

Mathematics

Grade 2

Learner's Book

Mathematics Grade 2 Learner's Book

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Contributors from Magic Moments Projects and Consulting

Nathi Makae, Madeline Trollope, Makgoshi Manyatshe, Allison Philander

Contributors from the Department of Basic Education

Gift Mfiki Ndaba, Avhafarei Edward Thavhanyedzai, Mlungiseleli Njomeni, Tiniko Trevor Dube, Leonard Gumani Mudau

Cover design by ACP Project Management and Publishing Services

Cover image by Paddy Visser

Illustrations by Will Alves, Paddy Visser, Heidi-Kate Greeff, Aidan Arrison and Cedric Philander

Layout and typesetting by Nazley Samsodien in ITC Stone Serif Std 10.5 pt over 13.5 pt

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How to use this book

Welcome to the *Mathematics Grade 2 Learner's Book*.

As you work through this book you will see the following features:

- At the start of each term, you will find a map. Your teacher will have some fun activities for you to do with it.
- There are **five content areas per term**. Each content area is colour-coded to help you find your way around.

Blue coded pages:

Numbers, operations and relationships

Take note boxes

Place value

Place value describes the **value** of a **digit** in a number.

Example
In Miss Prudence's example on the board, she has written 2 groups of 10. This means the value of the number is 20. She has also written 5 ones. This means the value of the number is 5. What is the number Miss Prudence is showing?

Answer
The number is 25.

Take note
In numbers, the digit in the tens position tells us how many groups of ten there are, and the digit in the ones position tells us how many ones there are. For example, in 25, there are 2 groups of ten and 5 ones.

Activity 5

1. Look at the numbers and write down the value of each digit in the displayed numbers.

Example

a)

b)

c)

d)

Build with three-dimensional objects (3D objects)

Three-dimensional objects take up space and have three dimensions: length, width and height. Here are examples of three-dimensional objects.

Prism	Prism	Sphere
Square faces. Can stack it. Can slide it.	Rectangular faces. Looks like a box. Can stack it. Can slide it.	Round sides. Looks like a ball. Can roll it. Cannot stack it.

Example
Can you stack the soccer balls?

Answer
No, you cannot stack the soccer balls. They are round. You can only stack objects that have flat sides.

Example
Why can you stack the prisms?

Answer
You can stack the prisms because they have flat sides.

Activity 15
1. Copy and complete the table.

	Name the 3D object	Can it slide or roll?
a)		
b)		
c)		

Purple coded pages:

Space and shape

Activities

Take note

You may not work through one topic at a time, and your teacher could decide that you will do work from another topic on a particular day.

Green coded pages:

Data handling

Example and answer boxes

Data handling

A pictograph uses pictures to display data. It is a visual way of displaying data and we can easily compare data using pictures or symbols.

Example

How to draw a pictograph.

Favourite season	
Spring	☺☺☺☺
Summer	☺☺☺☺☺☺
Autumn	☺☺☺
Winter	☺☺

Key: ☺ = 1 child

Example

Teacher Mary asked the learners to choose their favourite lunch snack. Use this information to answer the questions.

- Count the snacks and complete a pictograph to show the data. Use for one snack.
- How many learners were asked about their favourite snack?

Answer

1.

Favourite snack	
Snack	

Key: = 1 child

2. $3 + 4 + 3 + 2 + 1 = 13$

Yellow coded pages:
Measurement

Term



Measure capacity in litres

The litre is a unit of measure for capacity.
We write **l** for litre.

Example



The container on the right is a one litre bottle.
There is one litre of water in the bottle.

The one litre bottle can fill 6 cups with water.

Activity 14


- If a container that has a capacity of one litre can fill 6 cups:
 - What is the capacity of a container that can fill 12 cups?
 - What is the capacity of a container that can fill 18 cups?
- A 1½ litre can fill 6 cups. The same one-litre bottle can fill four cans, as shown below.

- The capacity of the can is [more than/ less than] the capacity of the cup.


- How many cans can fill a 2½ bottle?
- How many cups can fill a 2½ bottle?
- Which container, a can or a cup, would you use to fill a 3 l container? Explain.

- Juice is poured from the bottle into the glass as shown below.



The capacity of the bottle is (more/less) than the capacity of the glass.

- Water is poured from the bottle into the bucket.



The capacity of the bottle is (the same as/more than) the capacity of the bucket. Explain.

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Term 3

231

Red coded pages:
Patterns, functions and
Algebra

Learn about patterns

Patterns with objects, shapes and lines

Activity 13

- Use the match sticks or tooth picks to copy and extend the pattern twice.

- Describe the pattern.

- Copy and extend the pattern twice.

- The picture below is a cloth of a traditional Sotho dress.

- Describe the pattern you notice.

- Draw the pattern you observed in your classwork book.

Number patterns

Example
 Look at the number pattern.

200	195	190	185	180	
-----	-----	-----	-----	-----	--

- What is the next number in the pattern.
- Describe the rule for the pattern.

Answer
 a) 175 b) Subtract 5

Example

Number pattern	Rule	Proof
22; 24; 26; 28; 30	Add 2 or + 2	$22 + 2 = 24 + 2 = 26 + 2 = 28 + 2 = 30$
90; 80; 70; 60; 50	Subtract 10 or - 10	$90 - 10 = 80 - 10 = 70 - 10 = 60 - 10 = 50$

Activity 14

- Write the next number in each number pattern.
Then write the rule and the proof for the pattern.

a) 5; 10; 20; 25;
 Rule: _____ Proof: _____

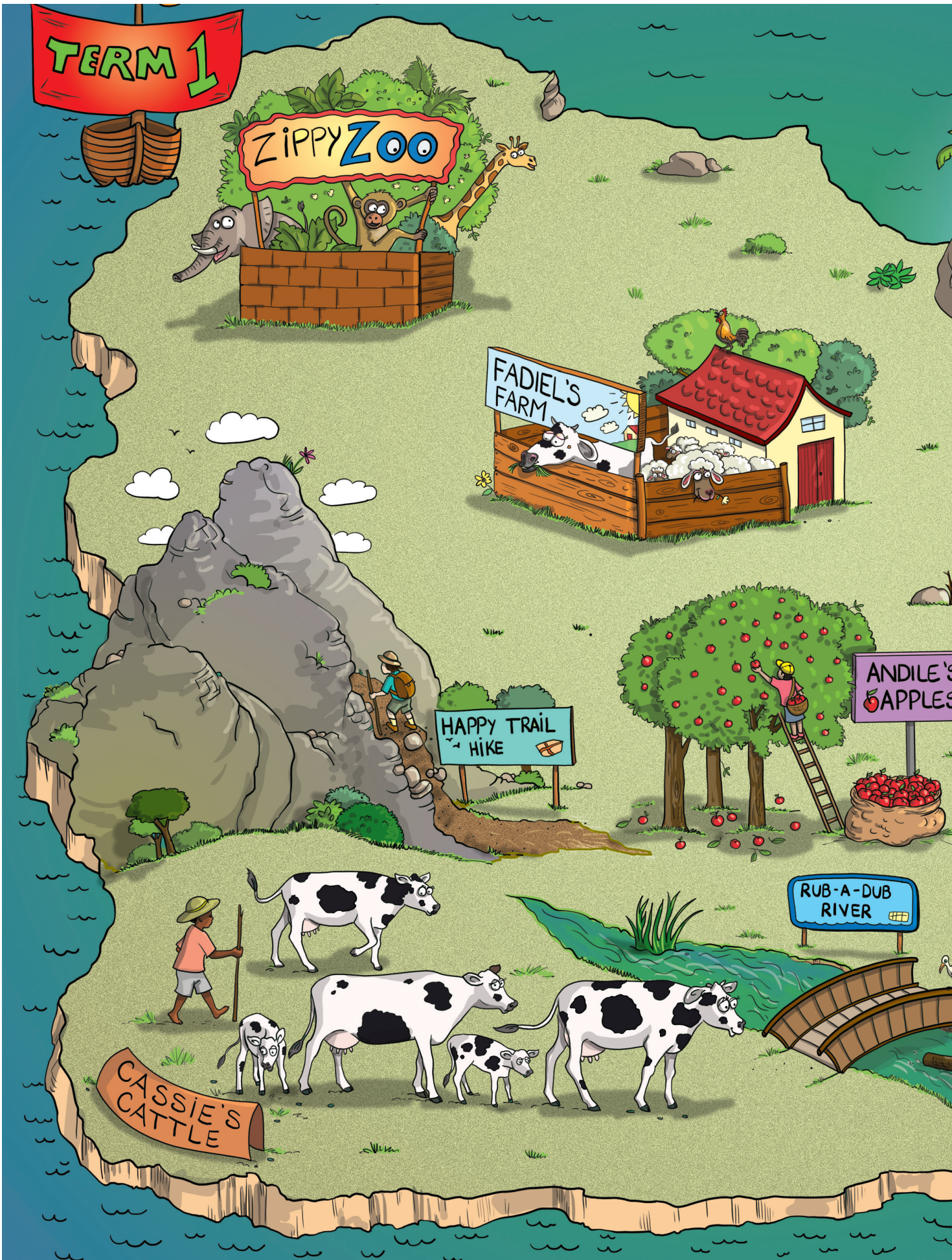
b) 23; 33; 43; 53; 63;
 Rule: _____ Proof: _____

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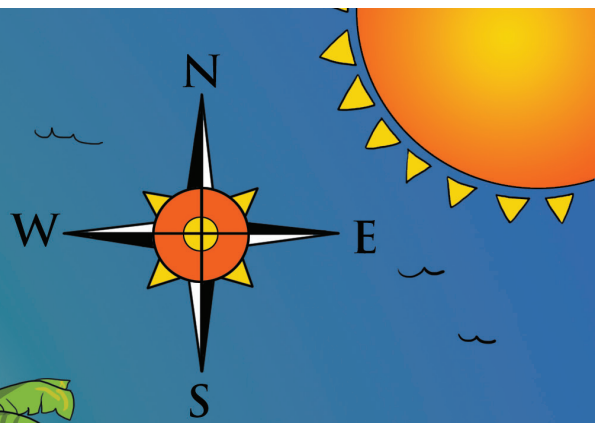
Term 4: Patterns, Functions and Algebra 295

- **New words and terms** have been highlighted in different colours. This indicates an important word or words that you need to know and understand. If you are unsure of what something means, ask your teacher to explain it to you.

We hope that you enjoy working through the activities in this book!



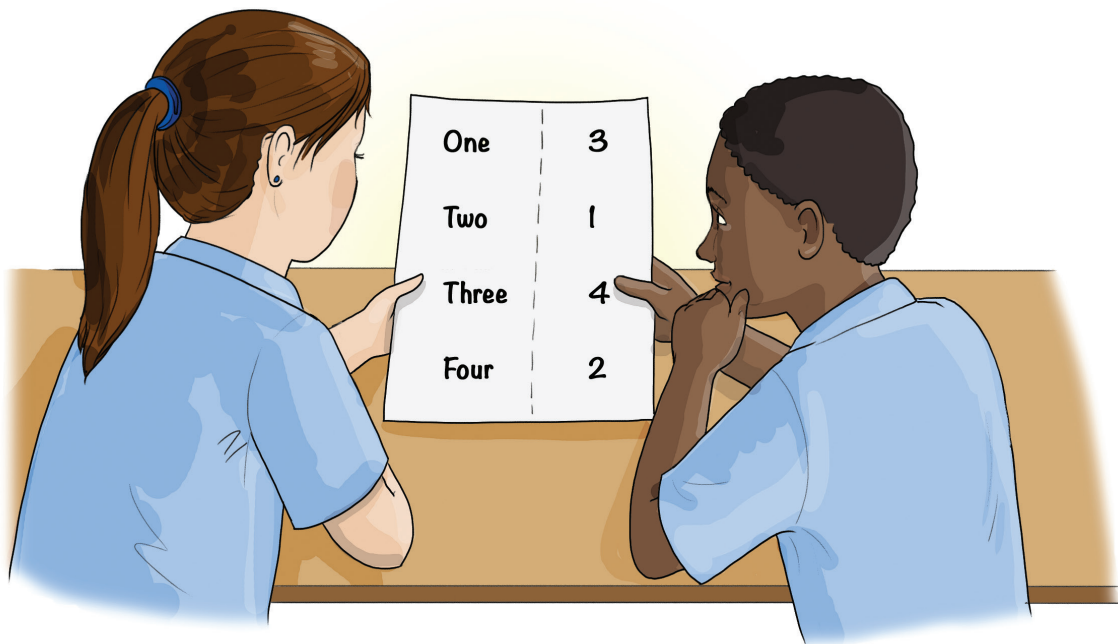
*Journey through a world filled
with Mathematics until we
reach Term 2!*



TERM 1



Number names and number symbols



Let's practise matching the number name to the correct number symbol.

Activity 1

1. Write the number sequence and fill in the missing number symbols.

a) 25; 24; 23; ; 21; ; ; 18; 17; 16;

b)

A red train engine with a yellow smokestack and blue wheels is pulling five green carriages. Each carriage has a white line for writing. Below each carriage is a number. The numbers are: 11, , 13, , 15, 16, , 18, , 20.

Carriage	1	2	3	4	5
Number	11	<input type="text"/>	13	<input type="text"/>	15
Word	sixteen	<input type="text"/>	eighteen	<input type="text"/>	twenty

2. Match the number name with the correct number symbol. The first one has been done for you.

Number symbol	Number name
e.g. 13	eight
7	fourteen
16	thirteen
9	seven
14	nine
8	sixteen

3. Copy and complete the table by filling in the blank spaces.

Number symbol	Number name
e.g. 4	four
6	
	ten
	seventeen
19	
	twenty-one
25	

4. Write the number symbols:
- between 40 and 50.
 - backwards between 80 and 60.
 - in 2s between 20 and 50.
 - backwards in 10s between 100 and 10.

Counting to 100



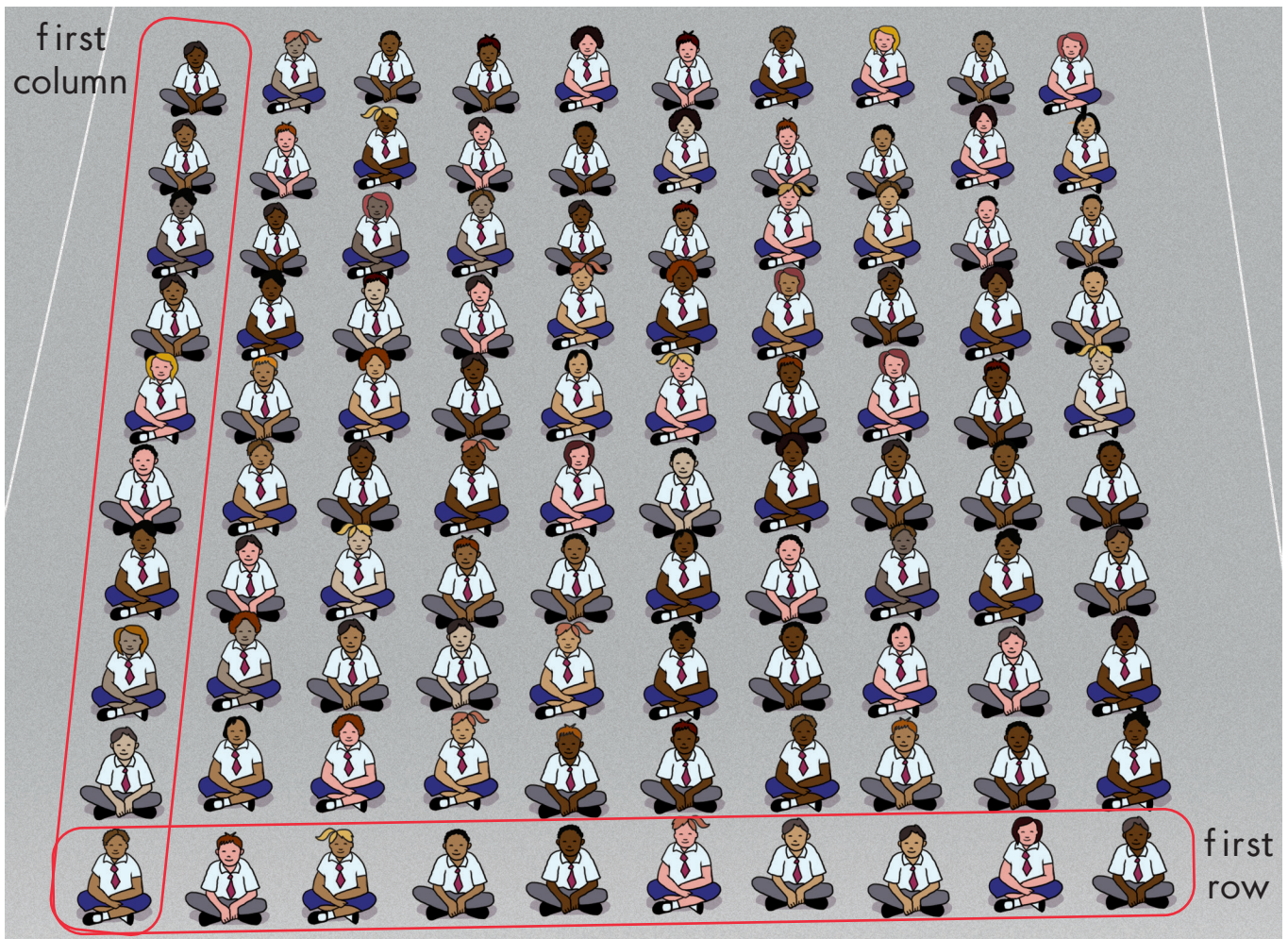
Look at the learners playing on the playground. Some are excited to be back at school with their friends, and others are still a bit shy.

Activity 2

- I.
 - a) Estimate how many boys are on the playground.
 - b) Estimate how many girls are on the playground.

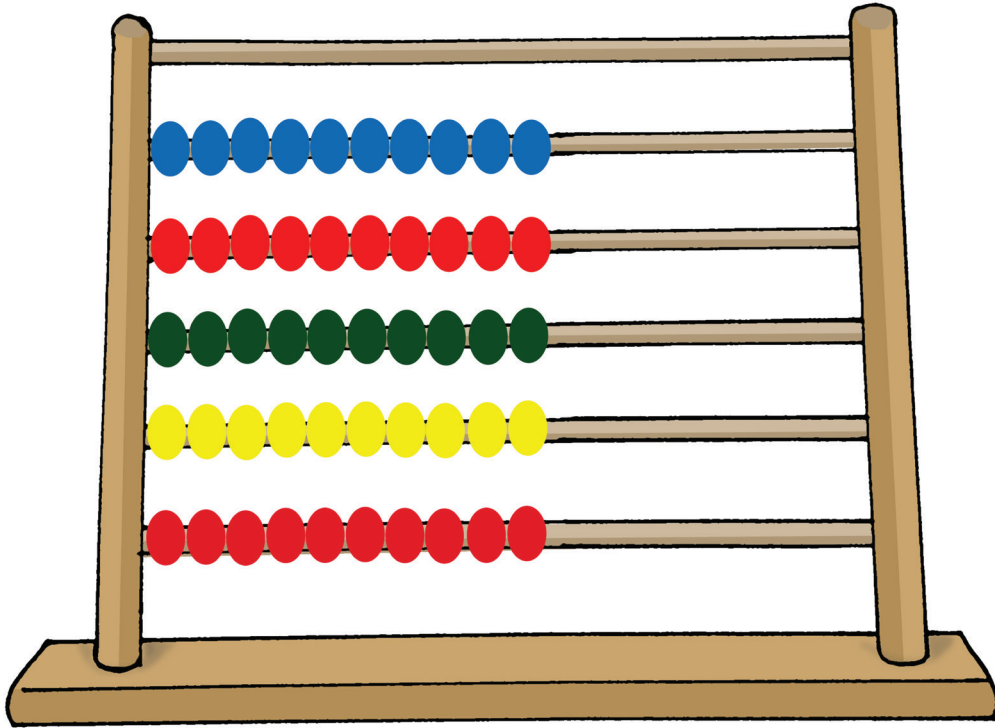
- c) Count how many girls are on the playground.
 - d) Count how many boys are on the playground.
 - e) How many learners altogether on the playground?
2. Count how many learners are:
- a) playing soccer on the soccer field.
 - b) standing behind the soccer poles.
 - c) cheering the players from the sideline
 - d) jumping up to head the ball.
3. For each group of learners, use counters and make groups.
- a) How many counters for learners playing soccer?
How many counters for learners standing behind the soccer poles?
How many altogether?
Write a number sentence.
 - b) How many counters for players jumping up to head the ball?
How many counters for players cheering from the sideline?
How many altogether?
Write a number sentence.
 - c) Make up your own number sentence and ask your friend to solve it.

We can count large numbers of objects by grouping them in twos, fives or tens. Look at the learners seated in the quad. You can count in tens to find the total amount of learners.



4. **Estimate** how many learners there are altogether.
5. Count the first row of learners.
How many learners are there?
6. Count the first column of learners.
How many learners are there?
7. How many learners are there altogether?

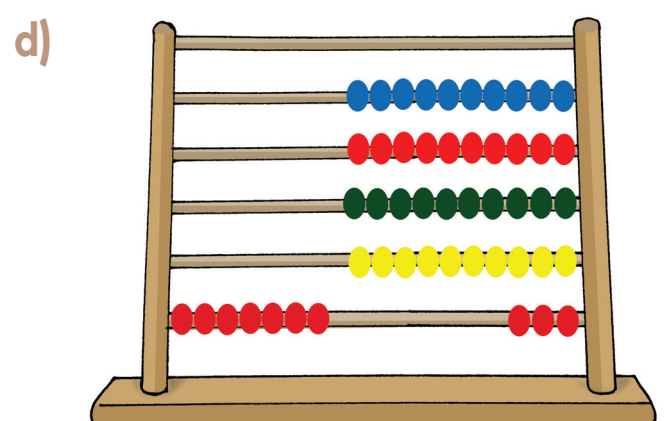
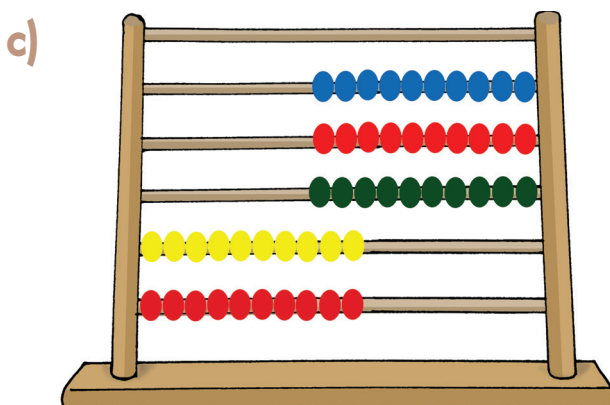
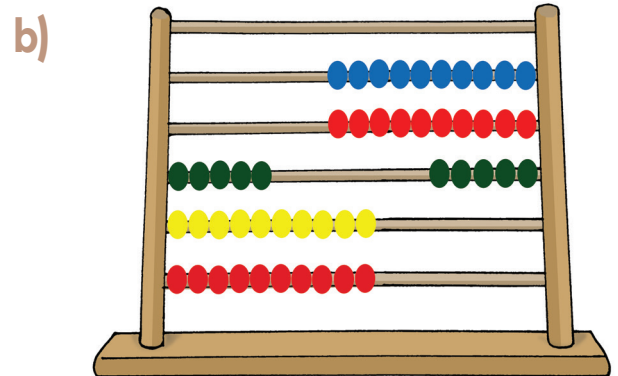
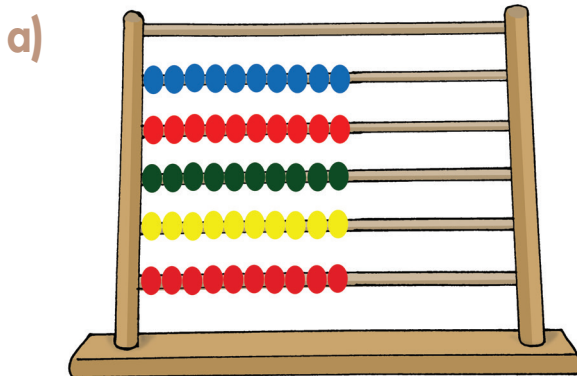
Let's use an abacus to count.



Each row of an abacus contains 10 beads.

You can count the beads one by one, in twos, in fives or in tens.

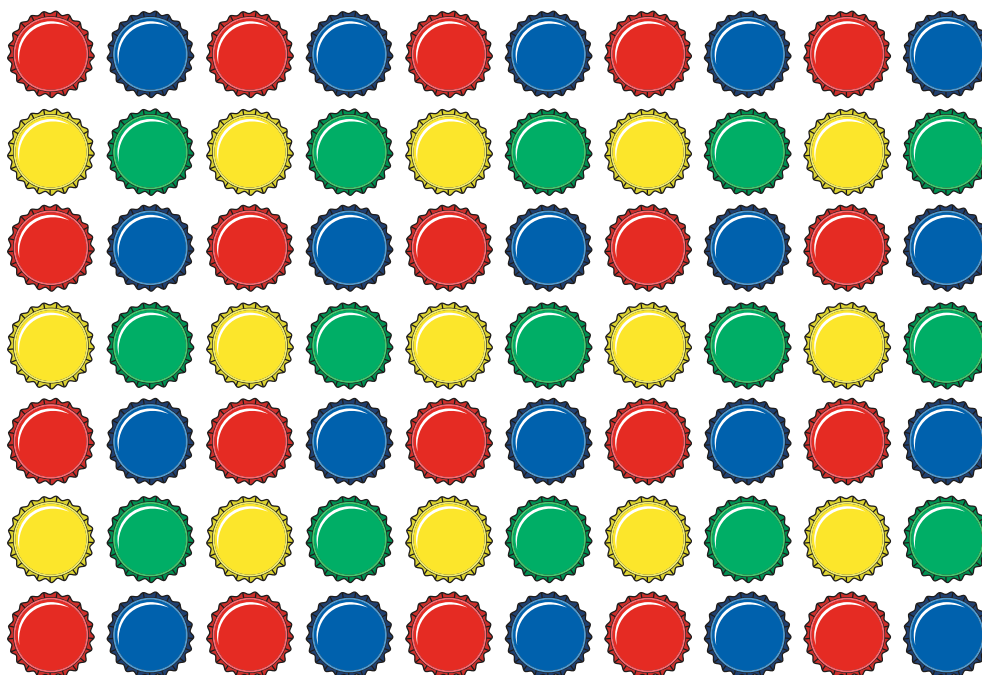
8. What number does each abacus below show?



