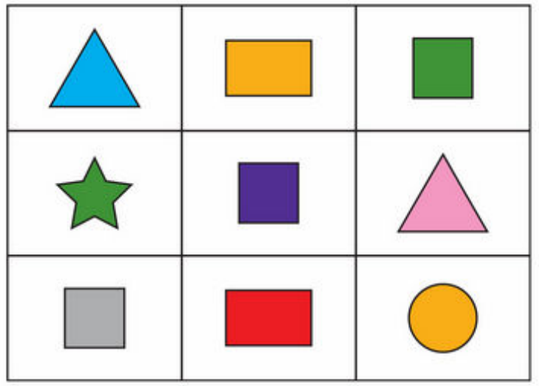


6 Make your own coloured squares puzzle.



Ask your partner some questions about your puzzle.

7 Look at this arrangement of shapes.



Draw the shape that is:

above the grey square

next to the yellow circle

below the green square

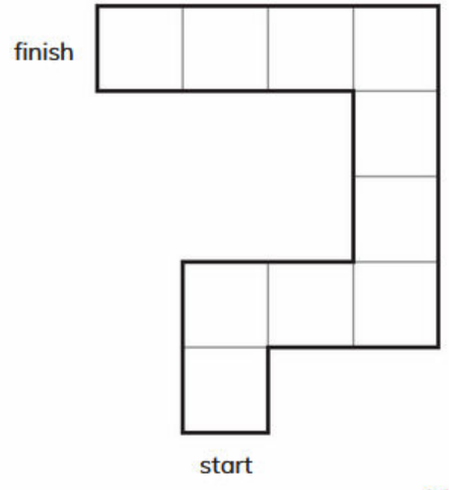
above the green star

between the blue triangle and the green square

8 Give directions to your partner to get from the start to the finish.

Each section is a step.

Start by taking 2 steps forward and then turn right.



9

Colour her left hand red.

Colour her right hand blue.

Colour her left shoe green.

Colour her right shoe yellow.

Colour the left flower red.

Colour the right flower yellow.

10 Work with a partner.

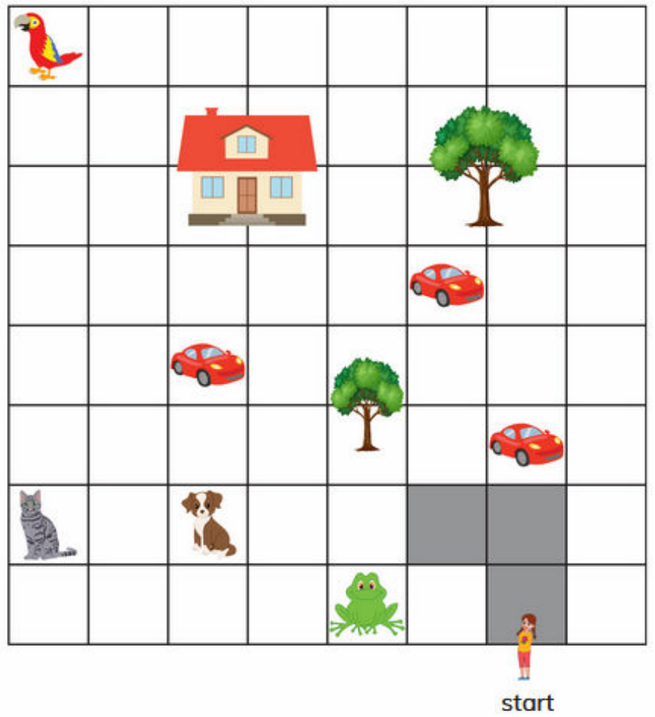
Colour the path Aisha takes to get to her house without bumping into objects.

The path has been started for you.

Find 2 other ways she could take.

Colour one green.

Colour the other one blue.



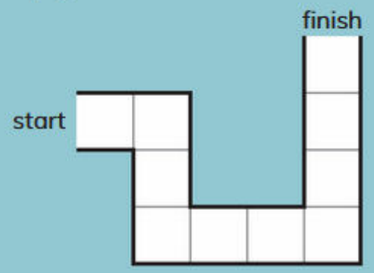
Can you tell someone else about the path to the house?
Can you use words like left and right?
What could help you to remember?

Look what I can do!