9. Saskia wants to buy a book. She empties her money box. This is the money she has.



- Count the R1-coins. What is the total?
 - Count the R2-coins. What is the total?
 - Count the R5-coins. What is the total?
 - How much altogether?
10. Here are 70 counters.



If we count in 1s, 2s, 5s and 10s, will the total number of counters still be the same? Why do you say so?

Use skip counting



We count in 2s as follows:

2 4 6 8 10 12 14 16 18 20 22 24

This is called **skip counting**.

Skip counting helps us count faster and work problems out more efficiently.

We can also use skip counting with other numbers.

Let's revise skip counting in 2s, 5s and 10s.

Activity 3

1. Copy each sequence and fill in the missing numbers.

a) 1; 2; 3; ; 5; 6; 7; ; 9; 10

b) 6; 8; ; 12; 14; 16; ; 20; 22;

c) 55; 50; 45; ; ; 30; ; 20; 15; 10

d) 100; 90; 80; ; ; 50; 40; 30;

e) 1; 3; 5; ; 9; ; 13; ; 17; 19; 21

2. Complete by skip counting:

a) 2; 4; 6; ; 10; ; ; 16

b) 10; ; ; 40; 50; 60;

c) 30; 25; 20; ; ; 5

3. List the numbers from 30 to 20 by skip counting in 2s.

4. What pattern do you notice when you skip count in 10s? Tell your partner what your pattern is.

5. Copy and complete each number sequence.

a) 45; 40; 35; ; ; 20

b) ; 18; 16; 14; ;

c) 72; ; ; 42; 32; 22

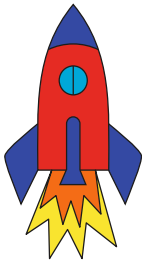
d) 60; 50; 40; ; ; 10

e) ; 85; ; 75; 70; 65

f) 100; 98; ; ; ; 90

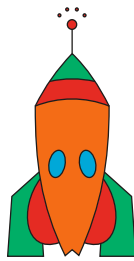
6. Copy and complete each number sequence.

a)



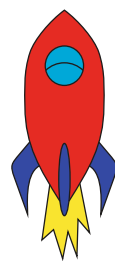
45
40
35
<input type="text"/>
<input type="text"/>
20

b)



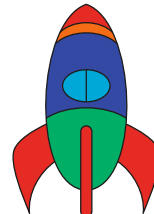
20
18
<input type="text"/>
14
<input type="text"/>
10

c)



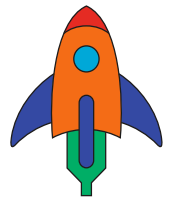
72
<input type="text"/>
<input type="text"/>
42
32
<input type="text"/>

d)



<input type="text"/>
40
30
<input type="text"/>
<input type="text"/>
0

e)



100
75
<input type="text"/>
25
<input type="text"/>

7. Look at the number grid below.

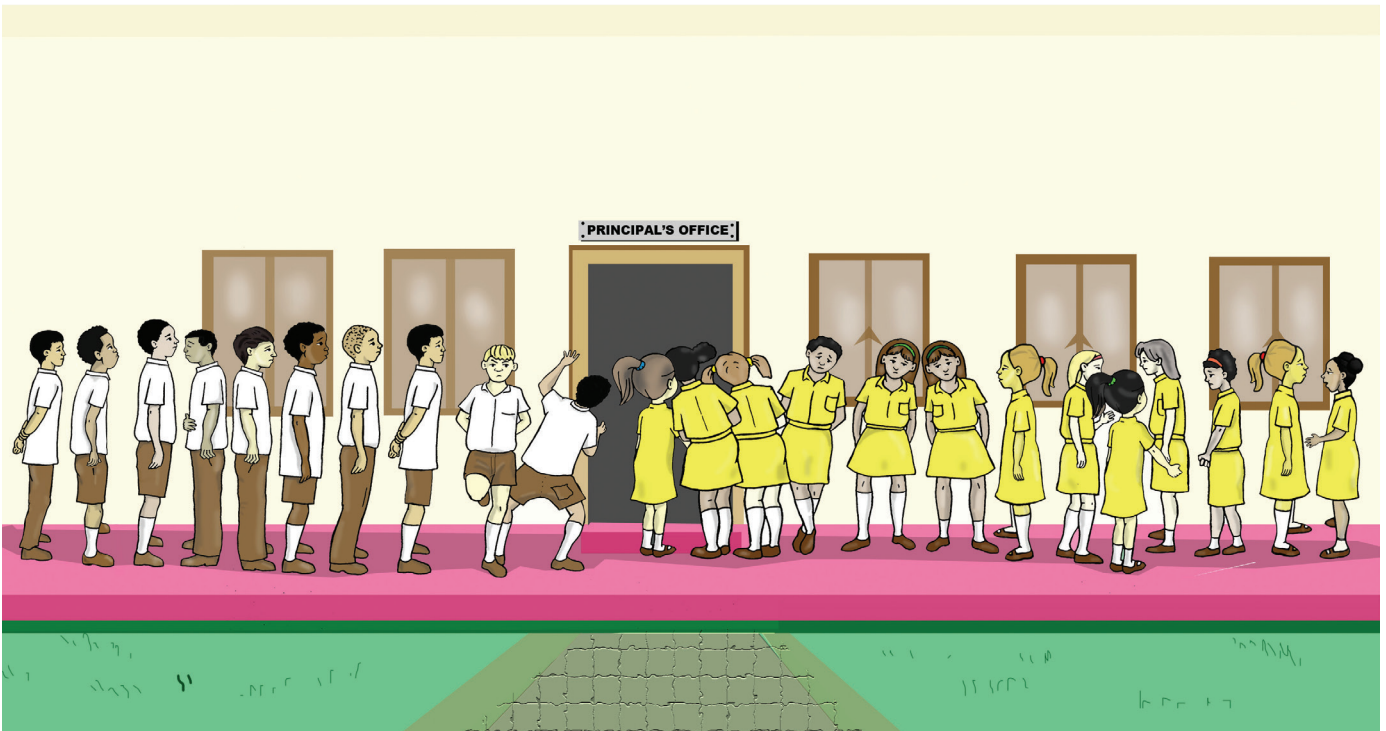


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	

Work with a partner.

- a) Count in 2s.
- b) Count in 5s.
- c) Count in 10s.

Describe, compare and order numbers



We use these words when we describe, compare and order numbers.

last

more than

first

before

next

equal to

greater than

after

between

smaller than

less than

as many as

Activity 4

Look at the children standing in the line.

1. How many girls are lining up?
2. How many boys are lining up?
3. How many more girls are there than boys?

4. Some boys are wearing short school pants, and some are wearing long school pants.
- a) How many boys are wearing short school pants. Write the number in your book.
 - b) How many boys are wearing long school pants. Write the number in your book.
 - c) Choose the correct word: The boys wearing short pants are **more than** / **less than** / **equal to** the boys wearing long pants.
5. Choose the correct words for each statement:
- a) There are **as many** / **more** girls with long socks than girls with short socks.
 - b) The boy looking into the office is standing **before** / **after** the boy standing with his leg against the wall.
 - c) The twin girls are in the fifth and sixth position. The girl with the short hair is **before** / **after** / **between** the twins.
6. Arrange the following numbers in the correct order:
- a) from smallest to greatest:
23; 18; 15; 21; 25; 17; 24; 16; 19; 20; 22
 - b) from greatest to smallest:
25; 18; 12; 3; 6; 15; 22; 16; 9

7. Complete:

a) 10 more than 23 is .

b) 10 less than 23 is .

8. Here is a list of names.

Thando

Sindi

Yolandi

Wayne

Xander

Candice

Naeem

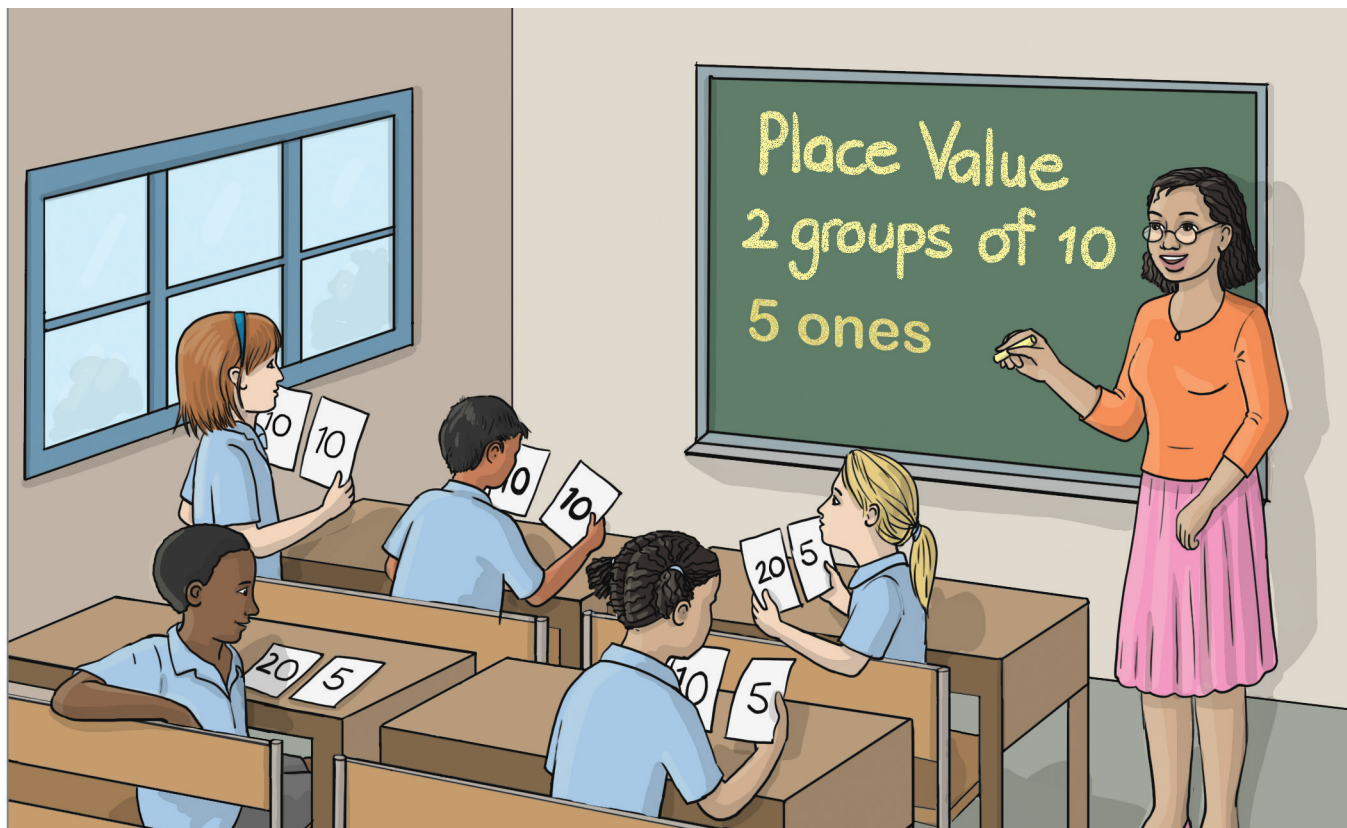
Ingrid

Bongi

Elroy

- a) What is the first name in the list?
- b) What is the last name in the list?
- c) What is the 5th name in the list?
- d) What is the 8th name in the list?

Place value



Place value describes the **value** of a **digit** in a number.

Example

In Miss Prudence's example on the board, she has written 2 groups of 10. This means the value of the number is 20. She has also written 5 ones. This means the value of the number is 5. What is the number Miss Prudence is showing?

Answer

The number is 25.

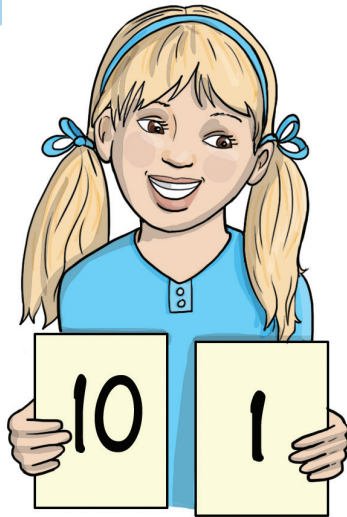
Take note

In numbers, the digit in the tens position tells us how many groups of ten there are, and the digit in the ones position tells us how many ones there are. For example, in 23, there are 2 groups of ten and 3 ones.

Activity 5

1. Look at the numbers and write down the value of each digit in the displayed numbers.

Example

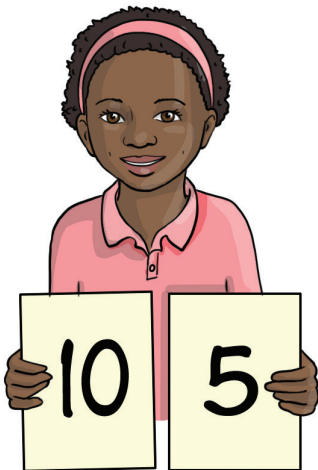


10	1
----	---

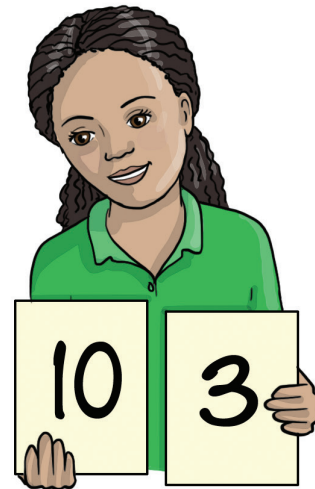
$$10 + 1$$

$$= 11$$

a)



b)



c)



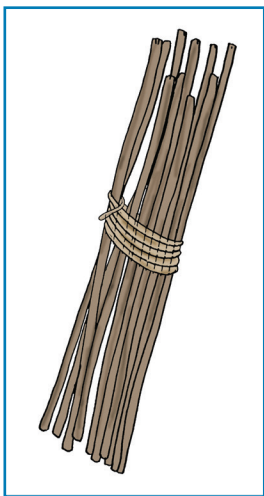
d)



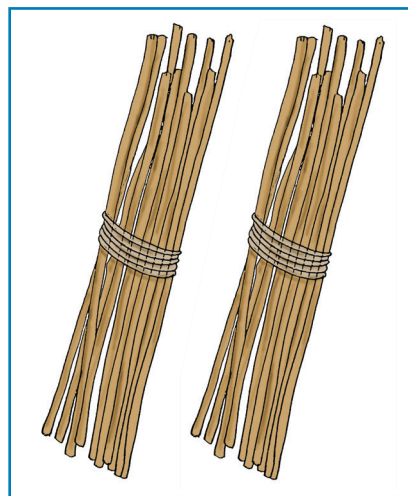
Use your knowledge of place value to solve the following problems:

2. How many groups of ten?

a)

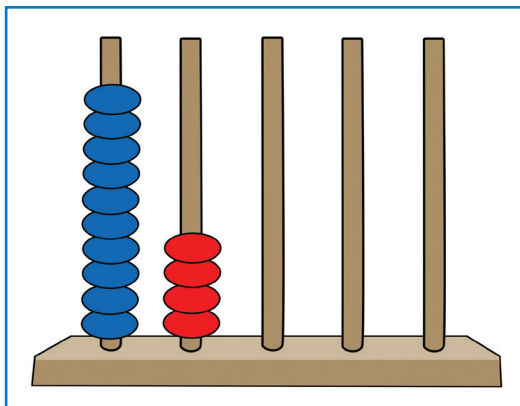


b)

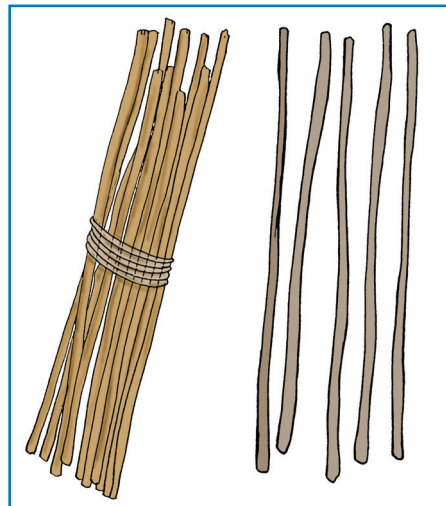


3. How many groups of ten and how many ones?

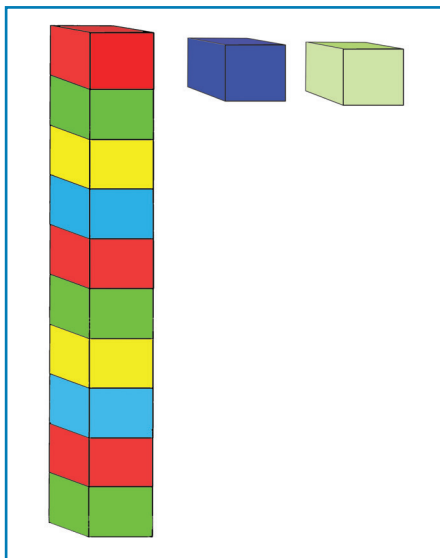
a)



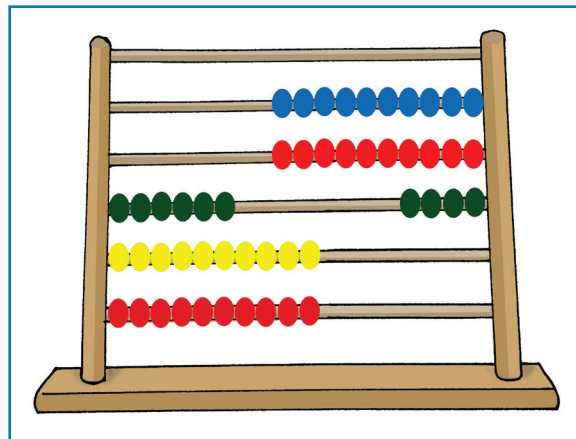
b)



c)



d)



4. What does the underlined digit in each number represent?

a) 12

b) 13

c) 11

d) 15

5. Fill in the missing number:

a) $13 = \square$ ten and \square ones

b) $14 = 1$ ten and \square ones

6. a) If the 6 in 16 was changed to a 9, by how much would the value change?
- b) If the 1 in 13 was changed to a 2, by how much would the value change?
- c) If the 5 in 25 was changed to a 1, by how much would the value change?
- d) If the 1 in 21 was changed to a 2, by how much would the value change?
- e) If the 2 in 23 was changed to a 1, by how much would the value change?

Problem-solving techniques



Break down and build up numbers

When we add or subtract numbers, we can **break down** the numbers. Breaking down numbers make them easier to work with.

When adding or subtracting numbers you can use place value to make the calculations easier. For example:

$$14 + 13 = \square$$

$$= (10 + 4) + (10 + 3)$$

$$= (10 + 10) + (4 + 3)$$

$$= 20 + 7$$

$$= 27$$

Let's look at a simple example.

Example

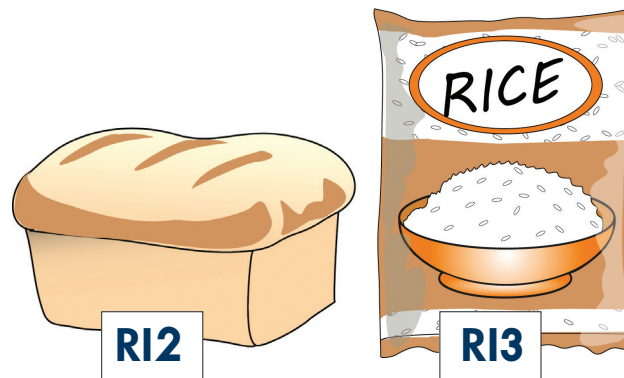
Sindi buys 6 pencils. She buys 4 more pencils. How many pencils does she have altogether?

Answer

$$6 + 4 \rightarrow 5 + 1 + 4 \rightarrow 5 + 5 = 10$$

Example

Mom buys the following items:



What is the total cost of both items?

Break down these numbers to help you solve this problem?

Answer

$$\begin{aligned} &12 + 13 \\ &= (10 + 2) + (10 + 3) \\ &= (10 + 10) + (2 + 3) \\ &= 20 + 5 \\ &= 25 \end{aligned}$$

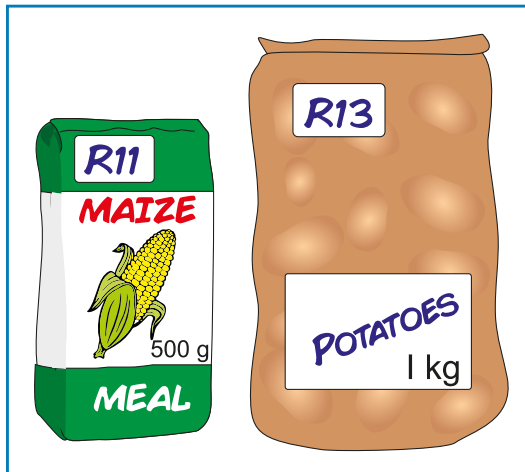
The cost of the items will be R25. Thus, $12 + 13 = 25$.

Activity 6

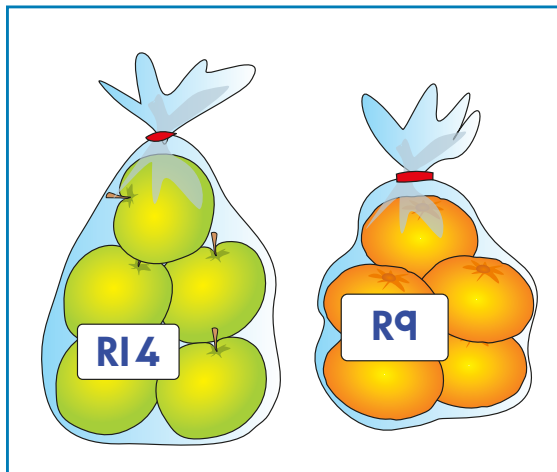
Use the breaking down and building up method to solve these problems:

1. Calculate the cost if you buy both items.

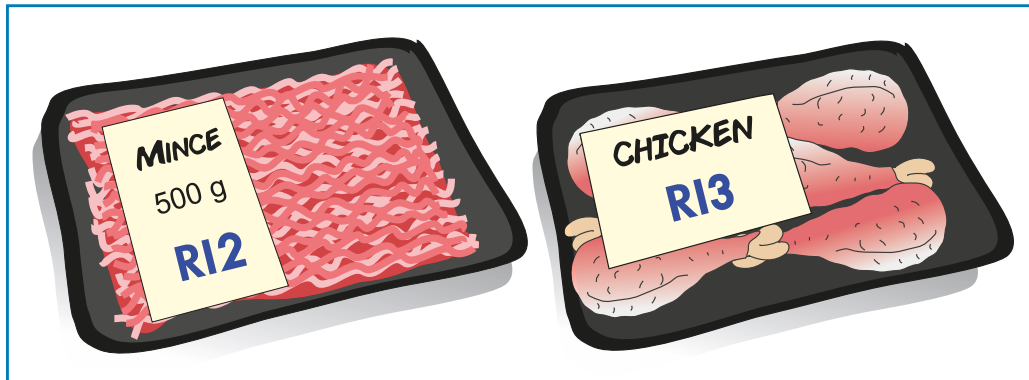
a)



b)



c)

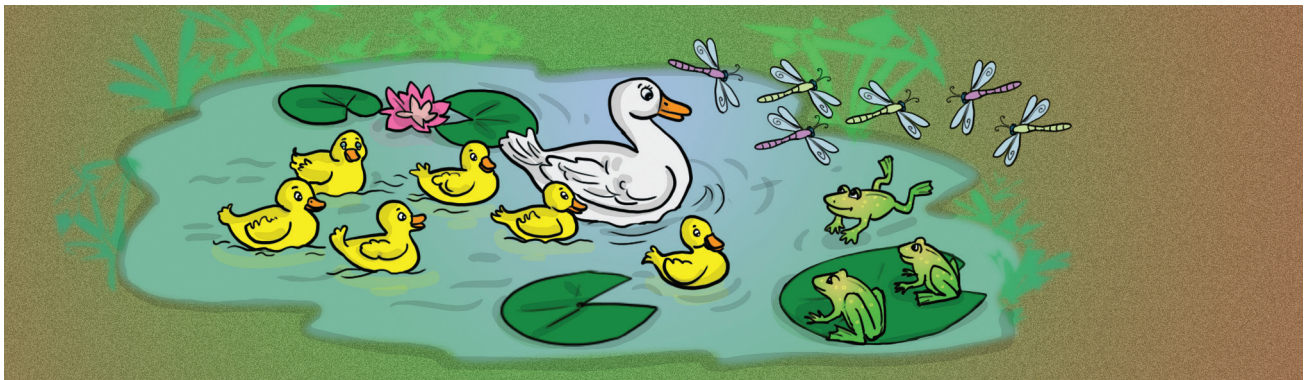


Use drawings or concrete apparatus to solve problems

You can draw pictures and use apparatus to solve problems.

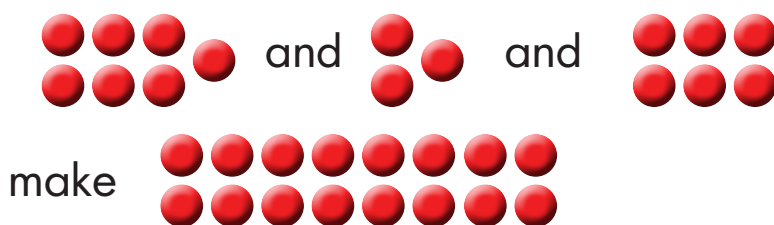
Example

At the lake, Amy sees 6 ducklings with their mother, 3 frogs and 6 dragon flies. How many animals did she see altogether?



Answer

Use counters or drawings to help you solve this problem.



2. At the store, mother buys half a dozen of rolls that costs R6, a piece of cheese that costs R8, and a half a loaf of bread that costs R6. How much does it cost altogether? Use counters or drawings to help you.
3. Tebogo wants to save money to buy his dad a birthday present. Every week he saves some of his pocket money. Week 1 he saves R14; week 2 he saves R16; week 3 he saves R8. How much did he save altogether?

Doubling and halving

Another way to calculate is by using **doubling** and **halving**.

When adding numbers that come after one another, use doubling and halving to help you.

$$5 + 6 = \square$$

Is the same as:

Double 5 plus 1

$$5 + 5 + 1$$

$$= 11$$

or

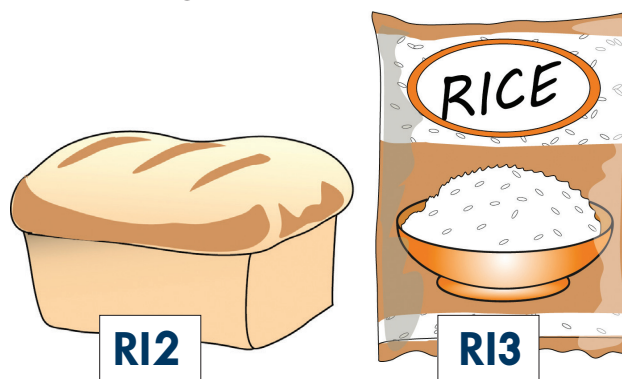
Double 6 minus 1

$$6 + 6 - 1$$

$$= 11$$

Example

Mom buys the following items:



What is the total cost of both items?

Use the doubling and halving method to solve this problem.

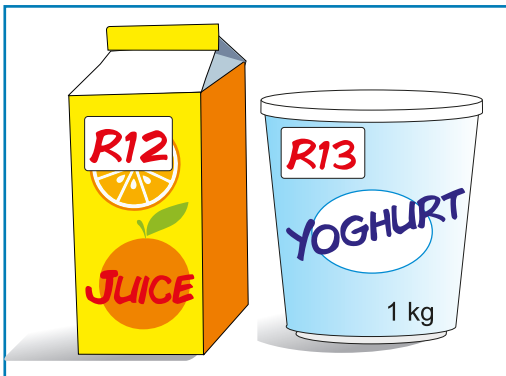
Answer

$$\begin{aligned}
 &12 + 13 \\
 &= 12 + (12 + 1) \\
 &= \text{Double } 12 + 1 \\
 &= 24 + 1 \\
 &= 25
 \end{aligned}$$

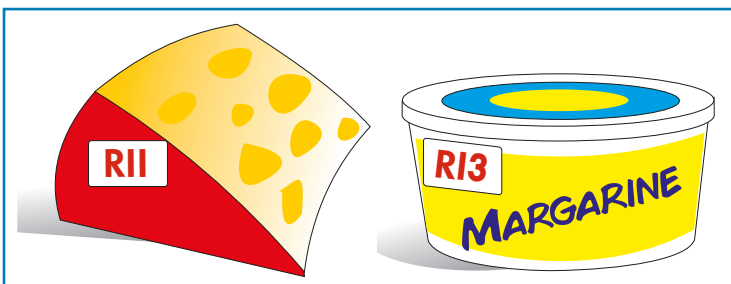
Activity 7

1. Calculate the cost if you buy both items.
Use the doubling and halving method to solve these problems.

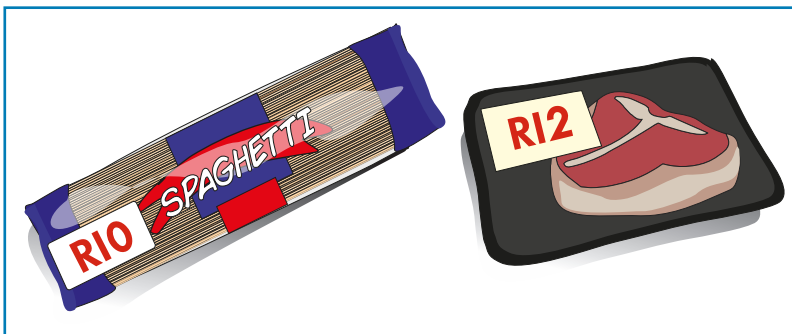
a)



b)



c)

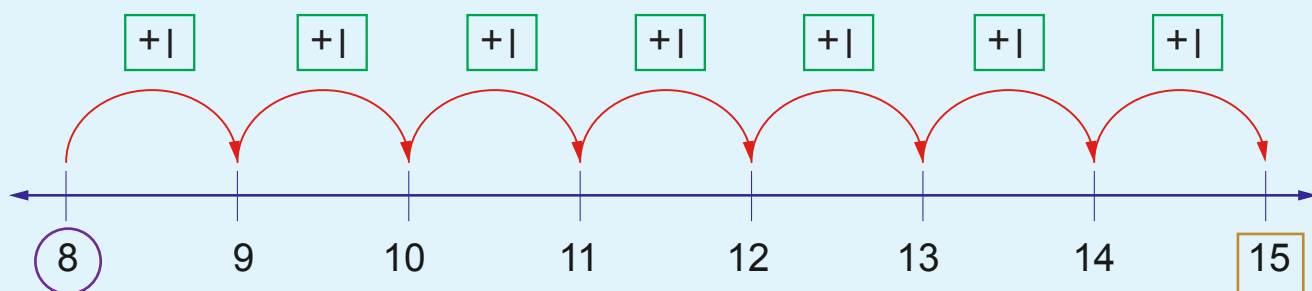


Using a number line to solve mathematical problems

When adding or subtracting numbers you can use a number line to solve the problem:

$$8 + 7 = \square$$

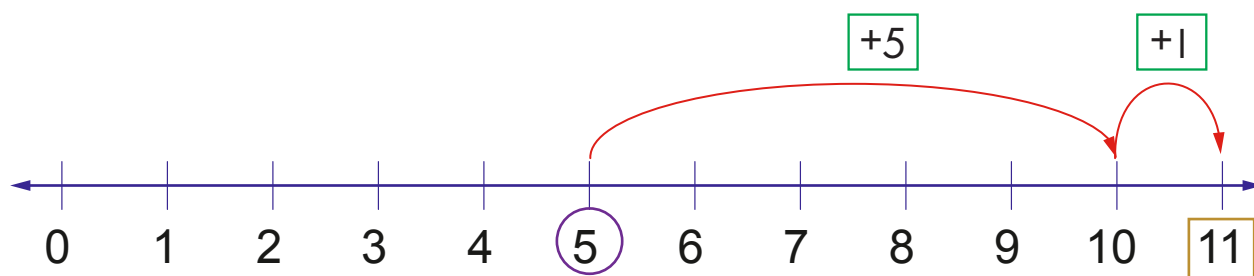
$$8 + 7 = 15$$



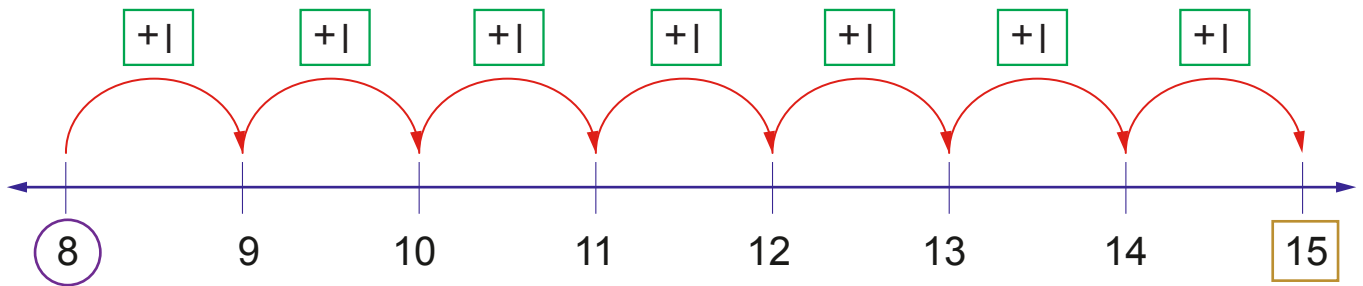
A number line is a **visual representation** of numbers.

The numbers are equally spaced, and they can go from smallest to greatest or the other way around.

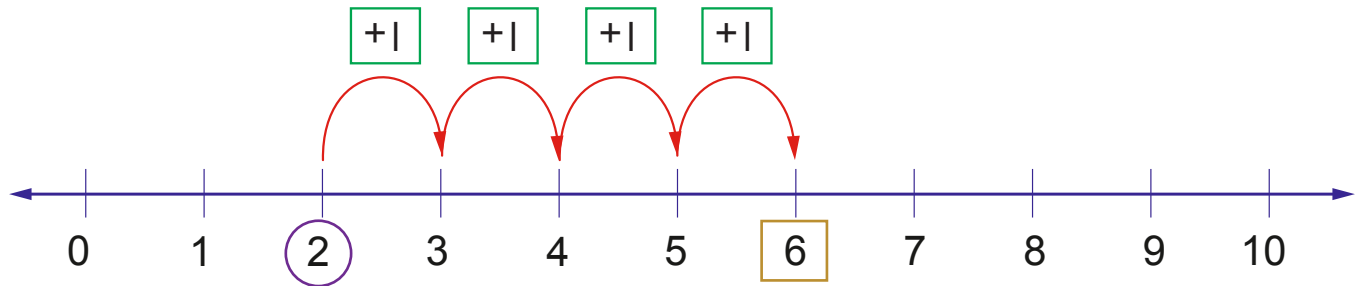
Here are some examples of calculations on number lines:



$$5 + 5 + 1 = 11$$



$$8 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 15$$

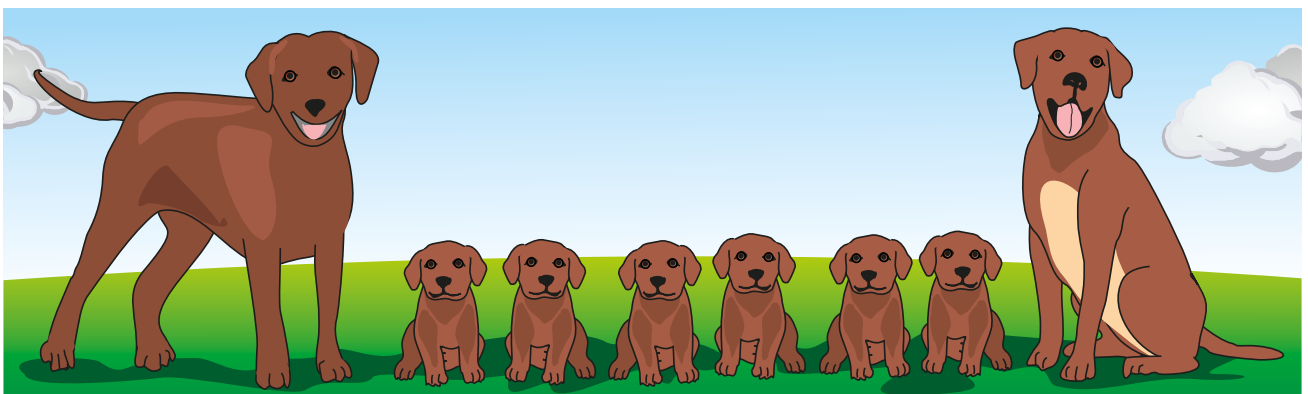


$$2 + 1 + 1 + 1 + 1 = 6$$

So, if you want to solve a mathematical problem, you can use a number line to help you.

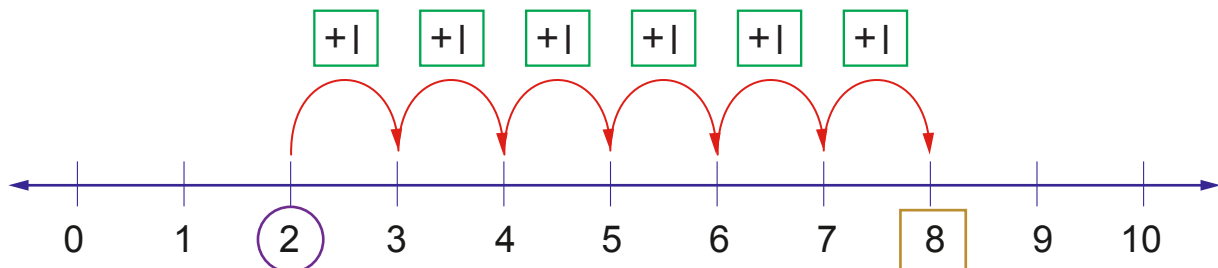
Example

Diego has 2 dogs. They have 6 puppies. How many dogs and puppies does he have altogether?



Answer

We can use a number line to help us find an answer to this problem.



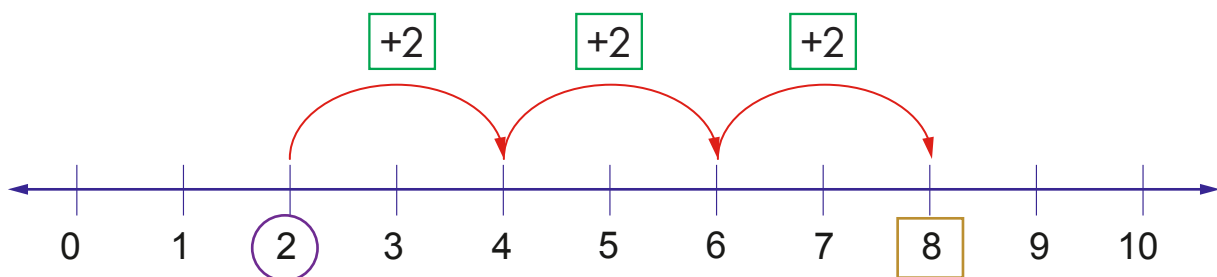
$$2 + 1 + 1 + 1 + 1 + 1 + 1 = 8 \text{ or } 2 + 6 = 8$$

Diego has 8 dogs and puppies altogether.

OR

Use the method of counting in 2s on a number line to solve these problems.

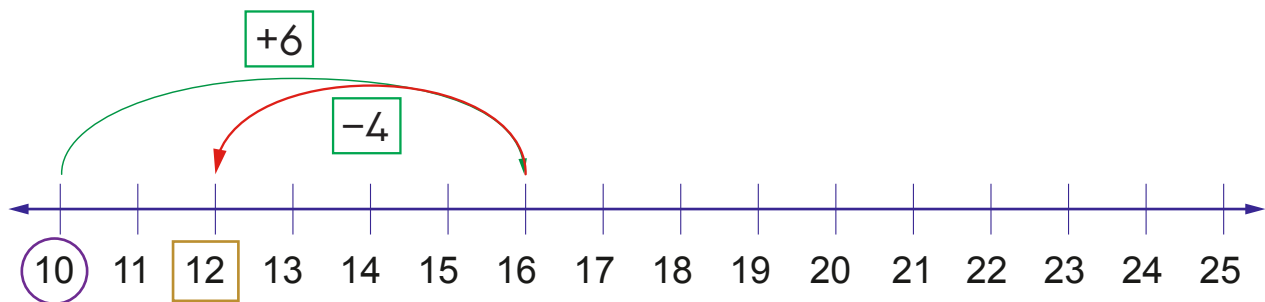
We are told that Diego's dogs had 6 puppies. 6 is made up of $2 + 2 + 2$. So instead of counting in 1s, we can count in 2s.



Diego has 8 dogs and puppies altogether.

Example

Use the number line to calculate $10 + 6 - 4$.

**Answer**

$$10 + 6 - 4 = 12$$

Activity 8

Use this method to solve these problems. Draw your own number lines:

1. Vusi and Thandi are playing with their building blocks. Vusi has 8 building blocks, and asks Thandi for 6 more. How many building blocks does he have altogether?
2. Ayanda and Peter are playing with their marbles. If Ayanda started off with 25 marbles, and he lost 12 to Peter. How many marbles does he have left?
3. Ayanda and Peter are playing with their marbles. Ayanda starts off with 13 marbles, and he wins 6 from Peter. How many marbles does he have altogether?

4. Lerato and Tebogo are playing a card game. In the game each player starts off with 10 cards each. Lerato has to play a hearts card but she does not have any hearts cards in her hand. She has to draw from the pack until she finds one. She draws 10 more cards before finding a hearts card. How many cards does she have in total?

Take note

For this problem, you could have used $10 = 2 + 2 + 2 + 2 + 2$

5. Use any strategy and calculate.

a) $5 + 12 = \square$

b) $14 + 5 = \square$

c) $19 - 5 = \square$

d) $3 + 17 = \square$

e) $15 - 10 = \square$

Take note

When you add, rearrange and put the greater number first. Then count on from there.

Addition and subtraction



Activity 9

Sam and Pam are excited to help their grandpa collect some eggs. Sam bets Pam that he can collect more eggs than her. Solve the following to see who collected more eggs.

1. a) Sam collects 5 eggs. His grandfather gives him 3 more eggs. How many eggs does he have altogether?
- b) Pam collects 12 eggs. How many more eggs does she have than Sam?



2. Sam brings a basket with 15 eggs in it. Grandfather takes 3 out of the basket. How many eggs are left in the basket?
3. Pam collects 14 eggs in total. She has 5 more eggs than Sam. How many eggs did Sam collect?
4. Pam has 8 eggs and Sam has 4 eggs. How many eggs do they have altogether?
5. Sam has 12 eggs, but he drops 3 eggs. How many eggs does he have now?

6. Complete:

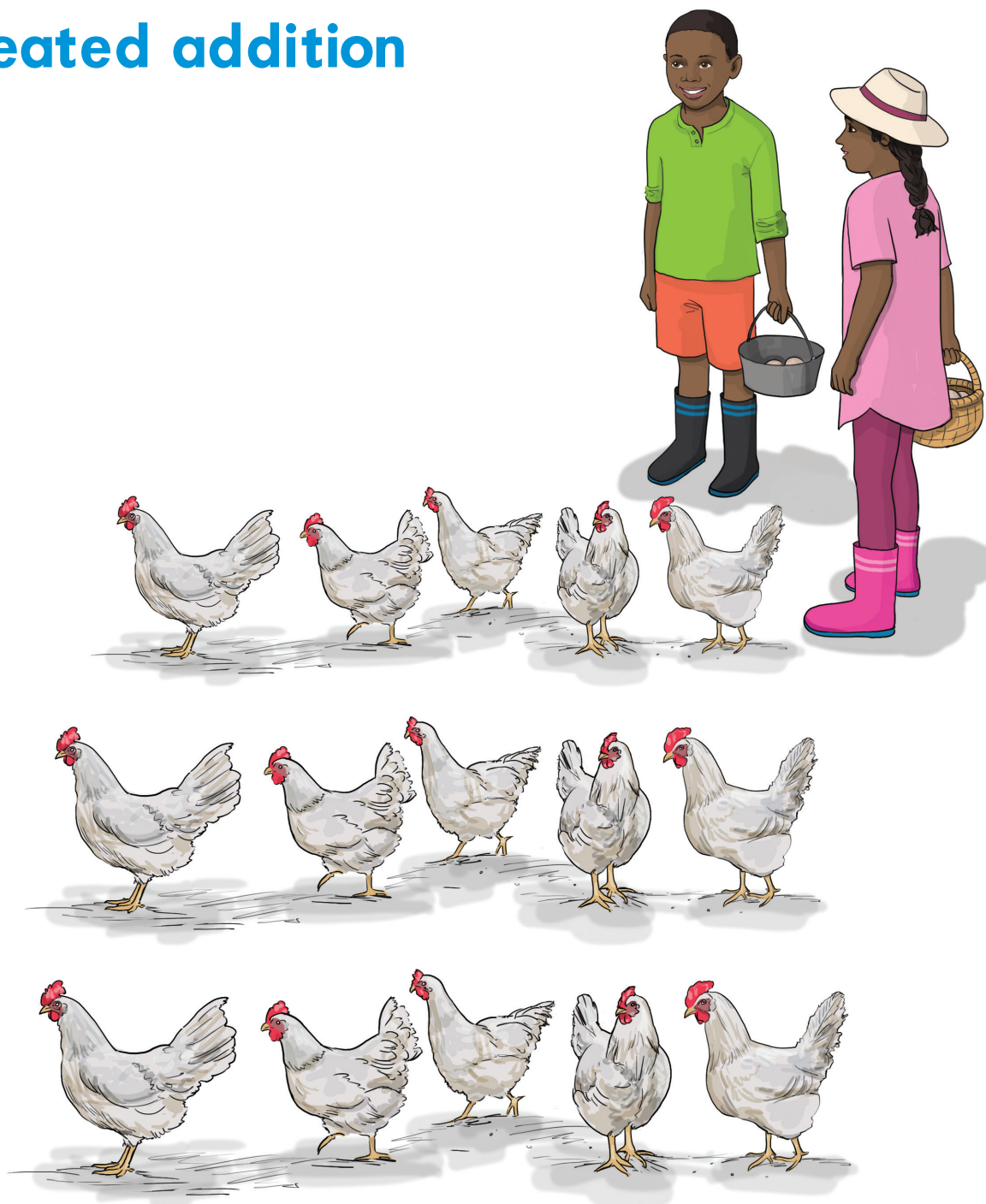


1 dozen eggs = eggs

half a dozen of eggs = eggs

7. Pam has 9 eggs. If she collects 8 more, she will have as many eggs as Sam. How many eggs does Sam have?
8. Sam gives 20 eggs to his grandfather. He collects 8 more eggs, then 6 more eggs. How many eggs does he have altogether?
9. Sam and Pam have 15 eggs altogether. If Pam has 9 eggs, how many eggs does Sam have?

Repeated addition

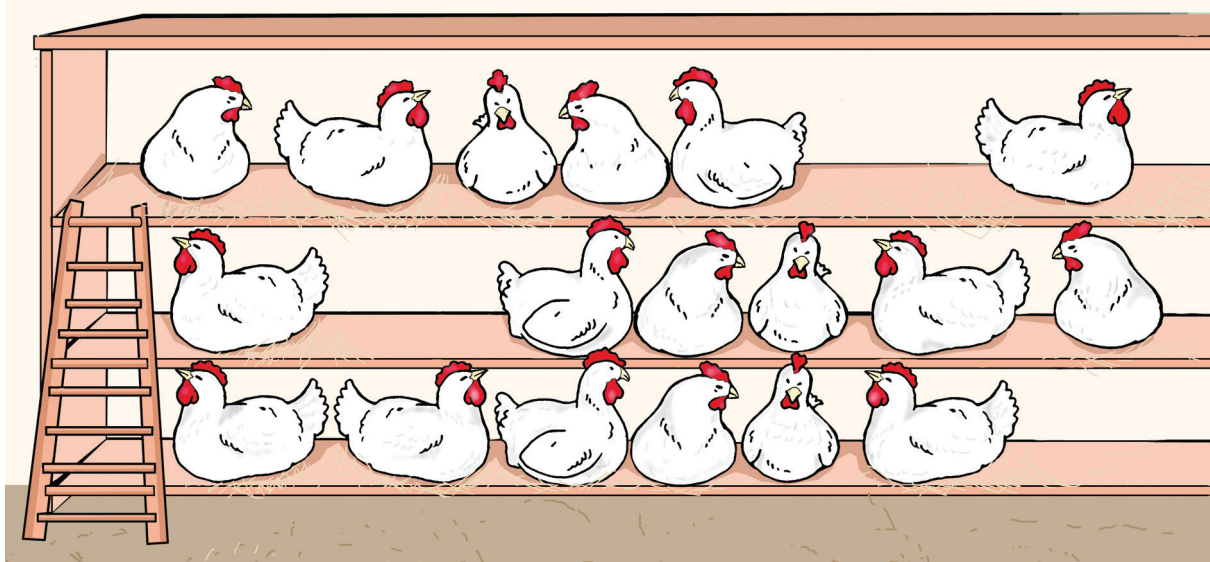


We can count the number of hens in different ways.

- We can count the hens one at a time.
- We can count the number of hens in one row and the number of rows, then use repeated addition to find how many hens there are.
- We can also use counters and pictures to help us find how many hens there are.

Example

In the shed, Pam and Sam find 3 rows with 6 hens in each row. Help them find how many hens are there in total.



Answer

Counting the hens one at a time, they find 18 hens.

Another way they could have done this calculation would be by using repeated addition.

They count the number of hens in one row and the number of rows, then use repeated addition to find how many hens there are.

There are 6 chickens in one row.

There are 3 rows.

Use repeated addition to solve this problem.

Row 1		Row 2		Row 3	
6		6		6	
		↓			
6	+	6	+	6	
= 18					

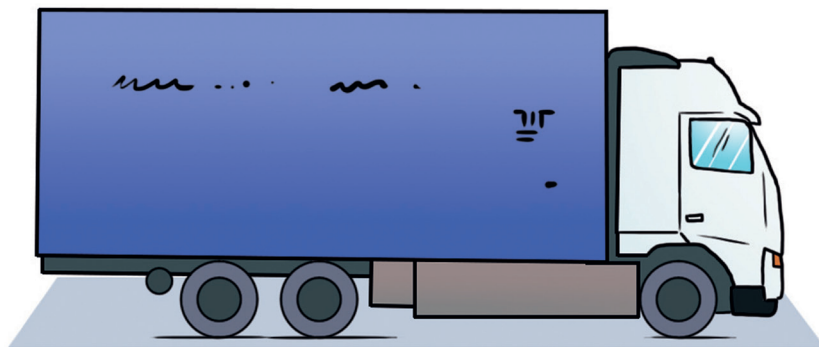
So, $6 + 6 + 6 = 18$

There are 18 hens in total.