	😐	😊
• I can describe position using objects.	○	○
• I can describe direction using left and right.	○	○
• I can use language to describe patterns such as next to, between and beside.	○	○

Check your progress

1 Give directions to your partner to get from the start to the finish.
Use a small car to help you.



2 Where is Jack?

Follow the directions to take Jack on a journey.

Forward 2. Turn left.

Forward 1. Turn left.

Forward 2. Turn left.

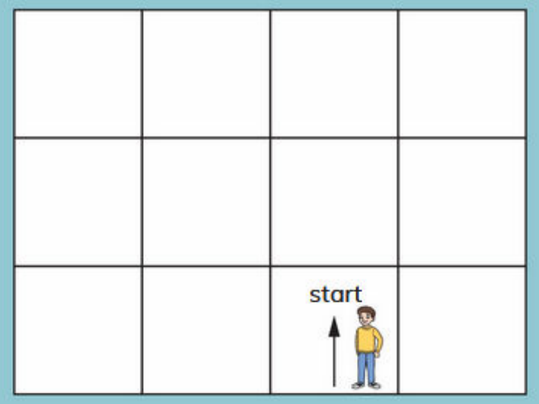
Forward 2. Turn left.

Forward 2. Turn left.

Forward 1. Turn left.

Forward 2.

Where is Jack?



Draw a picture of Jack at the end of his journey.

› Project 6

Finding drawers

Look at the drawers in this picture

Each drawer is labelled with what is inside of it.

Which drawer is the coloured paper in? _____

Can you describe the position of this drawer?

_____

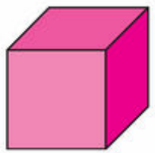
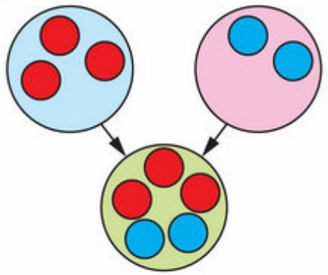
Where are the toy cars kept? _____

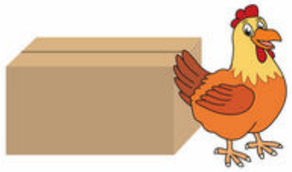
Where is this drawer compared to the drawer of paintbrushes?

_____

Talk to your partner and describe where some of the other drawers are.

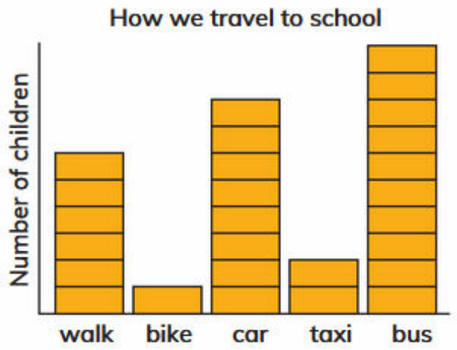
Glossary

$\frac{1}{2}$	the mathematical symbol for half	158
2D	a flat shape, such as a square 	37
3D	a shape that isn't flat, such as a cube 	37
above	over the top of something else – the chicken is **above** the box 	89
add	put amounts together to find how many altogether 	68

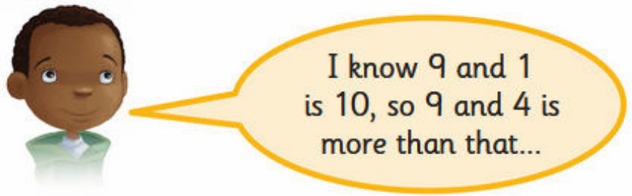
altogether	the total	68
balance scales	an instrument used to measure mass 	168
banknote	paper or plastic notes used as money 	198
behind	the chicken is **behind** the box 	89
below	the chicken is **below** the box 	89
beside	next to something – the chicken is **beside** the box 	89

between — in the middle – the chicken is **between** the boxes — 19

block graph — a graph that is made using blocks, each block represents the same amount of something — 204

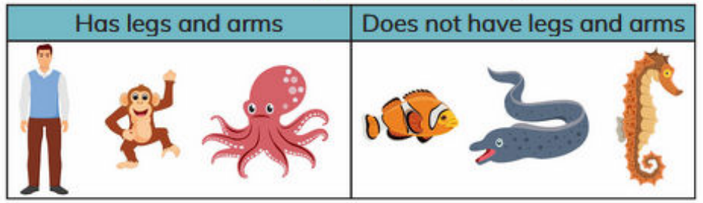


calculation — using mathematics to work something out, on paper or in your head — 76



capacity — the amount that something can hold – the jug has a bigger capacity than the cup — 167