Activity 10

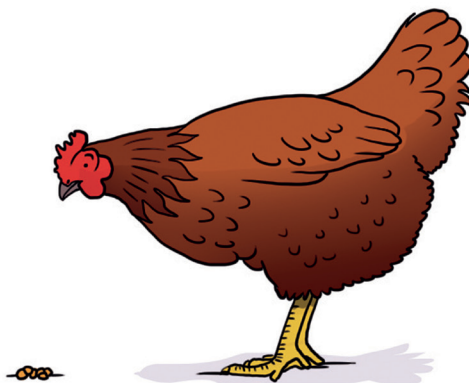
Use repeated addition to help you solve these problems

1. Look at the truck in the picture.

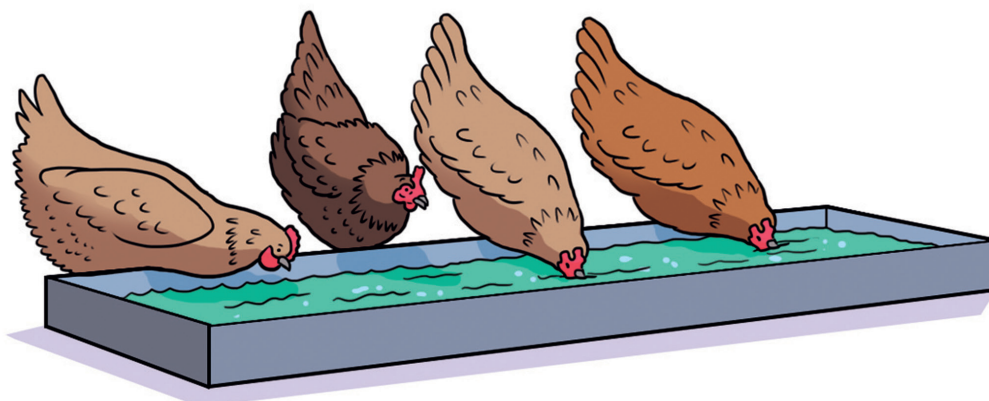


If 1 truck has 4 wheels, how many wheels would 3 trucks have?

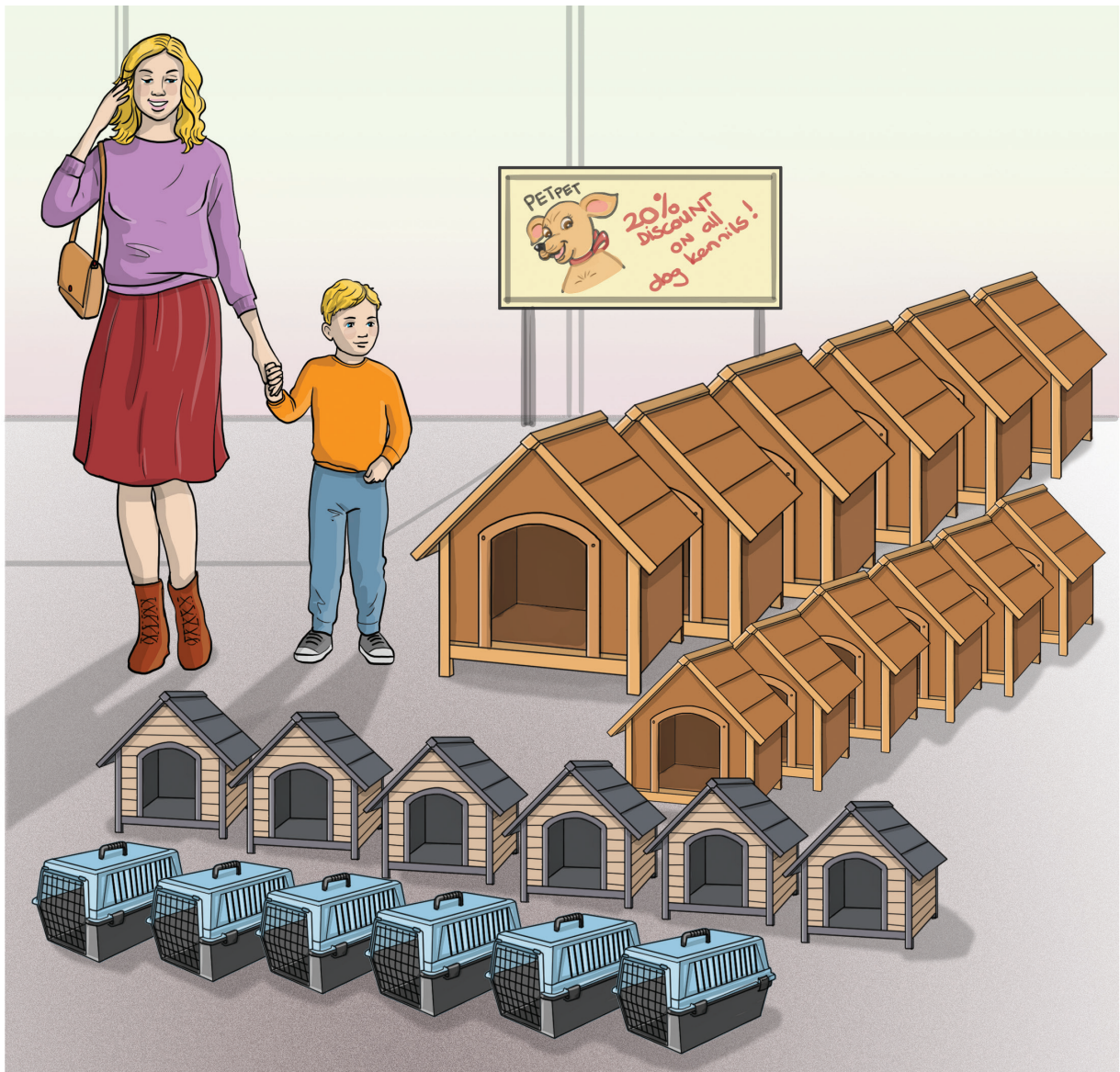
2. How many eyes do 7 hens have?



3. The chickens finish 3 trays of water in a day. How many trays of water would they finish in 5 days?



4. Shayna wants to buy 3 pencils. Each pencil costs 50c. How much money will she need for 3 pencils?
5. Caleb has 9 marbles. He wins 5 more. How many marbles does he have now?
6. Jo and his mother are shopping for a dog kennel. Jo sees kennels arranged in 4 rows of 6. How many kennels are there altogether?



7. Caitlin wants a doll for her 7th birthday. Her father takes her shopping. She sees dolls all in a row. Each row has 10 dolls. If there are 2 rows of dolls, how many dolls are there in total?

Grouping and sharing



Sometimes we have to share things.

Example

Sandile has to share 10 pencils amongst 5 learners. Each learner has to get the same number of pencils. How many pencils will each learner get?

Answer

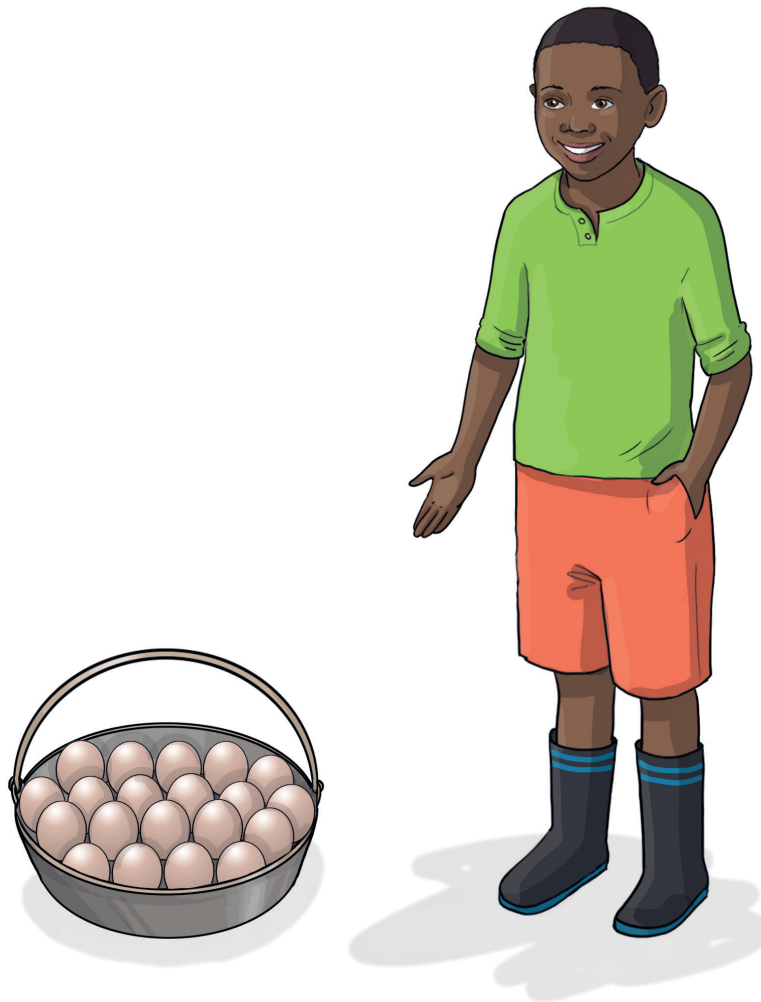
You can use drawings or counters to help you solve this problem.



Each learner will get 2 pencils.

Activity II

1. There are 20 egg trays that need to be filled. If grandfather shares the trays equally amongst 5 workers, how many will each worker need to fill?
2. Sam has 24 eggs. One tray holds 6 eggs. How many trays can Sam fill?
3. a) Sam wraps 20 trays in plastic. He puts the trays in 5 rows. How many trays in each row?



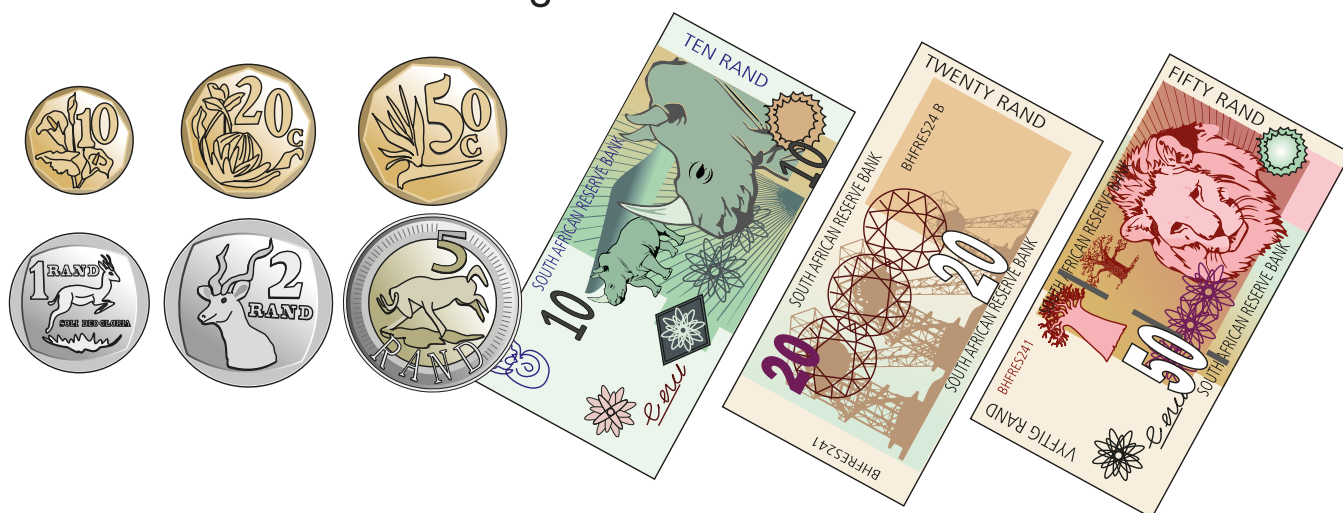
- b) The eggs will be delivered to 10 different shops. If each shop gets the same number of trays, how many trays will each shop get?

Working with money

We use money to buy things we need on a daily basis. For example, your mother may give you some money to buy a loaf of bread at the shop, or you could go to the shop to buy some sweets or chips.




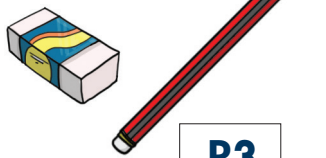
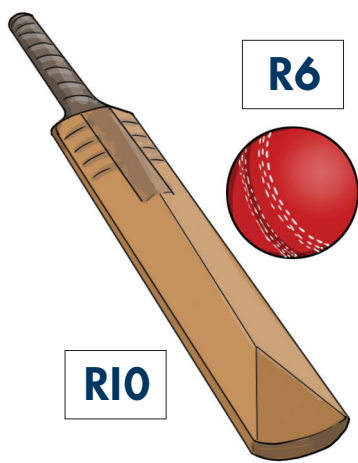

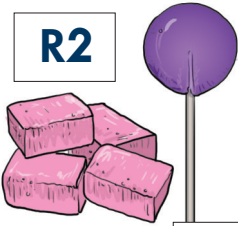
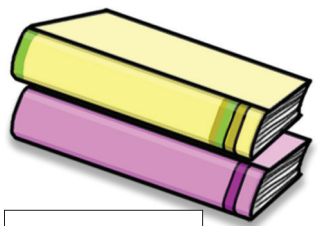
This is some of the money we use in South Africa.



It is important that you are able to recognise and work with money.

Practical activity

- I. a) Ask your partner to choose coins or notes that they can use to pay for the following items.
- b) Work out if they must get any change, then pay their change to them.

 <div>R5</div> <div>R2</div>	 <div>R5</div> <div>R3</div>	 <div>R6</div> <div>R10</div>
 <div>R9</div>	 <div>R2</div> <div>R2</div>	 <div>R8 each</div>

Example

Nandi has two brothers and one sister. Their grandmother gives them R20 to share equally amongst themselves. How much will each one get?



Answer

You can use drawings or counters to help you solve this problem. Nandi, her two brothers and one sister make four altogether. Sharing R20 among four means that each child will get R5.

Challenge

Think about this problem: Could you share 50c equally amongst 4 children?

Think about all the coins that we use in South Africa.

Activity 12

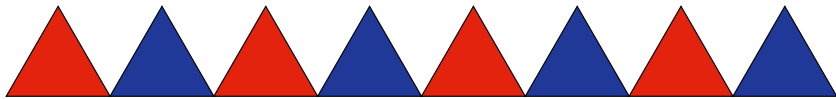
1. Gogo charges R8 for a toffee apple. If she sells two toffee apples, how much money will she make?
2. After Gogo sells some of her toffee apples, she has R24. She gives Sam and Pam R2 each for helping her. How much money does she have left over?
3. Pam has R5, she wants to buy bubblegum that costs 50c each. If she uses all the money, how many bubblegums will she be able to buy?
4. Sam has R5, he wants to buy suckers that cost R2,50 each. How many suckers will he be able to buy?
5. Match the coins to their values.



R2
50c
R5
R1
20c
10c

Geometric patterns

We can describe a pattern using letters by saying it has a pattern of ABABABAB.



Example

Use letters to describe this pattern.

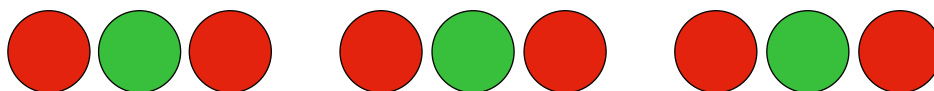


Answer

For the pattern of triangles, we can say it has the pattern of ABBABBABB.

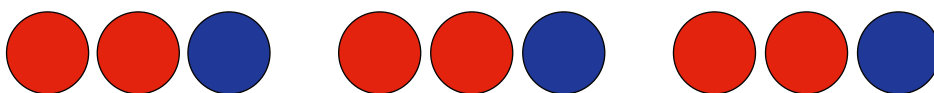
Activity 13

1. a) Copy and extend the pattern twice.



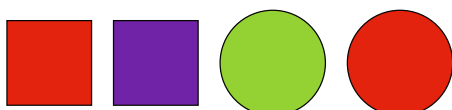
- b) Describe the pattern using letters.

2. a) Copy and extend the pattern twice.



- b) Describe the pattern using letters.

3. Use any of these shapes to make your own pattern.



Copy, extend and describe number patterns

Counting helps develop number sense. We recognise different patterns using different number sequences.

4. Complete the table by writing the missing numbers.

1	2	3	4	5				9	10
11	12	13	14	15	16				20
21	22	23	24	25	26	27			
			34	35	36	37	38	39	40
41					46	47	48	49	
51	52					57	58		60
61	62	63		65	66	67		69	70
71	72		74	75	76		78	79	80
81		83	84	85	86		88	89	90
91	92		94	95	96	97	98		

5. Complete:

- Count forwards in 2s from 42 to 90.
- Count backwards in 3s from 60 to 21.
- Count forwards in 4s from 74 to 98.
- Count backwards in 5s from 75 to 35.
- Count forwards in tens from 10 to 100, and backwards in tens from 97 to 7.

Counting backwards and forwards

When we count backwards and forwards, we start seeing different patterns in numbers. For example, you can skip count forwards or backwards in 1s, 2s, 5s or 10s.

Activity 14

1. Copy and complete the number pattern.

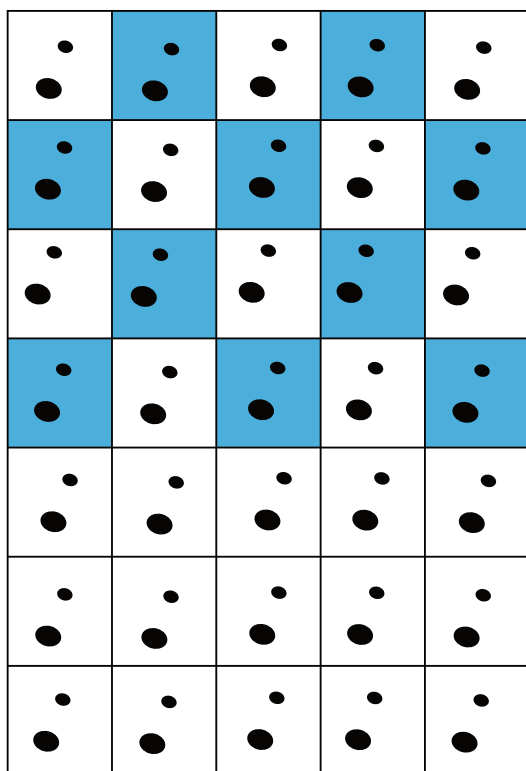
a) 34; 36; 38; ; ; 44; ; .

b) 80; ; ; 50; 40; 30; ; .

c) 54; ; ; ; 62; 64; 66; .

d) ; 95; 90; 85; ; ; ; .

2. a) Count how many dots altogether.

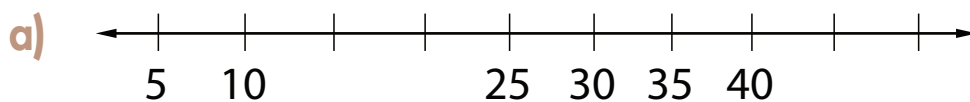


b) Can you suggest a faster way of counting all the dots?

3. a) Write the numbers in shaded squares. Start with 100 and go backward.
- b) Describe the pattern created by the shaded squares to your friend.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	74	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

4. Copy and complete.



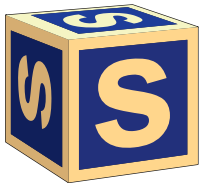
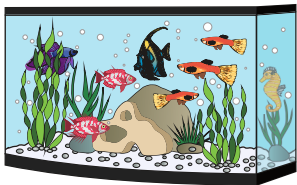

b) 10; 20; 30; ; ; ; .

c) 80; 70; ; ; ; 30; .

Build with three-dimensional objects (3D objects)

Three-dimensional objects take up space and have three dimensions: length, width and height.

Here are examples of three-dimensional objects.

Prism	Prism	Sphere
		
<p>Square faces.</p> <p>Can stack it.</p> <p>Can slide it.</p>	<p>Rectangular faces.</p> <p>Looks like a box.</p> <p>Can stack it.</p> <p>Can slide it.</p>	<p>Round sides.</p> <p>Looks like a ball.</p> <p>Can roll it.</p> <p>Cannot stack it.</p>

Example

Can you stack the soccer balls?



Answer

No, you cannot stack the soccer balls.

They are round.

You can only stack objects that have flat sides.

Example

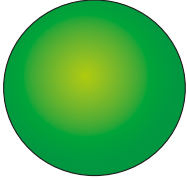
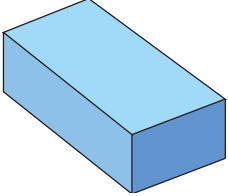
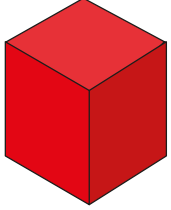
Why can you stack the prisms?

**Answer**


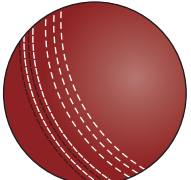
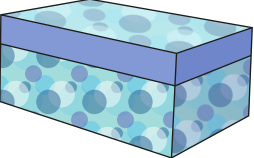
You can stack the prisms because they have flat sides.

Activity 15

1. Copy and complete the table.

	Name the 3D object	Can it slide or roll ?
a)		
b)		
c)		

2. Copy and complete the table.

	Name the 3D object.	Can it slide or roll ?
a) 		
b) 		
c) 		

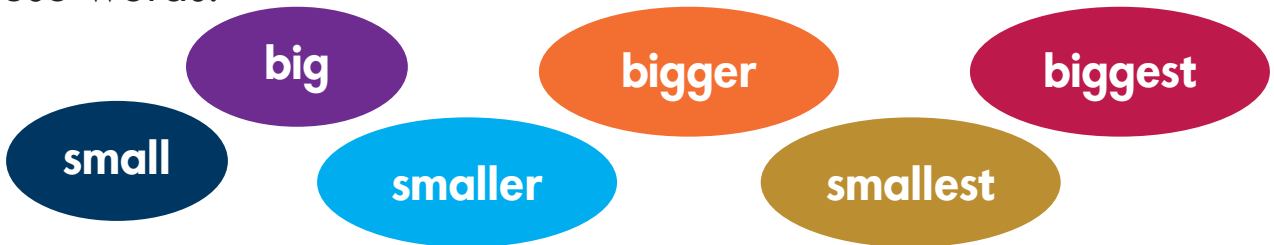
3. Work in groups:

Use clay dough and make your own creature using spheres (balls) and prisms (boxes) of different sizes.



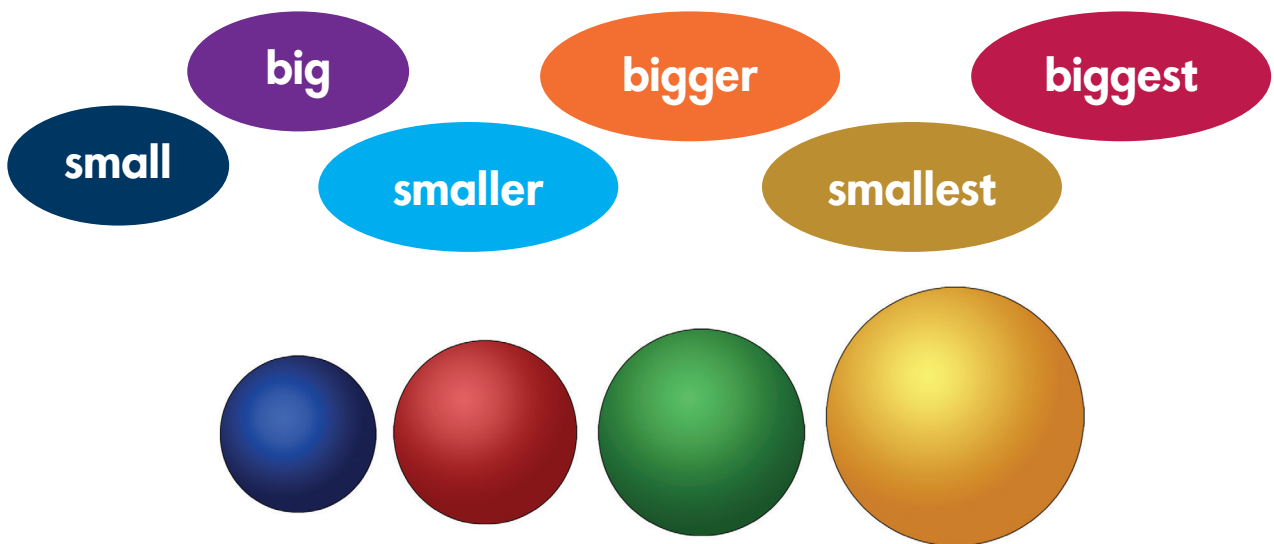
Compare and describe three-dimensional objects

You can compare and describe three-dimensional objects using these words:



Example

Use these words to describe the balls:



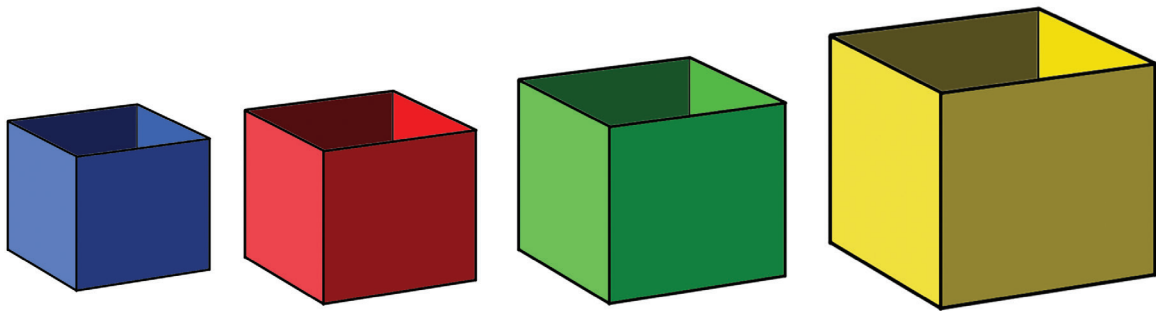
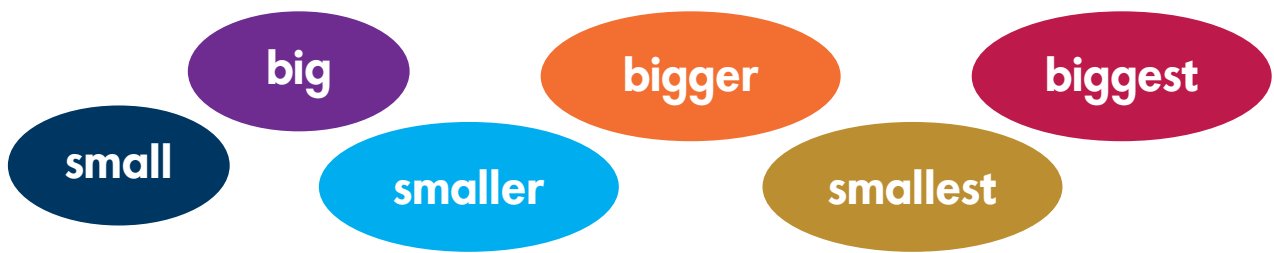
- The blue ball is _____ than the red ball.
- The green ball is _____ than the red ball.
- The yellow ball is the _____ ball.
- The blue ball is the _____ ball.

Answer

- The blue ball is **smaller** than the red ball.
- The green ball is **bigger** than the red ball.
- The yellow ball is the **biggest** ball.
- The blue ball is the **smallest** ball.

Activity 16

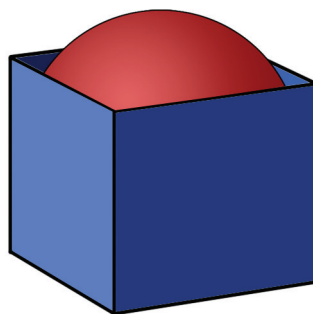
1. Use these words to describe the boxes.



- a) The blue box is _____ than the red box.
- b) The green box is _____ than the red box.
- c) The yellow box is the _____ box.
- d) The blue box is the _____ box.

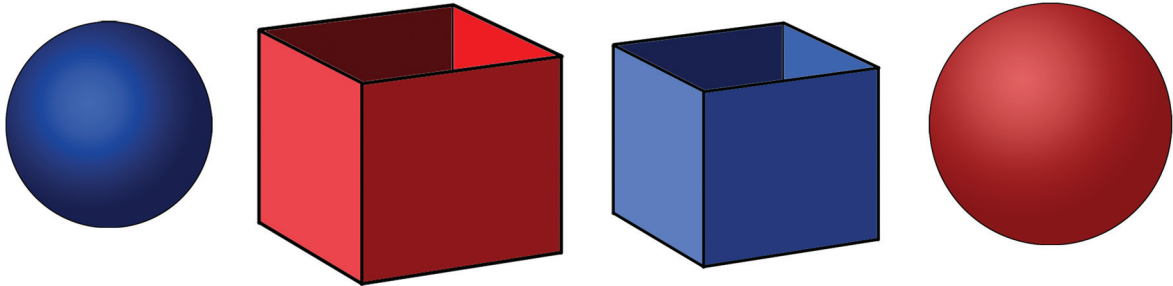
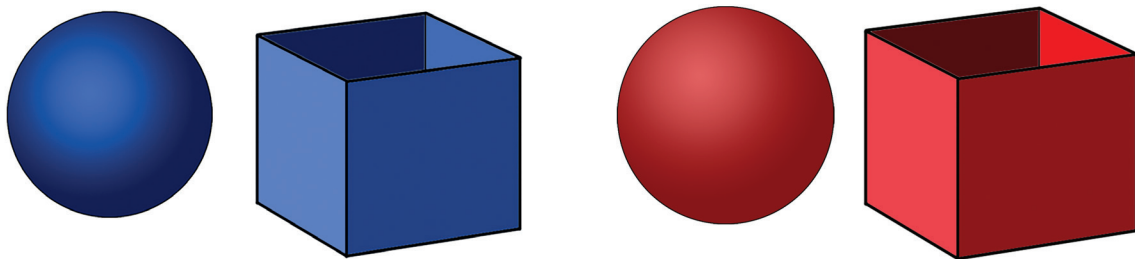
2. Look at the box and the ball. Which is bigger?
Explain why you say so.

You can also describe three-dimensional objects according to their colour.



Example

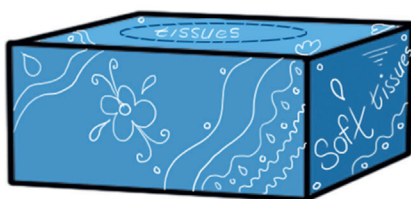
Sort the objects by colour.

**Answer**

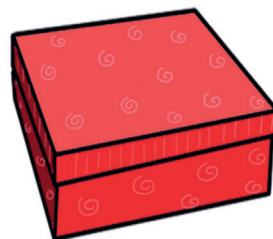
3. a) Say if the three-dimensional object is a box or a ball.
 b) Say which objects can roll and which objects can slide.
 c) Sort them according to colour.



A



B



C



D

Telling the time

A clock can help us to answer questions like:

- When does your school start?
- At what time do you go to bed?

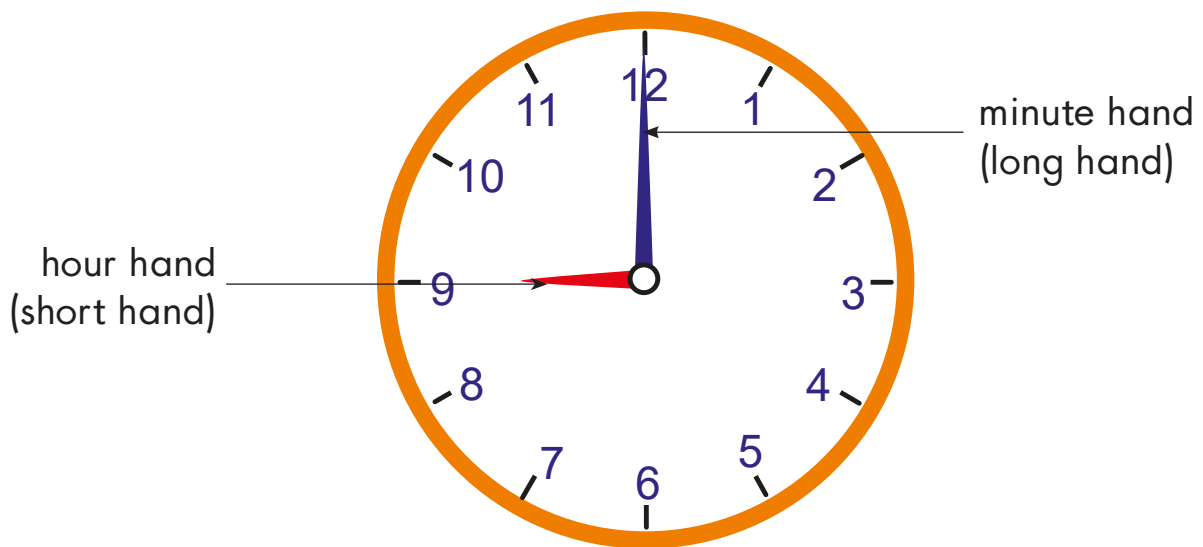
We use the clock to tell time.

There are 12 numbers on a clock face.

The clock face has two hands. A **short hand** and a **long hand**.

The short hand points to the hour. We call it the **hour hand**.

The long hand points to the minutes. We call it the **minute hand**.



The hour hand (short hand) is pointing to 9.

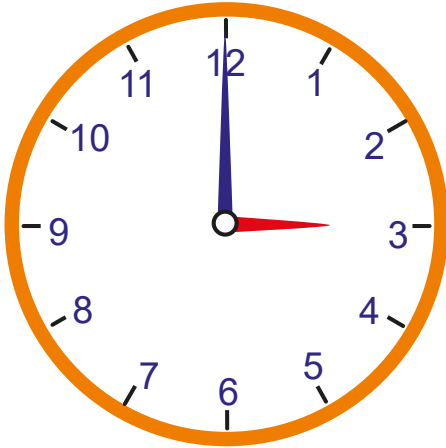
The minute hand (long hand) is pointing to 12.

We say the time is 9 o'clock.

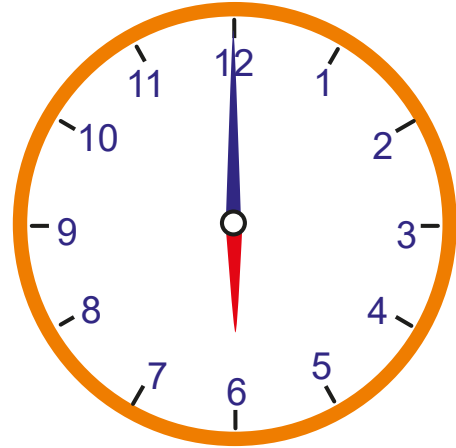
Activity 17

1. Look at each clock. Tell your friend what the time is and why?

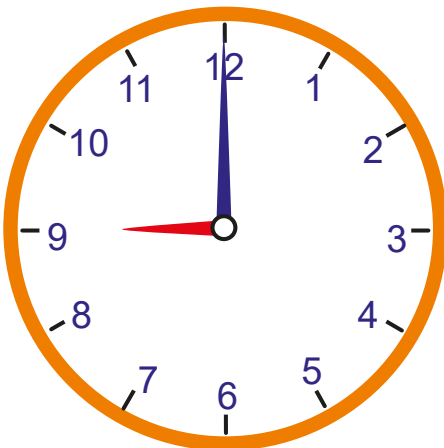
a)



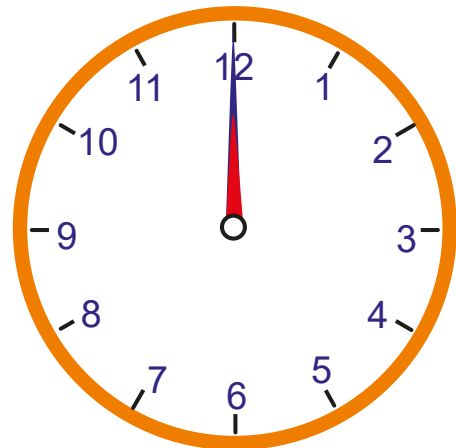
b)



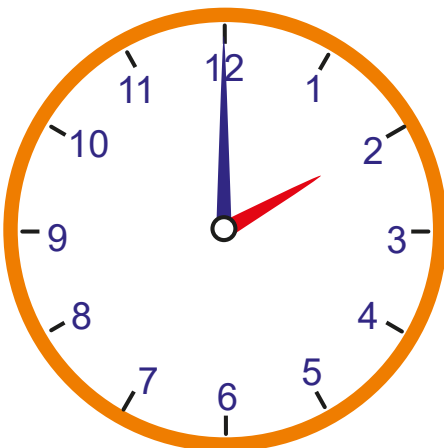
c)



d)



e)

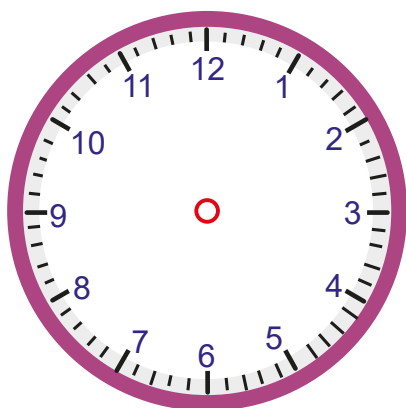


f)

Draw your own clock and ask your friend to say what time your clock shows.

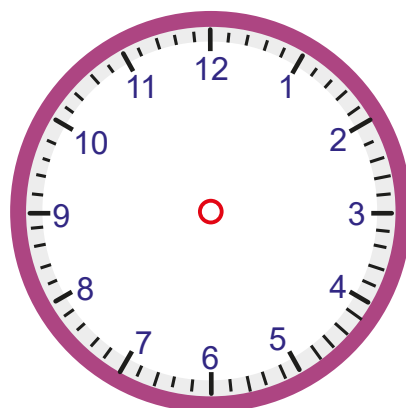
2. Draw hands on the clock face so that it tells the time shown in the box.

a)



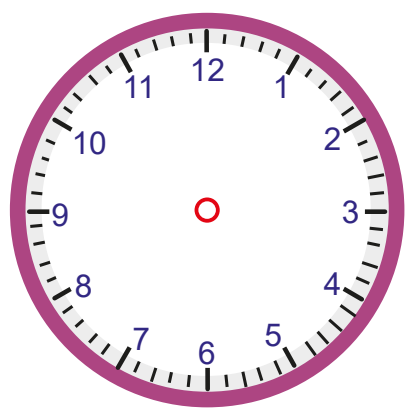
4 o'clock

b)



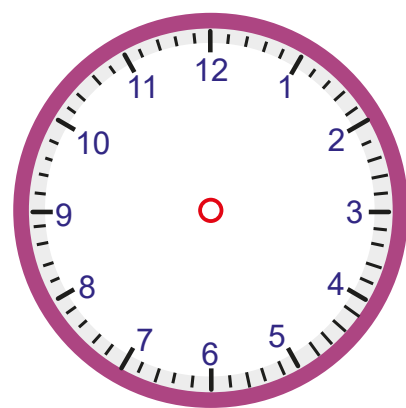
6 o'clock

c)



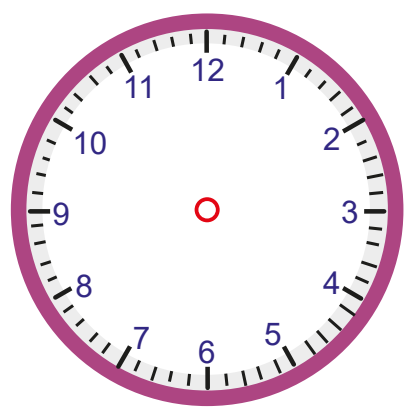
8 o'clock

d)



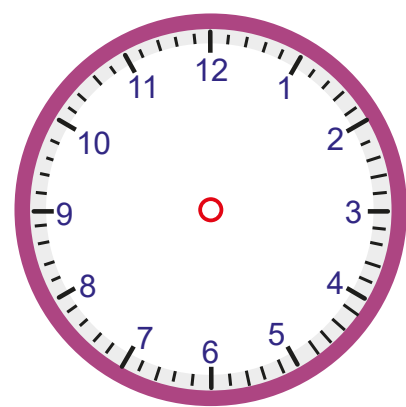
10 o'clock

e)



5 o'clock

f)



1 o'clock

The passing of time

Sometimes we need to answer questions like these:

- What did you do 2 hours ago?
- What will you be doing in 1 hours time?

Let's look at an example of this.

Example

Here is the time
2 hours before
10 o'clock



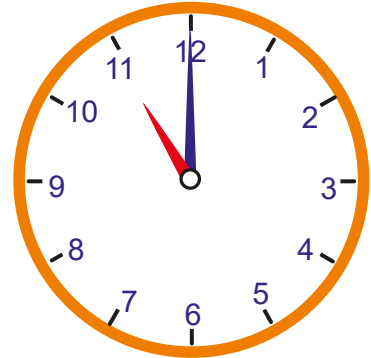
8 o'clock

The time now is
10 o'clock



10 o'clock

Here is the time
1 hour after
10 o'clock



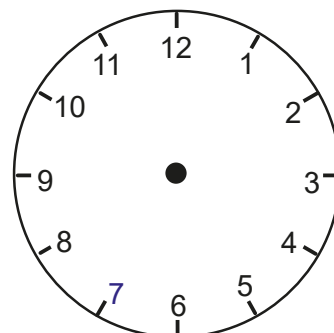
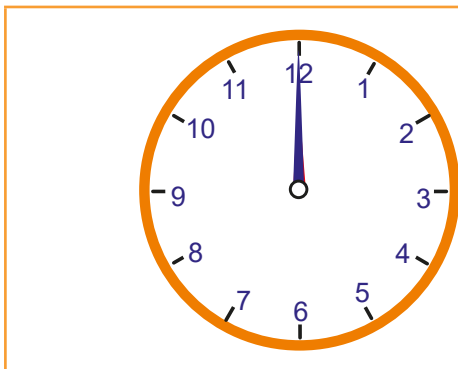
11 o'clock

Activity 18

Copy and complete the blank clock faces. Show what time it will be:

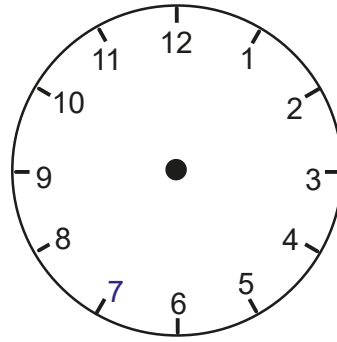
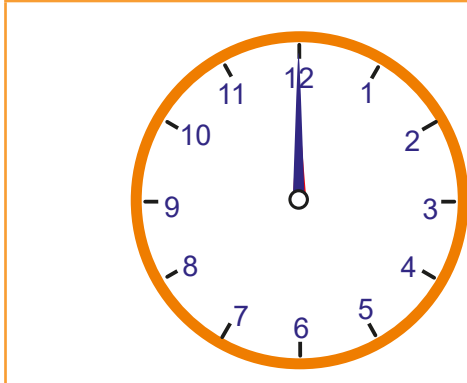
1. Time now

2 hours after 12 o'clock.



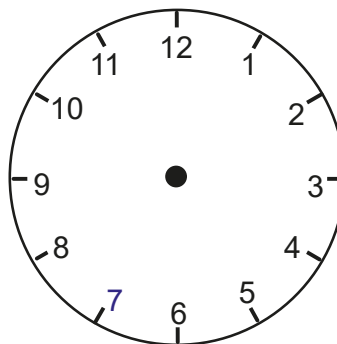
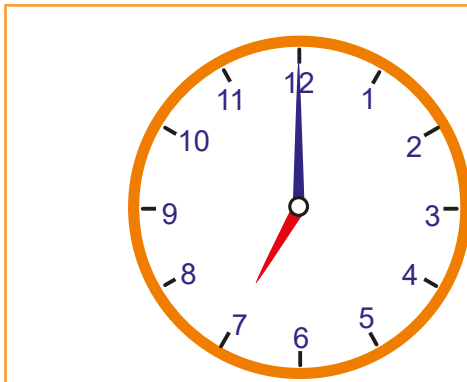
2. Time now

1 hour before 12 o'clock



3. Time now

3 hours before 7 o'clock



4. Aamina takes a train to school in the morning. She gets on to the train at 8 o'clock, then gets off the train 1 hour later. What time does she get off the train?
5. Tebogo is making roast chicken for lunch. The recipe asks that she cooks the chicken in the oven for 1 hour. If she puts the chicken in the oven at 11 o'clock, at what time must she take it out of the oven?
6. Ayanda and Sello start watching a movie at 6 o'clock. If the movie is 2 hours long, at what time did the movie end?

Measuring length using non-standard units

We measure things to answer these questions:

How long? How tall? How wide?

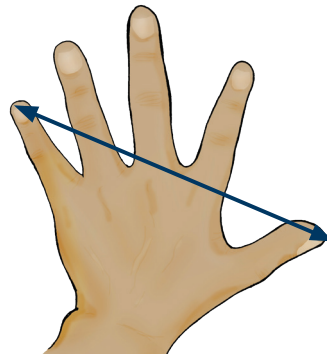
How can you measure how wide your hand is, how long your arm is, or the width of your fingernails? How can you measure the length of your classroom?

We can use different parts of our body to measure.

When we use different objects to measure length, it is called informal measurement.

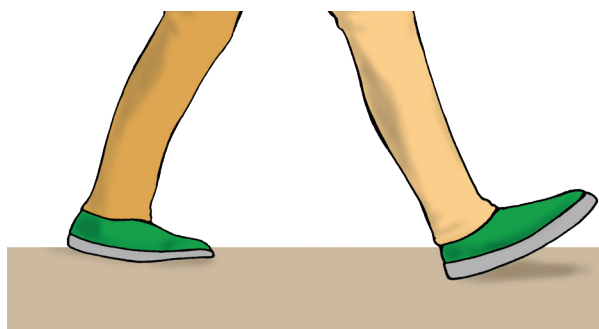
Example

You can use a **handspan** to measure.



A handspan is the distance from the tip of the thumb to the tip of the little finger on your outstretched hand.

You can use a **pace** to measure. A pace is any person's step length.



Other things we can use to measure informally are things like paper clips, pencil lengths or counters.


Example

How long is this pencil?



Answer

The pencil is 4  long.

Each  is a unit.

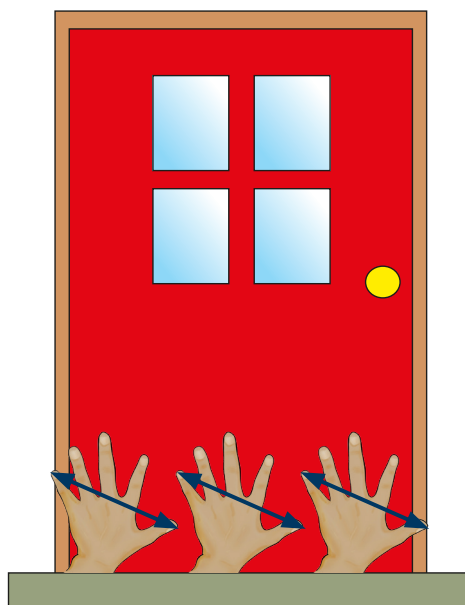
The length of the pencil is 4 units.

Example

What is the length in handspans of this door?

Answer

The length of the door is 3

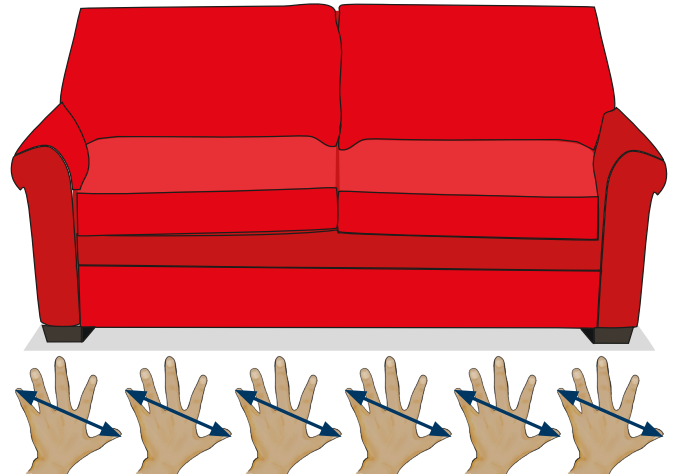
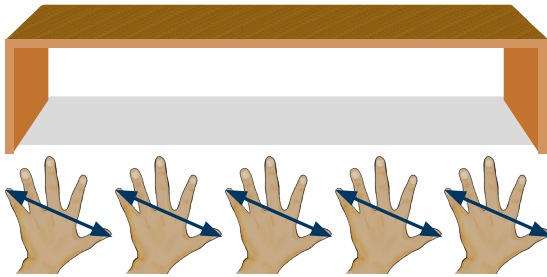


Each  is a unit.

The length of the door is 3 units.

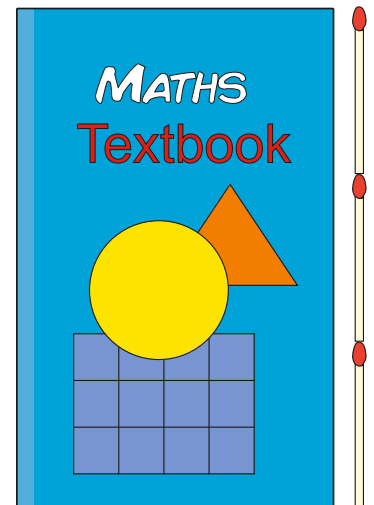
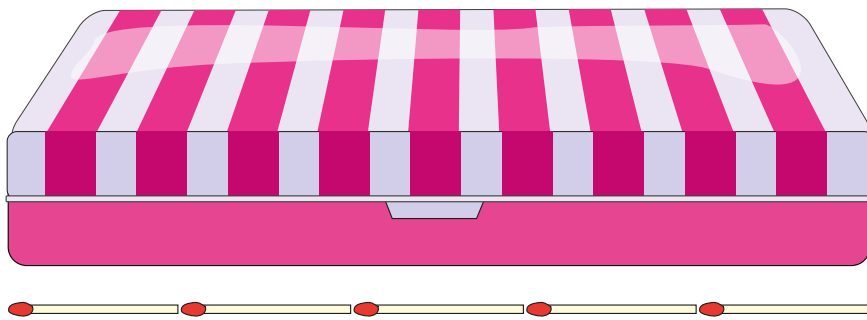
Activity 19

1. Which is longer?



- a) The table is _____ units long.
 b) The couch is _____ units long.
 c) The _____ is longer than the _____.

2. Which is longer?



- a) The pencil case is _____ units long.
 b) The textbook is _____ units long.
 c) The _____ is shorter than the _____.

3. Estimate and then measure the lengths of the following objects using a pencil.

Make an estimate before you measure.

	Object	Estimate	Measure
a)	A desk	About _____ pencils long	_____pencils long
b)	A chair	About _____ pencils long	_____pencils long
c)	Book	About _____ pencils long	_____pencils long
d)	A ruler	About _____ pencils long	_____pencils long
e)	A sheet of paper	About _____ pencils long	_____pencils long

4. Order the objects you measured from longest in length to shortest in length.

1 _____ longest object

2 _____

3 _____

4 _____

5 _____ shortest object

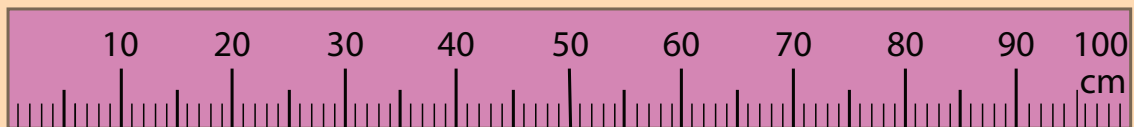
Measuring length in metres

Using **informal measurement** is not very reliable.

Different people will have different hand sizes or different paces. So, when we use informal measurement, we will never get the same measurement as others, and will probably not agree on the measurement.

We can use different tools to help us measure length.

Take note



This is a metre ruler.

We use the metre ruler to measure length.