Carroll diagram — a diagram that sorts objects into two groups — 204



circle — a round 2D shape — 42

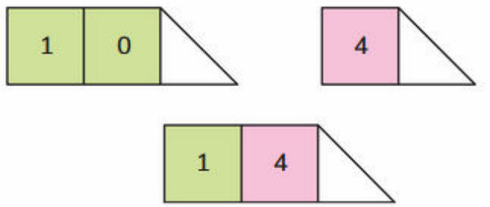
clock — an object that shows the time — 111

coin — thin metal disc used as money — 27

compare — check whether two things are the same or different — 22

complement — complements to 10 are the same as number bonds, or number pairs that total 10. 7 and 3 are complements to 10 because 7 + 3 = 10 — 180

compose — put parts of a number together to make the whole — 188

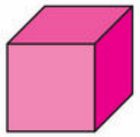


count — say the number names in the correct order, often to find out how many objects — 10

counting back — counting down from a larger number to a smaller number — 132

counting on — counting forwards from any number — 132

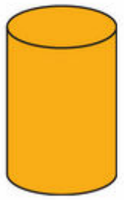
cube — a 3D shape with square faces — 32



cuboid — a 3D shape with rectangular faces — 140

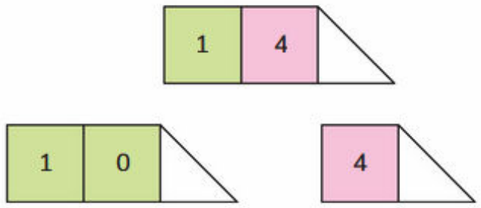
curved — not straight – a circle has curved sides — 38

cylinder — a 3D shape with 2 circular faces and a curved surface — 38



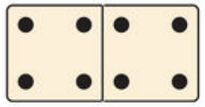
data — facts, for example, the heights of everyone in your class — 98

decompose — separate a number into its parts, usually tens and ones — 188

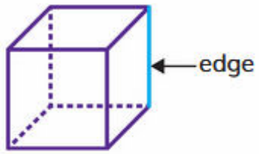


digit — 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 are all digits — 123

double — two lots of the same amount, for example double 4 is 8 — 194

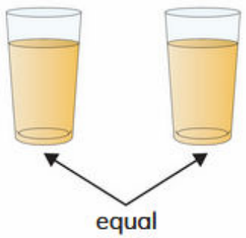


edge — where two surfaces meet — 38



empty — an object with nothing inside — 168

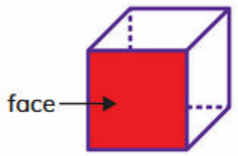
equal — the same as – these glasses contain an equal amount of juice — 22



estimate — a sensible guess, using what you know — 12

even — when a number of objects can be grouped in twos, that number is an even number — 31

face — a flat surface on a 3D shape — 38



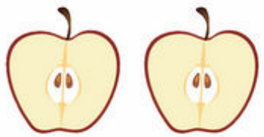
fewer — a smaller amount — 22

fraction — a part of a whole — 48

full — when an object cannot hold any more – this jug is **full** of juice — 73

group — a collection of objects — 98

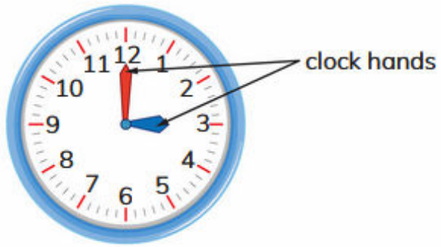
half — one of two equal parts — 49



half past — 30 minutes past the hour – this clock shows half past 7 — 111

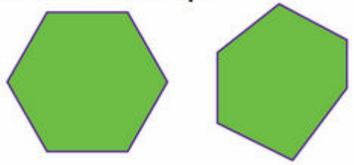
halve — to cut a whole into two equal parts — 158

hands — a clock has two hands which show the time, an hour hand and a minute hand — 111