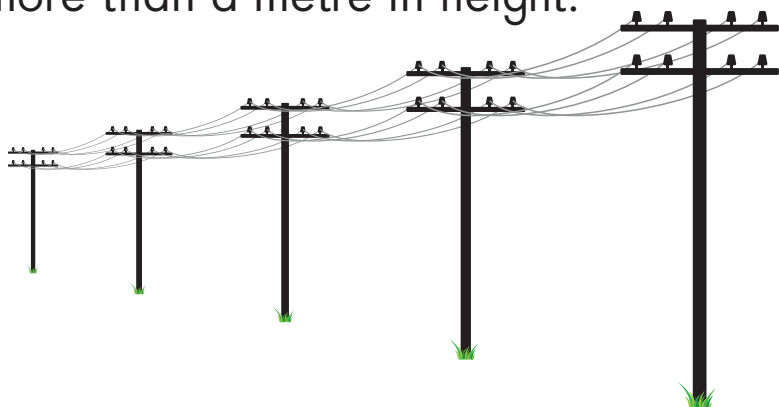
It is called a metre ruler because it is one metre long.

The metre is a unit of measuring length.

Here is an example of something that is more than 1 metre in height.

Example

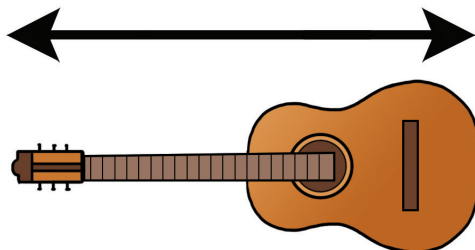
Telephone poles are more than a metre in height.



Here is an example of an object that is a metre long.

Example

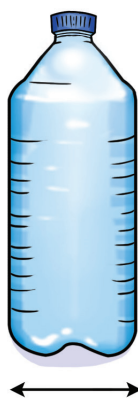
A guitar is about 1 metre in length.



Here is an example of an object that is less than a metre long.

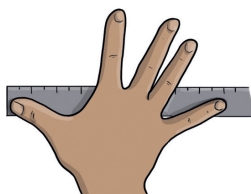
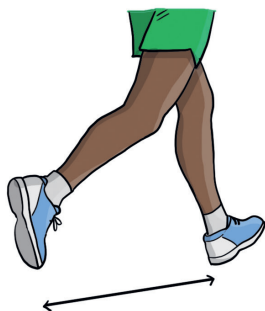
Example

A water bottle is less than a metre in length.



Activity 20

1. Look at the following ways of measuring.



- What are they called?
- Is this a reliable way of measuring objects?

2. Choose one object in your classroom.

Estimate the length of the object, copy and complete the table.

Object being compared: _____		Yes	No
a)	Is it longer than a pencil?		
b)	Is it longer than a desk?		
c)	Is it longer than the height of the classroom door?		
d)	Is it longer than the width of the classroom door?		
e)	Is it longer than the teacher's height?		
f)	Is it longer than your height?		
g)	Is it longer than your exercise book?		
h)	Is it longer than your pencil case?		

3. Measure a piece of string against a metre ruler and cut it.
Choose one object in your classroom.
Use your string to measure and record your findings.

Object being compared: _____		Yes	No
a)	Is it longer than a pencil?		
b)	Is it longer than a desk?		
c)	Is it longer than the height of the classroom door?		
d)	Is it longer than the width of the classroom door?		
e)	Is it longer than the teacher's height?		
f)	Is it longer than your height?		
g)	Is it longer than your exercise book?		
h)	Is it longer than your pencil case?		

Comparing lengths in metres

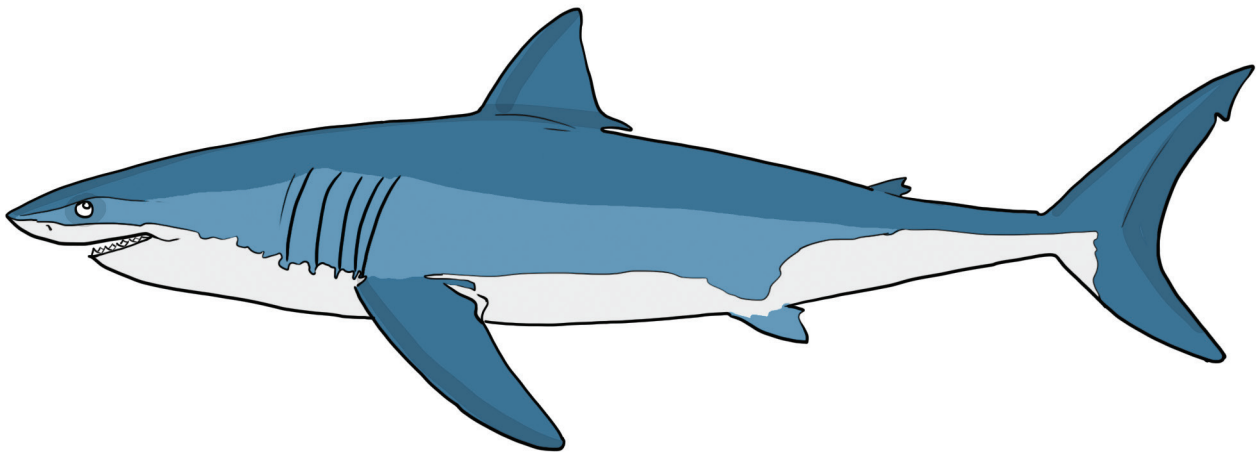
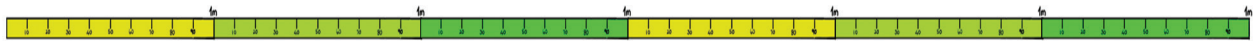


Imagine that this is a metre stick.

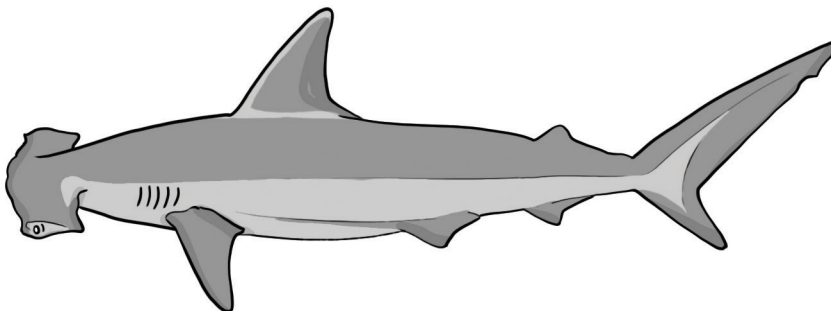
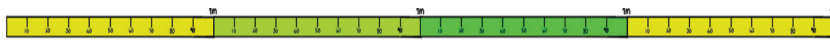
We can use a metre stick to measure different objects.

Example

a) Here is a shark. How many metres long is the shark?



b) Here is a different type of shark. How many metres long is the shark?

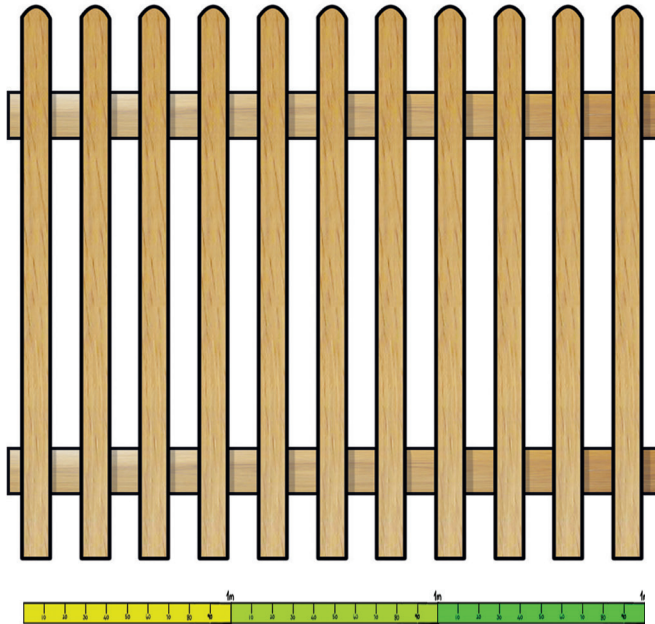


Answer

- a) 6 m
- b) 4 m

Activity 21

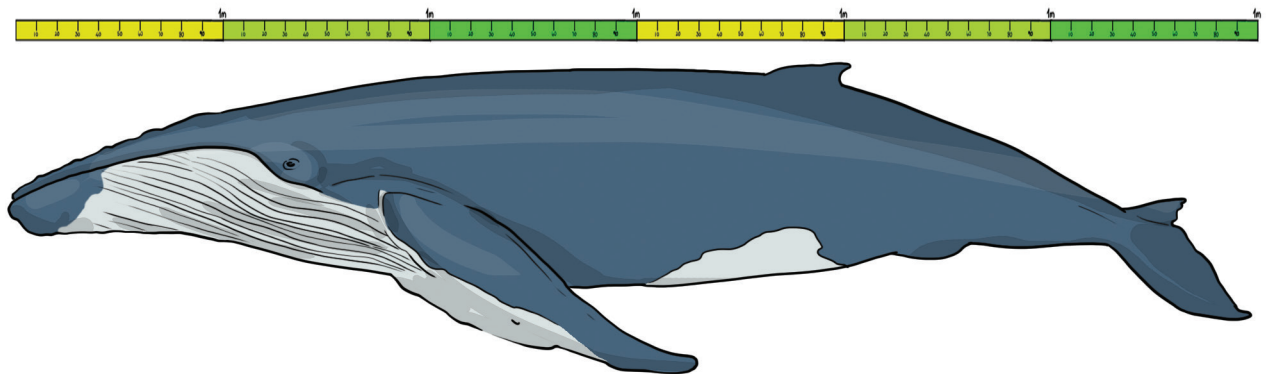
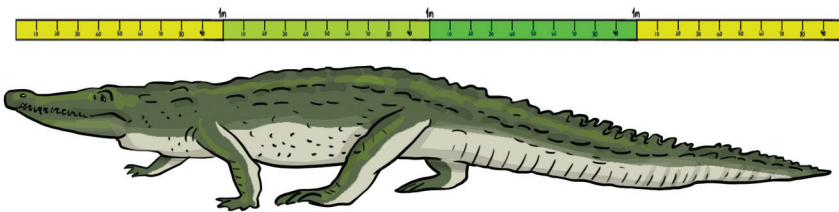
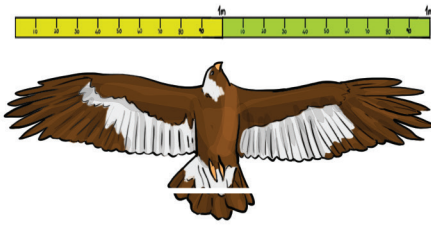
1. The fence is m long.



2. The delivery van is m long.



3. Look at the eagle, crocodile and the whale.



- a) The wingspan of the eagle is m.
- b) The crocodile is m long.
- c) The whale is m long.
- d) Which animal is the longest? Explain.
- e) Which animal is the shortest? Explain.

Learning about the data cycle

We can use data to make decisions.

We use the data cycle to help us make decisions.

Collect and organise data

We collect data in different ways every day. Here are some examples:

- Your teacher could ask the class which book you would like to read.
- You might collect data on how many sunny, cloudy, rainy, or windy days there are in a week or in a month.
- You and your friends could decide what game you will play during interval.

These are all examples of different ways in which you can collect data.

Example

Teacher Mary asked 15 learners what their favourite fruits are. What data did Teacher Mary collect?

Answer

Teacher Mary collected data about what the favourite fruit of 15 learners was.

Activity 22

Neo asked 20 learners in a class about their favourite television programme. He listed their answers in this table.

sport	news	cartoons	cartoons	drama
news	drama	news	news	sport
cartoons	sport	cartoons	drama	cartoons
sport	cartoons	sport	sport	drama

1. a) How many learners chose the following as their favourite television programme.

Drama	Sport	News	Cartoons

- b) How many more learners chose cartoons than news?
 c) How many learners chose drama, news and sport altogether?
 d) How many learners chose cartoons, drama and news altogether?

Represent data

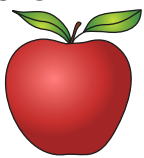

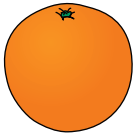


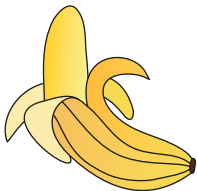



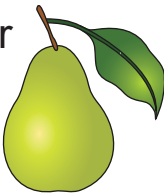










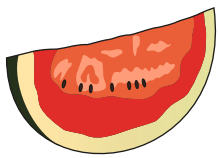

After we collected data we can represent it on a pictograph.

A **pictograph** uses pictures or symbols to represent data.

The purpose of the pictograph is to complete data using pictures or symbols.

Example

Here is a pictograph of the favourite fruits of 15 children.

Fruit	How many learners chose it
apple 	
orange 	 
banana 	  
pear 	
strawberry 	  
grapes 	   
watermelon 	

Key ☺ = one learner

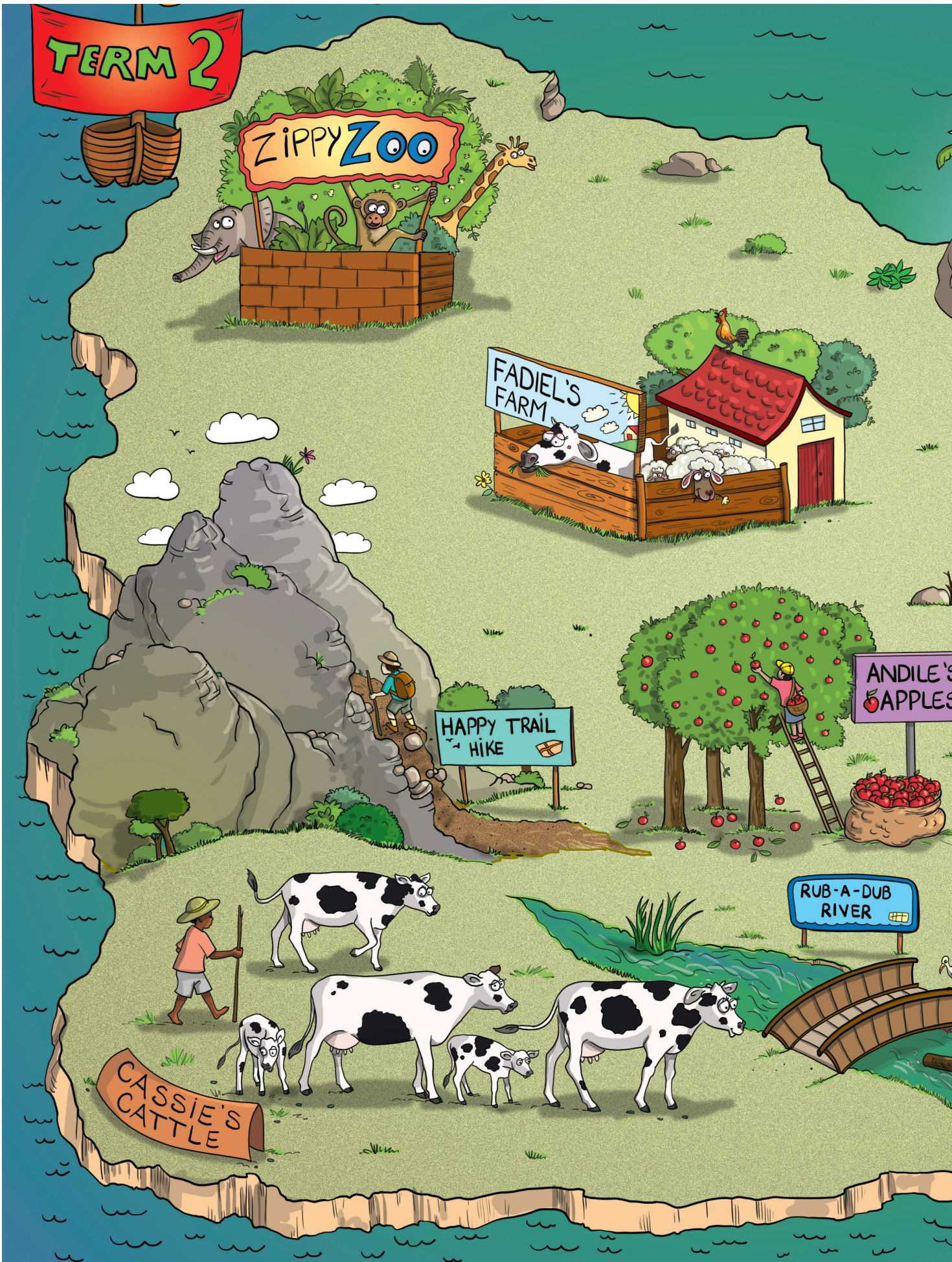
2. Use the information from question 1 to draw a pictograph.

Favourite television programmes	How many learners chose it
Sport	
Drama	
Cartoons	
News	
Key ☺ = one learner	

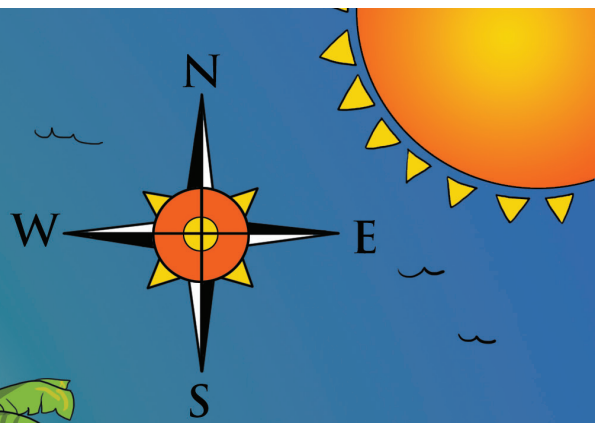
Analyse and interpret data

When we analyse data, we are trying to make sense of what the data shows.

3. Use the pictograph to complete:
- Most of the learners chose _____.
 - The least number of learners chose _____.
 - The difference between the number of learners who chose sport and the number of learners who chose news is: _____



Mathematics all around us.
Open your imagination and
join us all the way to Term 3!



TERM 2



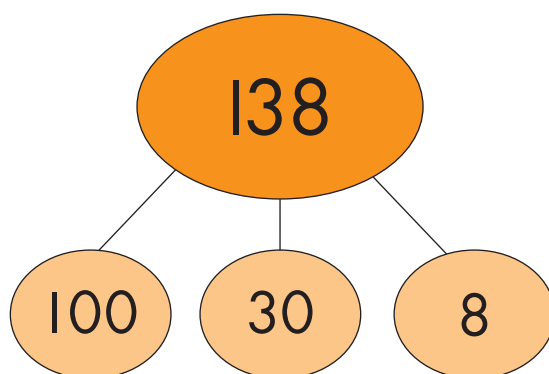
Recognise, identify and read number symbols 0 to 150

The number symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 can be used alone or combined to represent any number.

Example

Look at the number 138. Decompose the number.

Answer



138 is made up of 100, 30 and 8.

Activity 1

1. Write the number name.

a) 42

b) 28

c) 48

d) 30









e) 23

f) 45

2. Write the number symbol.

a) fifty-seven	
b) thirty-five	
c) seventeen	
d) twenty-three	
e) forty-nine	

3. Match the place value cards to the correct number symbol.

a)		144
b)		56
c)		89
d)		127
e)		86
f)		39
g)		46
h)		23

Number names from 0 to 50

Example

Write the number name for 48.

Answer

Forty-eight

Activity 2

1. Write the number names.





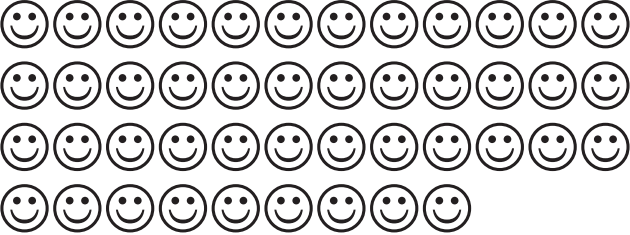
a) 18

b) 27

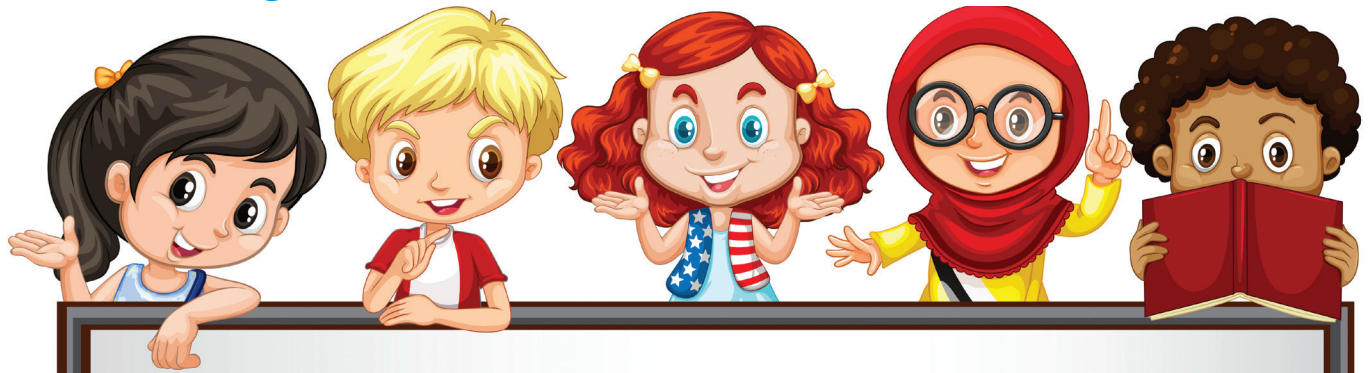
c) 39

d) 42

2. Write the number symbols and number names.

a) 	8	
b) 		twelve
c) 	23	
d) 		thirty-one
e) 	45	

Counting to 150



TERM 2

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150

Activity 3

Use the number grid to help you.

1. Write the numbers from 132 to 127.
2. What number comes before 34?
3. What number comes after 49?
4. Skip count in 5s from 50 to 75. Write the numbers.
5. Skip count backwards in 10s from 150 to 10. Write the numbers.
6. Skip count in 2s from 132 to 150. Write the numbers.
7. What number is between:
 - a) 52 and 54
 - b) 78 and 80
 - c) 105 and 107
 - d) 123 and 125
 - e) 144 and 146
8.
 - a) What number is 3 less than 28?
 - b) What number is 4 more than 35?
 - c) What number is 10 more than 102?
 - d) What number is 10 less than 150?
9.
 - a) What number is after 149?
 - b) What number is before 130?
 - c) What number is before 105?

Estimating how many

Have you ever tried to count 100 objects?

Example

Look at Mila. She is counting the money from her money box. So far she has counted 100 5c coins.

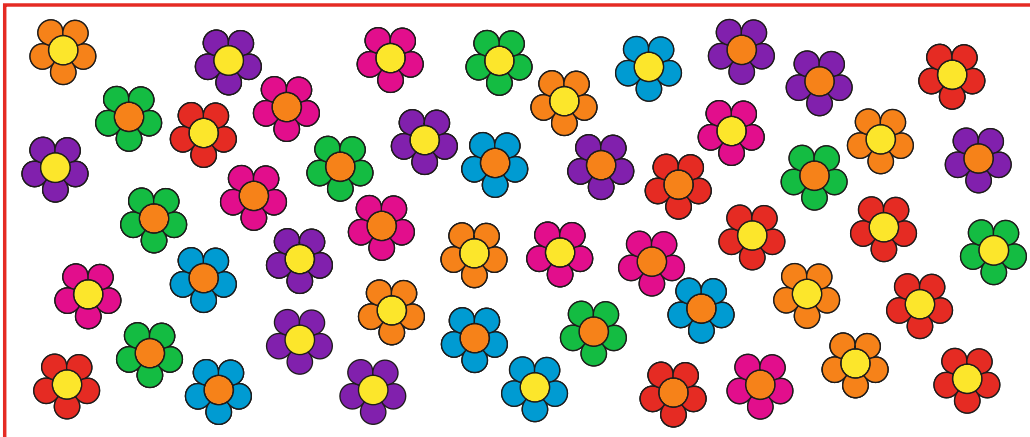


Activity 4

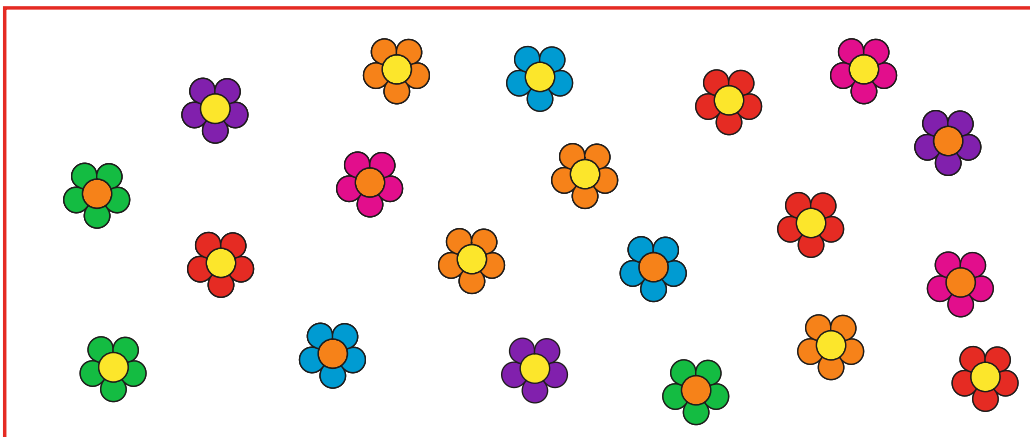
Work with your friend to answer these questions.

- I. Estimate how many flowers in each group.
Write the number of flowers.

a)



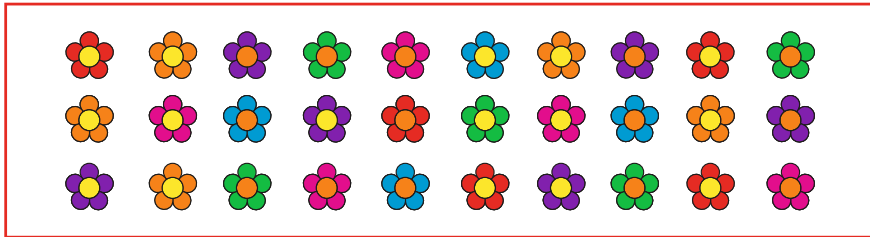
b)



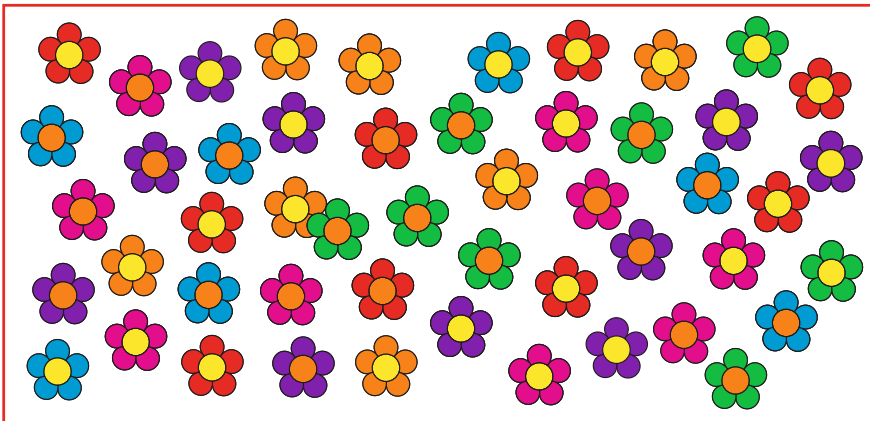
- c) Count the number of flowers in each group.
Write the number of flowers.

2. Estimate how many flowers in each group. Write the number of flowers.

a)

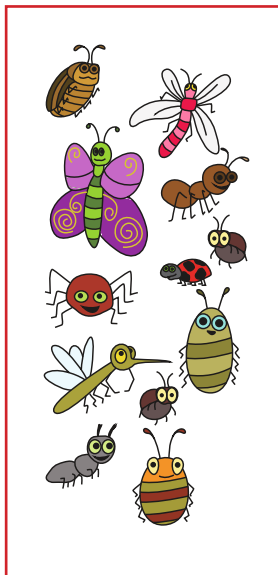


b)

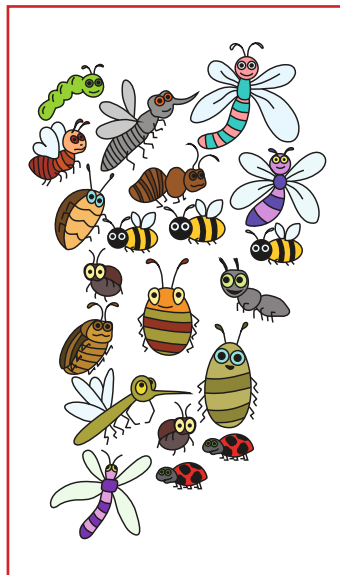


- c) Count the number of flowers in each group. Write the number of flowers.
- d) Which activity did you find easier? Counting the ungrouped flowers, or the flowers that were grouped together?

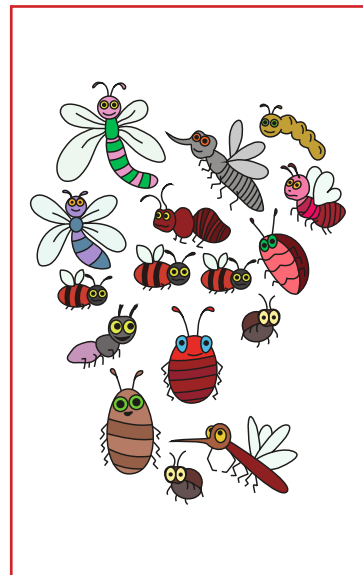
3. Decide which group has the most items in it? How do you know?



A



B



C

Counting forwards and backwards

We need to count things on a daily basis. We can count in ones, or we can use faster ways of counting.

Example

Mila knows that counting in 5s will be easy for her. She puts ten 5c coins together in different stacks, then counts how much she has.



Activity 5

1. Complete the number sequence.

- a) 56; 58; 60; ; 64; ; ; 70
- b) ; 102; 101; 100; ; ; 97
- c) 115; ; 125; 130; 135; ;
- d) 135; 125; ; 105; 95; ;

2. Fill in the missing numbers.

- a) 37 39
- b) 95 94
- c) 125 126
- d) 150 148

3. Look at the number grid.

3	6	9	12	15	18	21	24	27	30
33	36	39	42	45	48	51	54	57	60
63	66	69	72	75	78	81	84	87	90

Use the grid to complete the skip counting in multiples of 3:

- a) 3; 6; 9; ; ; ;
- b) 21; 24; 27; ; ; ; 39;
- c) 18; ; ; ; ; 33; 36; 39
- d) 66; 69; 72; 75; ; ; ;

4. Look at the number grid. The highlighted numbers show skip counting in 4s.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

Use the number grid to complete these number sequences.

- a) 32; ; ; ; 48; 52; 56
- b) 52; 56; 60; ; ; 72;
- c) ; 72; 68; ; ;
- d) ; ; ; 88; 92, 96, 100

Describe, compare and order numbers to 50

We use **smaller than**, **greater than**, **more than**, **less than** and **is equal to** when we compare numbers.

Example

Use these words to make each statement true.

more than

smaller than

greater than

equal to

less than

- a) 18 is _____ or _____ 19
- b) 45 is _____ 4 tens and 5 units
- c) 39 is _____ 29

Answer

- a) 18 is **smaller than** or **less than** 19
- b) 45 is **equal to** 4 tens and 5 units
- c) 39 is **greater than** 29

Activity 6

- I. Use these words to make each statement true.

more than

smaller than




greater than

equal to

less than

- a) 24 is _____ 34
- b) 37 is _____ 3 tens and 7 units
- c) 43 is _____ 23
- d) 35 is _____ 3 tens and 5 units

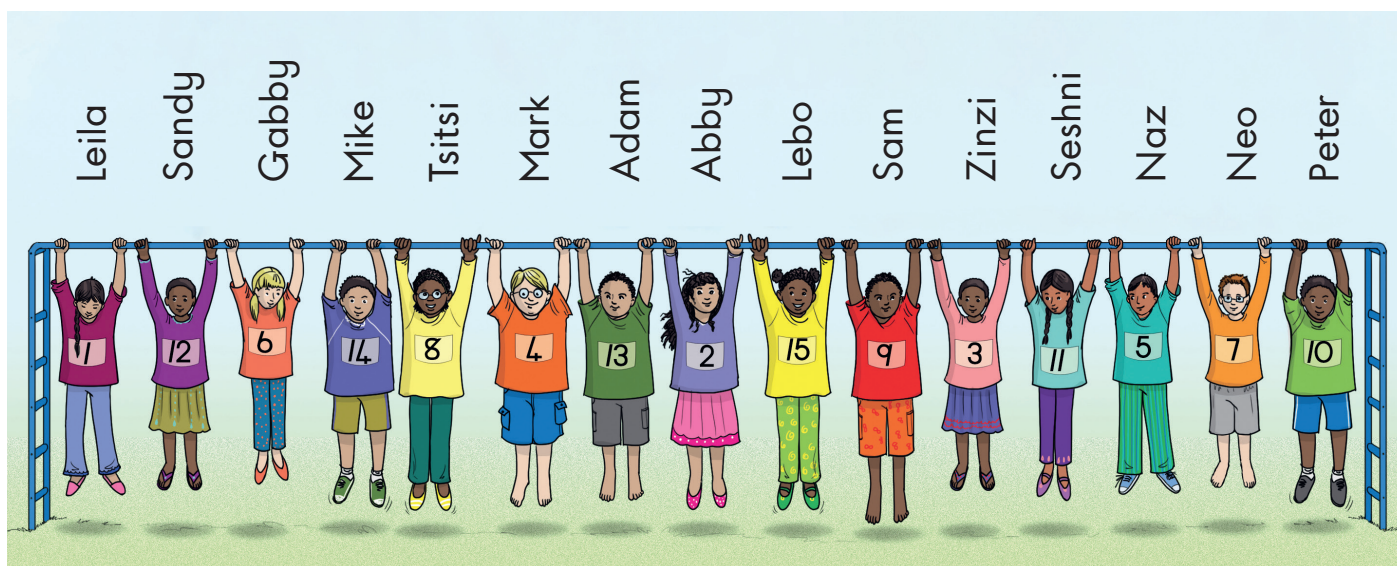
2. Write the number that comes before, between and after each number.

Before	Between	After
_____ 19	10 _____ 12	12 _____
_____ 24	14 _____ 16	19 _____
_____ 31	23 _____ 25	26 _____
_____ 34	29 _____ 31	29 _____
_____ 45	33 _____ 35	33 _____
_____ 47	41 _____ 43	37 _____
_____ 50	47 _____ 49	49 _____
		

3. Write from greatest to smallest.

- a) 18, 20, 36, 43, 24
- b) 50, 42, 17, 5, 39
- c) 37, 12, 8, 19, 34
- d) 48, 34, 3, 43, 23

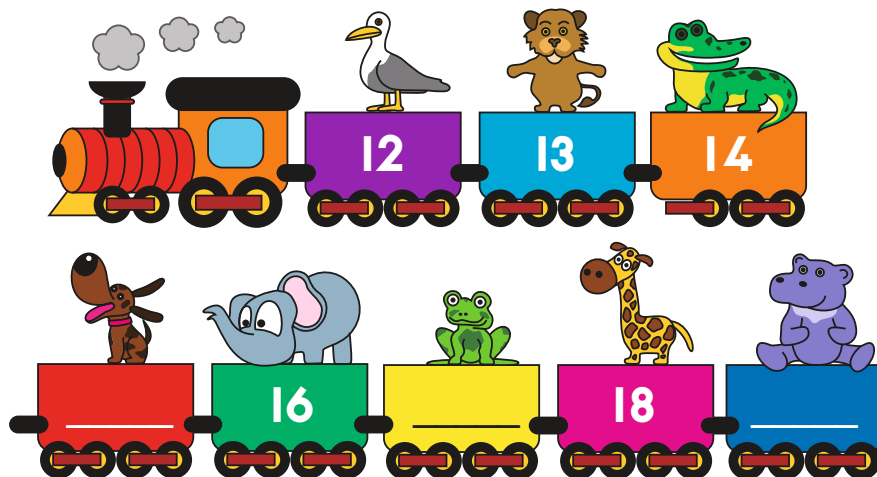
4. Look at the children on the bar. Order the numbers from the smallest to the greatest.



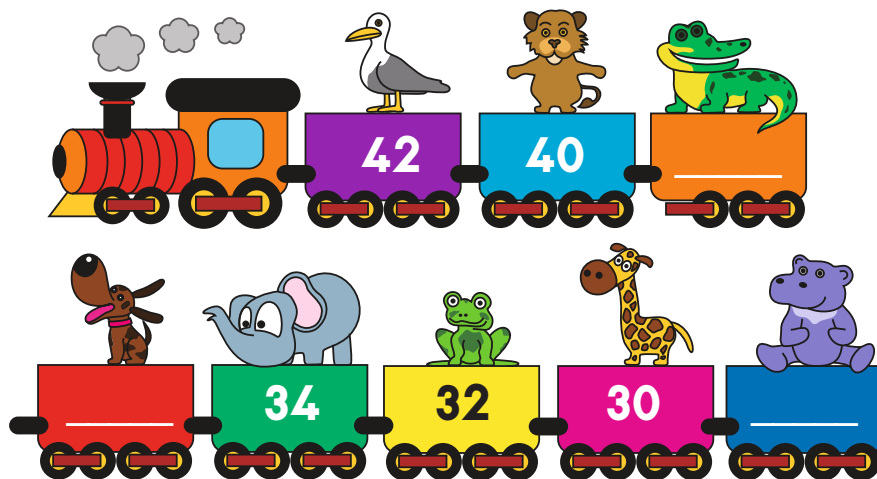
- a) Who is in the first position?
- b) Who is in the second position?
- c) Who is in the third position?
- d) Who is in the fourth position?
- e) Who is in the fifth position?
- f) Who is in the sixth position?
- g) Who is in the seventh position?
- h) Who is in the eighth position?
- i) Who is in the ninth position?
- j) Who is in the tenth position?
- k) Who is in the last position?

5. Look at the number trains. Write the missing numbers.

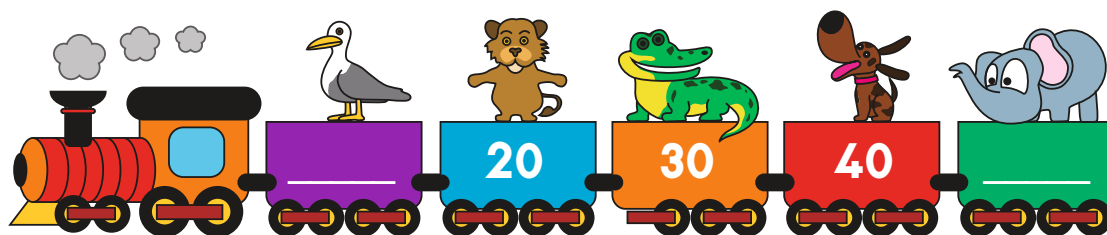
a)



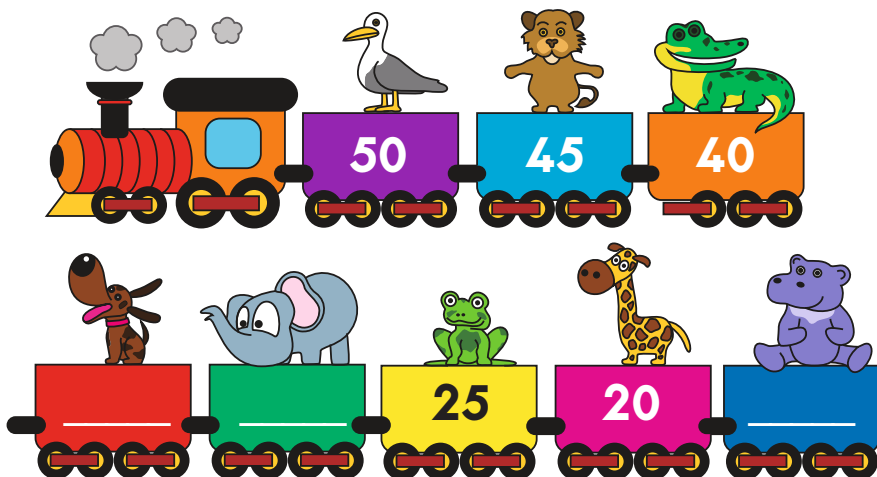
b)



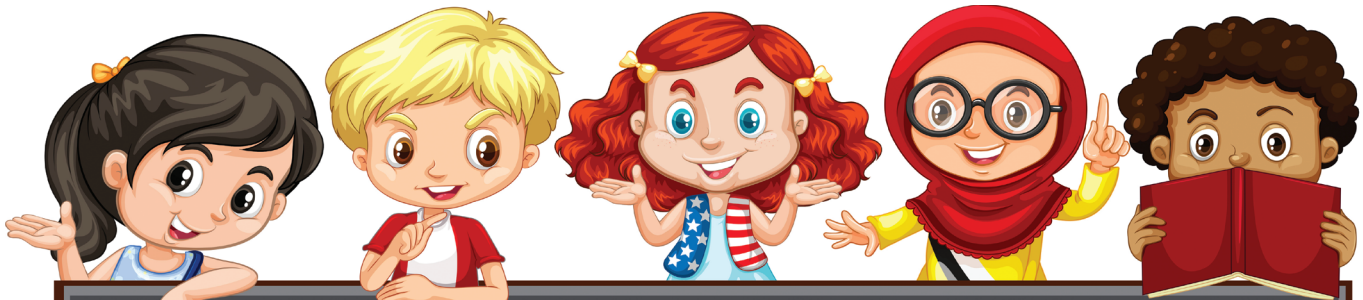
c)



d)



6. Use the number grid to help you answer the questions that follow:



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

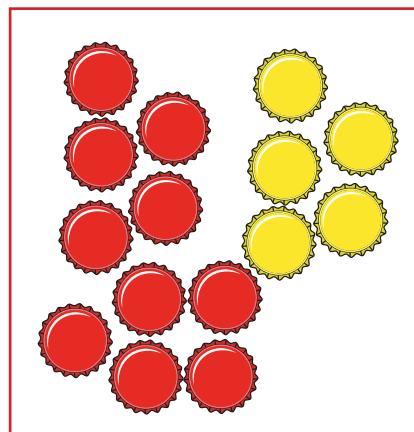
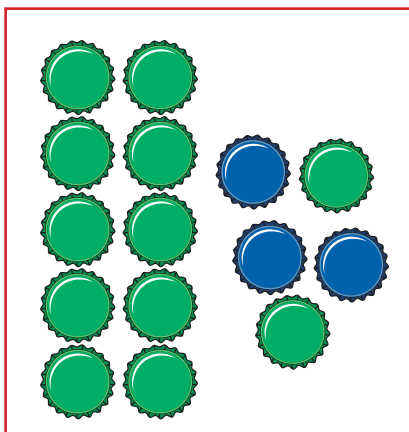
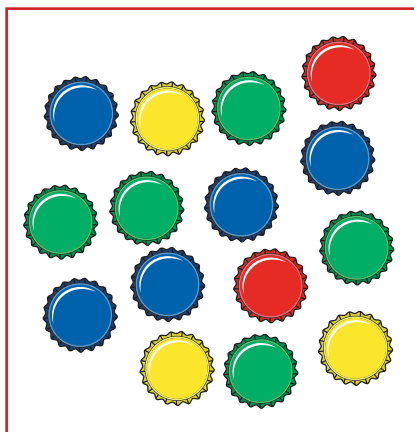
- What number comes just before 48?
- What number comes just after 34?
- What number is between 24 and 26?
- What number is 2 greater than 44?
- What number is 3 less than 39?
- What number is 10 greater than 37?
- What number is 5 less than 45?
- What number is 4 greater than 28?

Learn about place value

Place value helps you understand the value of each digit in a number.

Example

What is the value of each group?



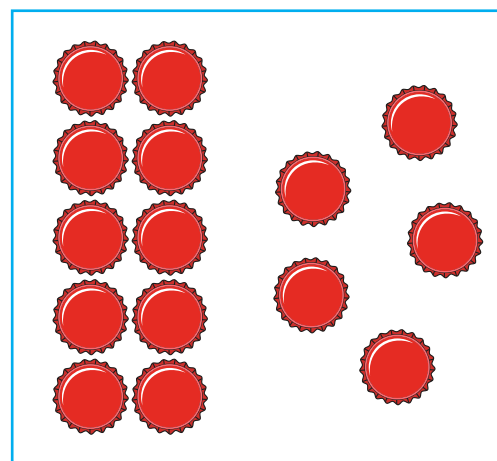
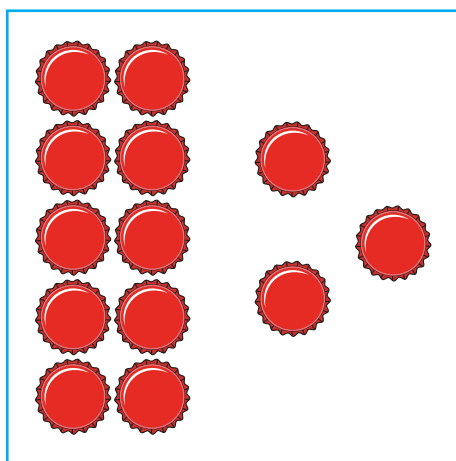
Answer

Each group shows 15.

Place value also helps you understand the **value** of different numbers.

Example

What number is greater?



Answer

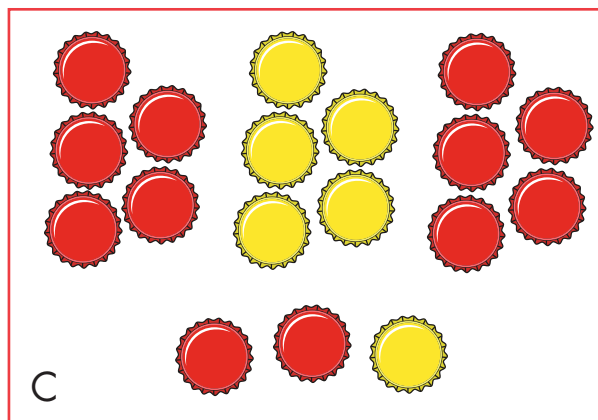
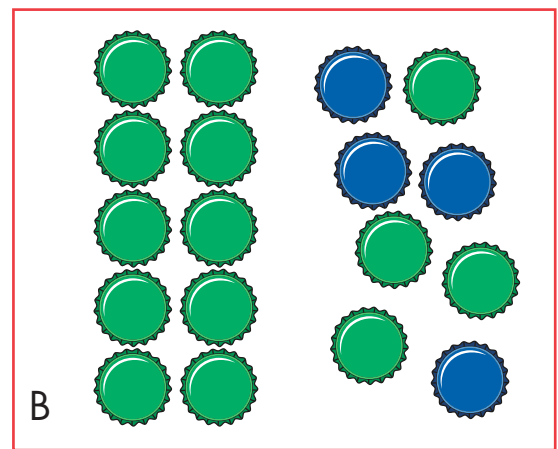
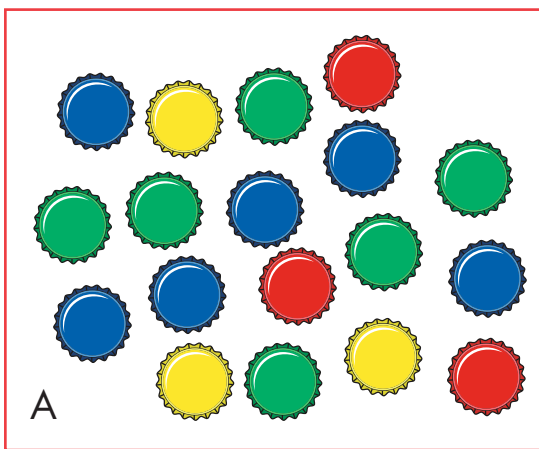
You can see that the second number is bigger.

It has 1 group of 10s and 5 loose ones, while the first number has 1 group of 10s and only 3 loose ones.

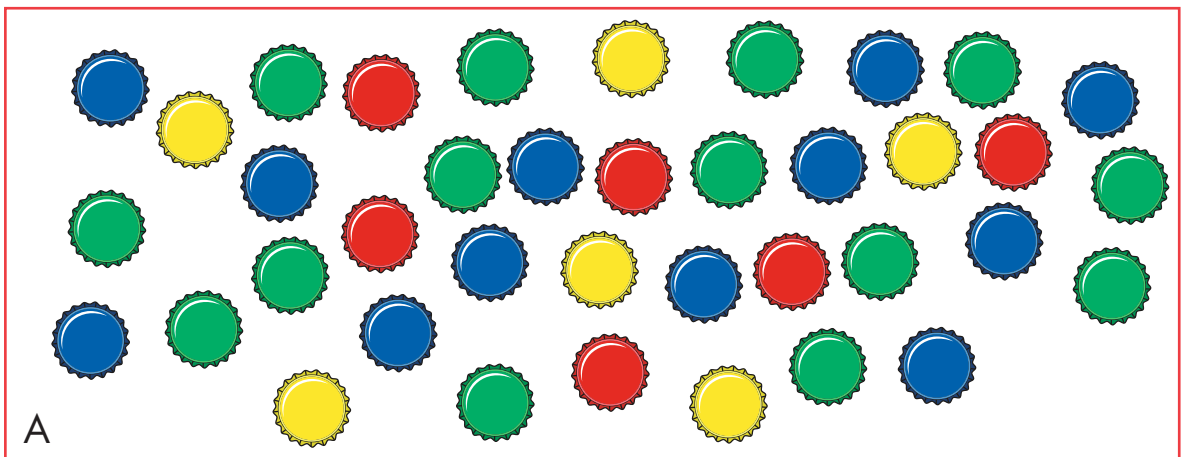
Activity 7

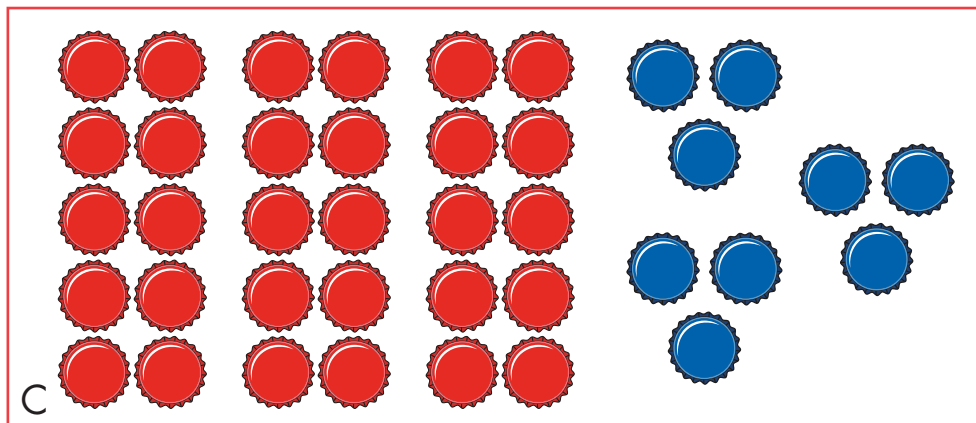
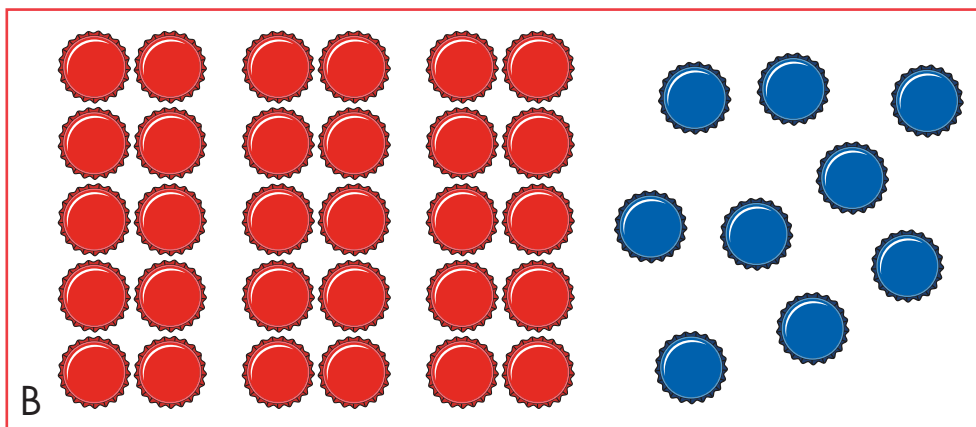
1. What is the value of each group?