heavy — weighs a lot – an elephant is heavy — 167

hexagon — a 6-sided shape — 147



hour — 60 minutes — 111

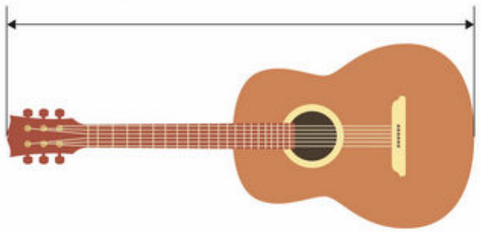
how many? — a question asking you to find out the number of objects — 12

in front of — the chicken is **in front of** the box — 89

label — writing showing what something is — 11

left — the shoe is to the **left** of the duck — 231

length — how long something is — 56



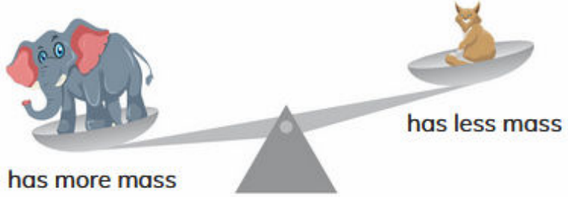
less — a smaller amount — 22

light — weighs very little – a feather is light — 168

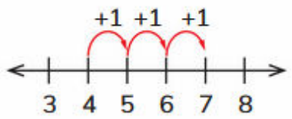
list — more than one object written in an order — 113

long — a long object has a large length — 57

mass — the quantity of matter in an object — 167



method — how you do something, for example counting on using a number line — 179



minute — a short amount of time — 111

money — coins and banknotes — 179

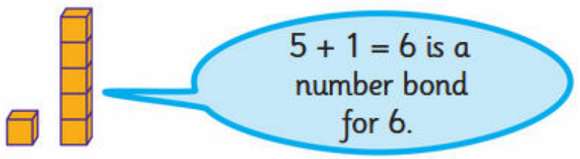
month — one of the 12 parts of the year — 222

more — a bigger amount — 22

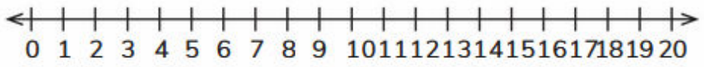
next to — beside – the chicken is **next to** the box — 56

number — a count, label or measure — 10

number bond — 69



number line — numbers in order and equally spaced along a line — 123



number track — the counting numbers in order, one number in each space — 20

1	2	3	4	5	6	7	8	9	10

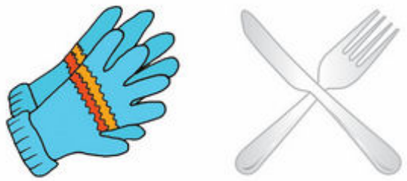
odd — one more or one fewer than an even number – 1, 3, 5, 7 and 9 are odd numbers — 31

on — the chicken is **on** the box — 11

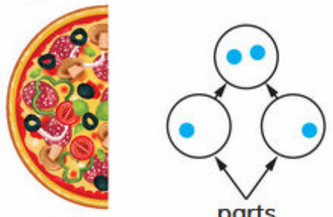
order — the arrangement of things in space or time — 12

ordinal — numbers that tell the position of things: 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th — 87

pair — two things that are the same or go together — 31

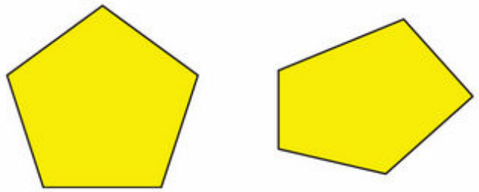


part — a piece of a whole — 48



pattern — a regular arrangement, often repeated — 31

pentagon — a shape with 5 sides — 147

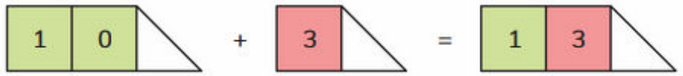


pictogram — a graph that is made using pictures, each picture represents the same amount of something — 204

Sunshine hours ☀ = 1 hour of sunshine

Friday	☀☀☀☀
Saturday	☀☀☀☀☀
Sunday	☀☀☀☀☀☀☀☀

place value cards — cards used to show the value of each digit in a number — 119



point — put a finger on or towards something — 19

position — where something is — 87

price — how much you need to pay to buy an item — 198

pyramid — a 3D shape where the sides are triangles which meet at the top and the base is a flat shape — 140

rectangle — a 2D shape with 4 sides, the opposite sides are equal in length — 42

regroup — separate a number into different parts. 5 can be regrouped into 2 + 3, 4 + 1, 1 + 2 + 2 and so on. — 180

right — the duck is to the **right** of the shoe — 19

rotate — to turn around a fixed point — 147

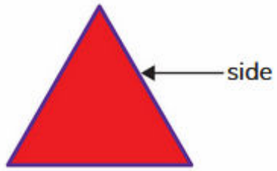
same — when we compare sets or numbers, both sets are equal in size, shape or value — 14

sequence — a list of objects or numbers in a special order — 232

set — a collection of objects that have something that is the same – here is a set of animals that all have spots or stripes — 10

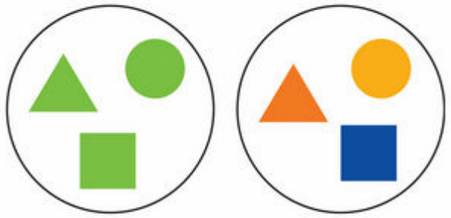
short — a short object has a small length or height — 56

side — the line joining each vertex to the next vertex on a 2D shape — 42



solve — work out the answer to a calculation, for example 2 + 3 = 5, 10 – 2 = 8 — 172

sort — to arrange a group in a special way — 38



sphere — a 3D shape with no straight edges — 38

square — a flat shape with 4 straight sides the same length — 42

straight — not curved or bending — 42

subtract — take a number or amount from another number or amount. Methods of subtraction include take away and counting back. — 78

table — an arrangement of facts and numbers in rows or blocks — 146

Flavour	Monday	Tuesday
chocolate 	8	4
vanilla 	5	8
strawberry 	12	6

take away — remove one or more things from a set — 78

tall — a **tall** object has a large height — 56

teen numbers — the numbers 11, 12, 13, 14, 15, 16, 17, 18, 19 — 119

temperature — a measured amount of heat — 167

thermometer — an instrument used to measure temperature — 173

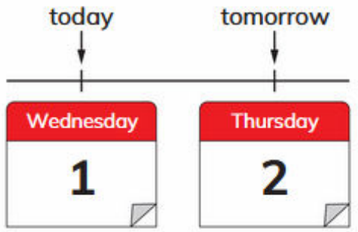
thin — a **thin** object has a small width — 57

title — the name of a graph, chart, diagram or book — 205

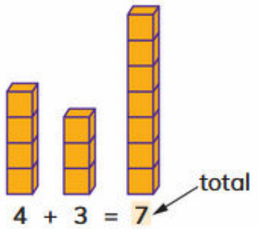
title → Sunshine hours = 1 hour of sunshine

Friday	☀ ☀ ☀ ☀
Saturday	☀ ☀ ☀ ☀ ☀
Sunday	☀ ☀ ☀ ☀ ☀ ☀ ☀ ☀

tomorrow — the day following today — 111



total — how many altogether — 12

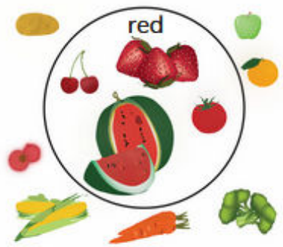


triangle — a 2D shape with three sides — 42

under — the chicken is **under** the box — 62

value — the amount marked on a coin or banknote is its value – the value of this banknote is $10 — 198

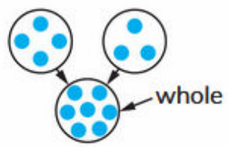
Venn diagram — a diagram used for sorting – here is an example of a Venn diagram that sorts fruits and vegetables into red and not-red sets — 97



week — seven days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday — 111

whole — all the parts of something — 33

whole

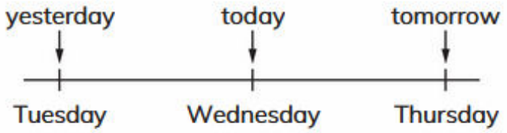


wide — a **wide** object has a large length from side to side — 57

word problem — a problem written in words rather than in a number sentence — 194

year — 12 months — 222

yesterday — the day before today — 111



zero: 0 one: 1
two: 2 three: 3
four: 4 five: 5
six: 6 seven: 7
eight: 8 nine: 9
ten: 10

number words to 10 — 27

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