a)



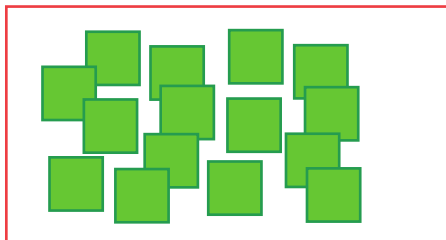
b)



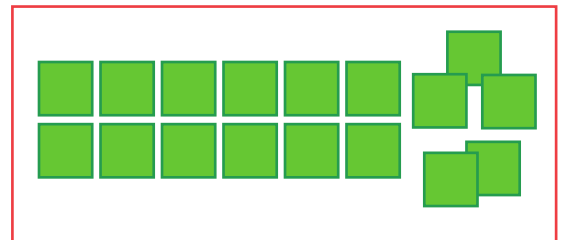


2. Write **greater than**, **less than** or **equal to**.

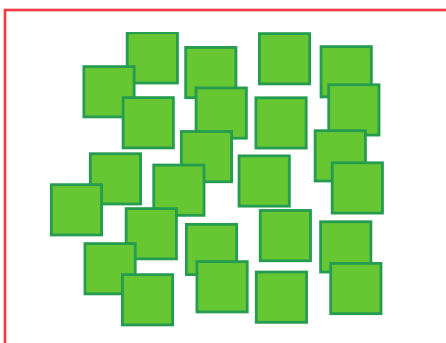
a)



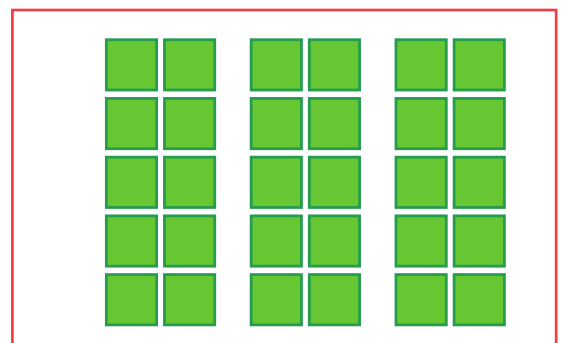
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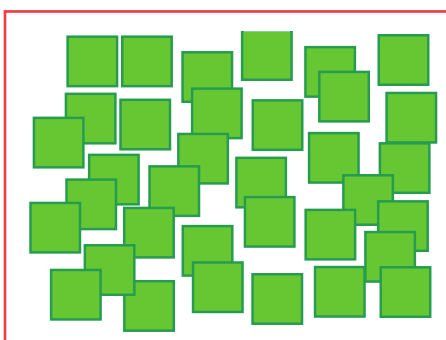
b)



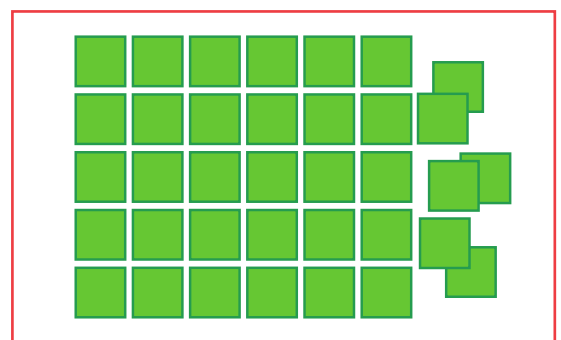
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c)



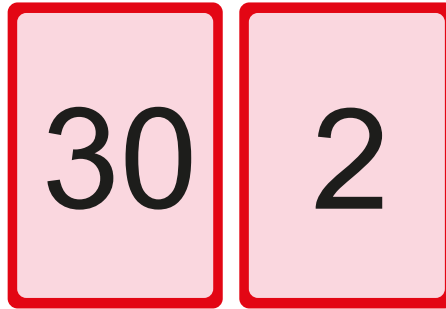
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Understanding place value helps you recognise patterns in numbers and the **value** of each digit in a number.

Example

- a) What is the value of each digit shown?

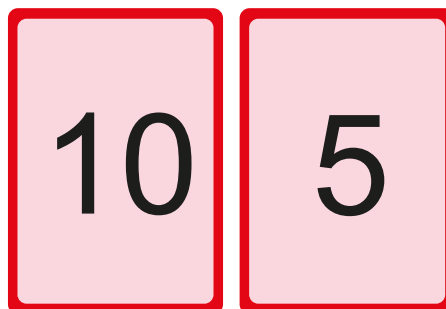


- b) Write the number.
c) Write the number name.

Answer

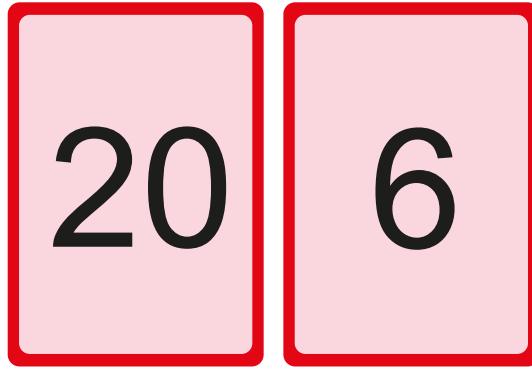
- a) 3 groups of tens and 2 loose ones
b) 32
c) thirty-two

3. a) What is the value of each digit shown?



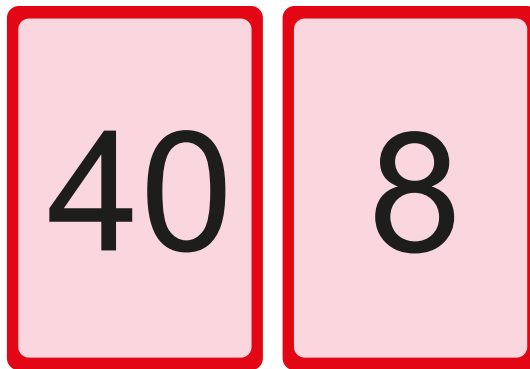
- b) Write the number.
c) Write the number name.

4. a) What is the value of each digit shown?



- b) Write the number.
c) Write the number name.

5. a) What is the value of each digit shown?



- b) Write the number.
c) Write the number name.

6. Complete.

- a) 15 = 1 group of tens and 5 loose ones.
15 = 10 and 5
- b) 18 = _____ group of tens and _____ loose ones.
18 = _____ and 8

c) $23 = \underline{\hspace{1cm}}$ groups of tens and $\underline{\hspace{1cm}}$ loose ones.

$23 = \underline{\hspace{1cm}}$ and 3

d) $28 = \underline{\hspace{1cm}}$ groups of tens and 8 loose ones.

$\underline{\hspace{1cm}} = 20$ and $\underline{\hspace{1cm}}$

e) $37 = \underline{\hspace{1cm}}$ groups of tens and 7 loose ones.

$37 = \underline{\hspace{1cm}}$ and $\underline{\hspace{1cm}}$

f) $46 = \underline{\hspace{1cm}}$ groups of tens and $\underline{\hspace{1cm}}$ loose ones.

$\underline{\hspace{1cm}} = \underline{\hspace{1cm}}$ and $\underline{\hspace{1cm}}$

g) What does the number 4 in 14 represent?

h) What does the number 2 in 28 represent?

i) What does the number 9 in 39 represent?

j) What does the number 4 in 45 represent?

7. Choose five numbers between 10 and 50.

a) Write down your numbers and underline a digit in each number.

b) Ask your friend to tell you the value of the underlined digits. They should explain their choice.

Addition and subtraction

Activity 8

1. Fill in the missing numbers to make the number sentence correct.

a) $13 + \square = 15$

b) $\square + 9 = 11$

c) $7 + \square = 14$

d) $10 + \square = 15$

e) $4 + \square = 13$

f) $\square + 8 = 15$

2. Join the bonds that add up. The first one has been done for you:

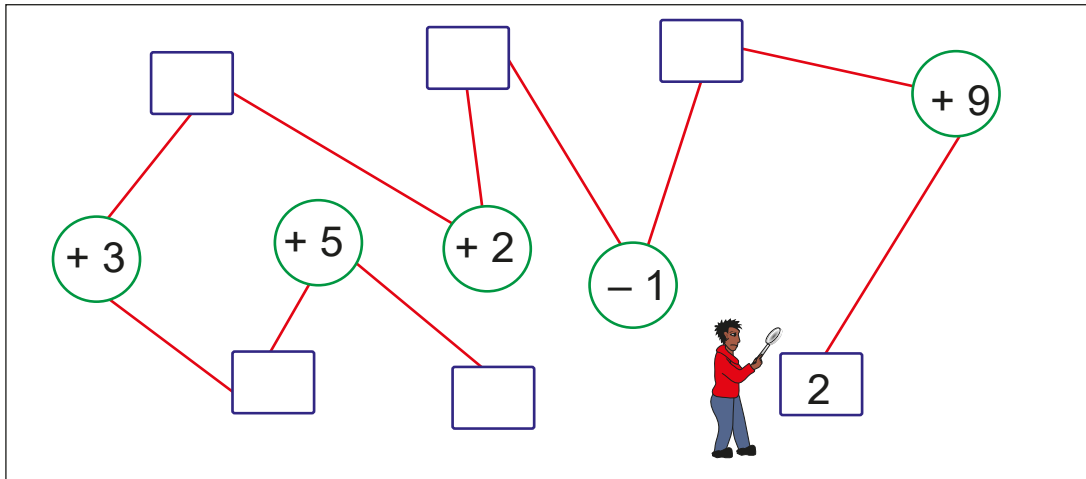
13	
10	6
7	12
11	3
12	2
1	9
4	1

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

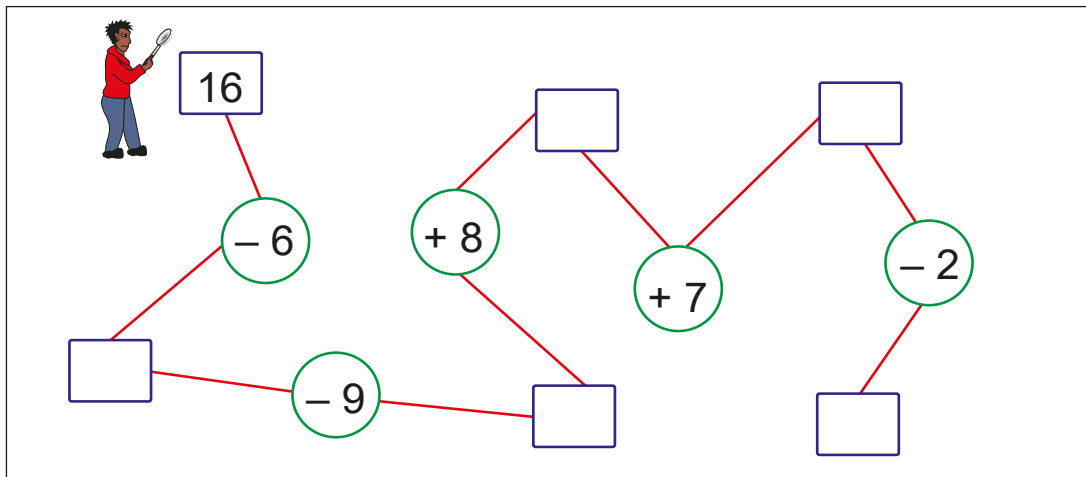
3. Write down all the bonds that make 15.

1	14	9	7	8	4
8	2	10	3	1	11
6	9	5	2	13	7
9	7	8	12	3	5
3	12	2	1	6	10

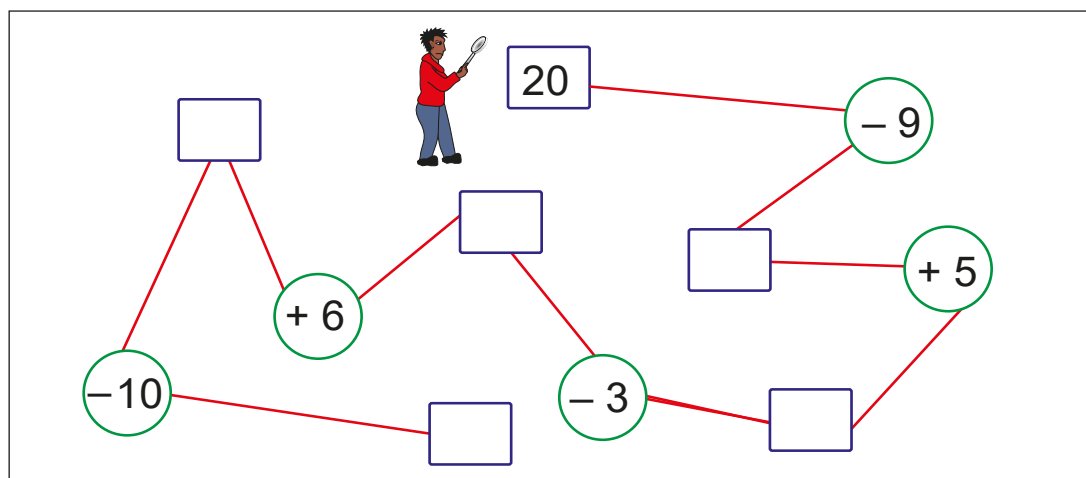
4. Complete the number trail. Start at 2.



5. Complete the number trail. Start at 16.



6. Complete the number trail. Start at 20.



Example

Complete the following.

$$16 + \boxed{} = 20 \text{ therefore } \underline{\hspace{2cm}}$$

Answer

$$16 + 4 = 20 \text{ therefore } 20 - 16 = 4$$

7. Complete the following:

a) $\boxed{} + 22 = 35$ therefore $\underline{\hspace{2cm}}$

b) $25 + \boxed{} = 50$ therefore $\underline{\hspace{2cm}}$

c) $\boxed{} + 18 = 42$ therefore $\underline{\hspace{2cm}}$

d) $12 + \boxed{} = 48$ therefore $\underline{\hspace{2cm}}$

e) $\boxed{} + 37 = 43$ therefore $\underline{\hspace{2cm}}$

8. Micah has 24 pencil crayons. He loses 4. How many does he have left?

9. Diana and Mishka have 12 hairbands each.

a) How many do they have altogether?

b) Diana makes 7 plaits, and Mishka makes 8 plaits.
How many hairbands do they use altogether?

c) How many hairbands are left?

Problem solving

We can use drawings to help us solve problems.

Drawing 5 objects is easy. But drawing 35 objects can take a lot of time. To help us, we can use groups of objects and what we have learnt about place value to help us solve problems.

Example

Lebo is given the following problem.

There are 35 crayons in a bucket. If 6 more crayons are added to the bucket, how many crayons are there altogether?

Answer

Lebo solves the problem like this:

$$35 + 6 = \square$$

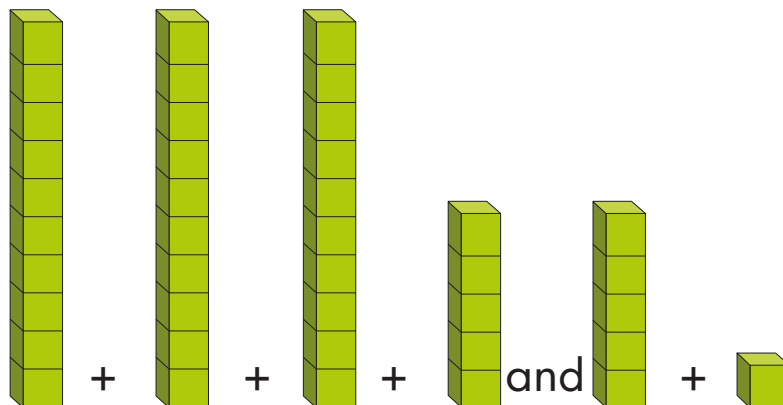
$$\textcircled{10} + \textcircled{10} + \textcircled{10} + \textcircled{5} \text{ and } \textcircled{5} + \textcircled{1}$$

$$10 + 10 + 10 + 5 \rightarrow 35 + 5 \rightarrow 40 + 1 = 41$$

There are 41 crayons altogether.

OR

Lebo could also have used counters to help her solve this problem.



$$10 + 10 + 10 + 5 \rightarrow 35 + 5 \rightarrow 40 + 1 = 41$$

There are 41 crayons altogether.

Activity 9

1. A soccer team has 32 players in the squad. During a match there are 11 players on the field. How many players are not playing?
2. During a netball tournament, there 5 teams playing. Each team has 7 players.
 - a) How many players are taking part in the tournament?
 - b) If 5 players reach the first match of the tournament late, how many players are at the match already?

To make numbers easier to work with, we can break them down, then build them up again to find the answer.

Example

Sipho is given this problem to solve:

$$28 + 15 = \square$$

Answer

This is how he solved it.

$$28 + 15$$

$$= (20 + 8) + (10 + 5)$$

$$= (20 + 10) + (8 + 5)$$

$$= 30 + 13$$

$$= 43$$

$$\text{Therefore, } 28 + 15 = 43$$

3. Solve the following problems:

- a) Mishka is given 23 balloons to hang for her birthday party. She is then given 14 more balloons to hang. How many balloons did she hang altogether?
- b) Imaan had 20 primary teeth. She lost 7 primary teeth. She then grew 4 permanent teeth. How many teeth does she have now?

When you are given a problem to solve, check if you can solve it using doubling or halving. Try to find near doubles and work from there.

Example

Naeem is given this problem to solve:

$$19 + 23 = \square$$

Answer

This is how he solved it.

$$\begin{aligned} &23 + 19 \\ &= (20 + 3) + (20 - 1) \\ &= (20 + 20) + (3 - 1) \\ &= 40 + 2 \\ &= 42 \end{aligned}$$

Therefore, $19 + 23 = 42$

4. Solve the following problems:

- a) Safina and Shawn are disagreeing on a sum they are trying to solve. Safina says that $18 + 12 = 31$. Shawn says that $18 + 12 = 30$. Who is correct? Use the breaking down and building up method to solve the problem.
- b) Will scored 22 and Lisa scored 27 in the first round. In the second round, Will scored 25 and Lisa scored 23. Use the doubling and halving method to see who is the winner.



Using number lines can also help you to solve number problems.

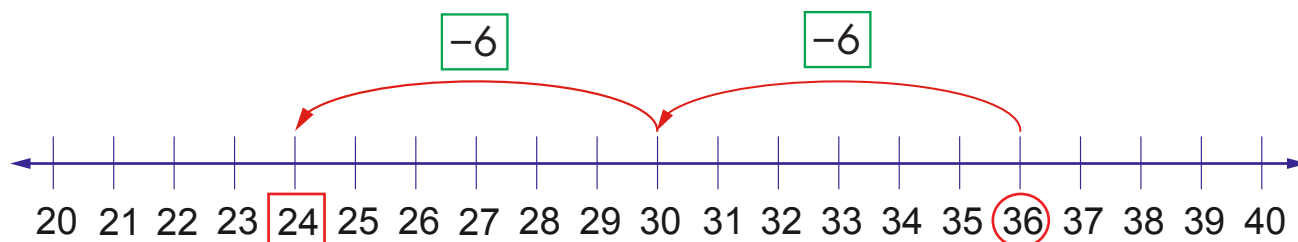
Example

Cedric is given this problem to solve:

$$36 - 12 = \square$$

Answer

This is how he solved it.



$$36 - 12 = 24$$

5. Use a number line to solve the following problems:
- Lance had 32 marbles. He lost 14 marbles to Elroy. How many marbles does he have left?
 - Elroy had 23 marbles. He won 14 marbles from Lance. How many marbles does he have?

Solve these problems using any method you prefer.

6. In the shop there are 12 vanilla cupcakes, 8 chocolate cupcakes, 9 sprinkle cupcakes and 10 red velvet cupcakes.
- How many cupcakes are there altogether?
 - One customer buys 3 vanilla cupcakes, 3 chocolate cupcakes, 3 sprinkle cupcakes and 3 red velvet cupcakes. How many cupcakes did the customer buy altogether?
 - How many cupcakes are left?
 - If there must always be 12 of each type of cupcake, how many of each type must the shopkeeper replace?

Write:

Vanilla $12 - 3 = \square$, so $12 - \square = \square$

Chocolate $8 - 3 = \square$, so $12 - \square = \square$

Sprinkles $9 - 3 = \square$, so $12 - \square = \square$

Red velvet $10 - 3 = \square$, so $12 - \square = \square$

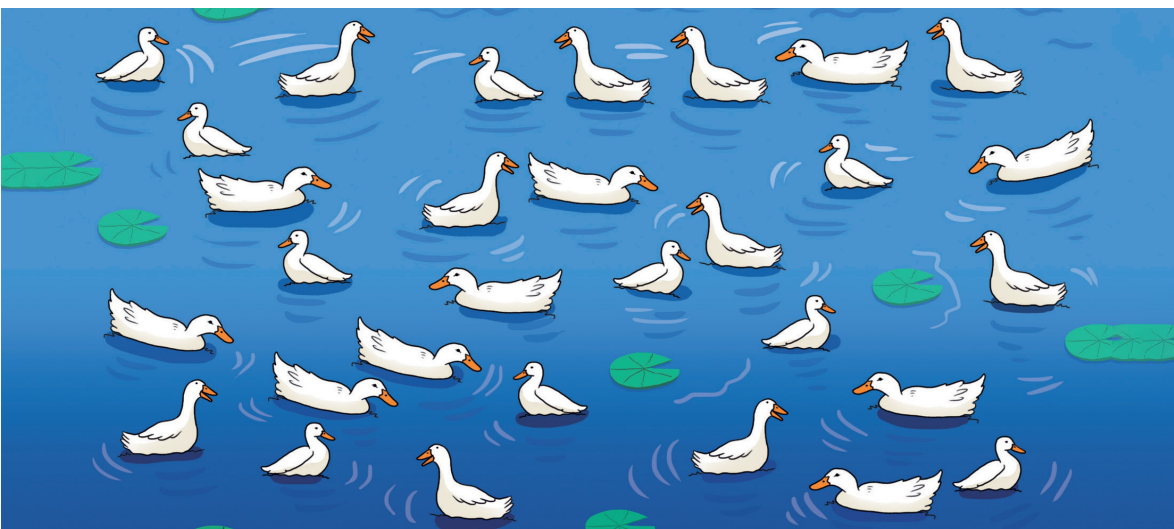
7. Likentso and her family visited an apple farm.
- If one farm worker has 26 apples and packs them into bags of 5 each, how many bags would he need?
 - How many apples will be left over?

- c) If the farm worker gives the left over apples to Likentso to share equally amongst her and her 3 siblings, how much would each one get?

8. Stan and Marko are out fishing at the lake. They have boxes with bait in them. Each box has 5 sardines in them.



- a) How many sardines do they have if they have 12 boxes altogether?
- b) If Stan uses 15 sardines, and Marko uses 18 sardines, how many sardines are left over?
- c) If each boy uses 5 more each, how many sardines have they used for the day?
9. A flock of ducks settle on the lake. How many ducks altogether? Use any strategy to determine the answer.



- 10.** If a car has 4 wheels, how many cars can you build if you have 16 wheels?
- 11.** There are 28 rabbits in a field. 27 more rabbits join them.
- a)** How many rabbits are there altogether?
 - b)** If 19 rabbits go to another field, how many rabbits are left?
- 12.** A pie shop has 48 pies on display. There are 12 chicken pies, 9 steak pies, 7 cheese pies and the rest are pepper steak pies.
- a)** How many pepper steak pies are there?
 - b)** If the shop sells 4 chicken pies, 3 steak pies, 5 cheese pies and 9 pepper steak pies, how many pies are left?
- 13.** The assistant in the library needs to pack away some books. There are 29 fiction books and 28 non-fiction books.
- a)** How many books must she pack away all together?
 - b)** If she packs away 20 books in 1 hour, will 2 hours be enough to pack all the books away?

Repeated addition

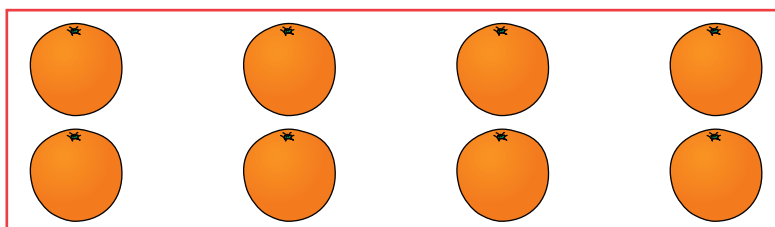
Last term we learnt about repeated addition.

We also learnt that repeated addition leads to **multiplication**.

We use the symbol \times to show multiplication.

Example

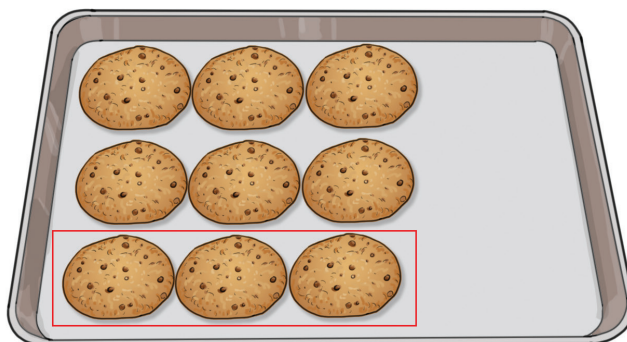
Look at these oranges. They are arranged in groups of 2. We can use repeated addition to find how many oranges are there. So, $2 + 2 + 2 + 2 = 8$.



We can also use multiplication to find how many oranges are there. We can call this array 4 groups of 2 or 4×2 . There are 8 oranges in the array, so we can say $4 \times 2 = 8$.

Example

Allen is a baker. He uses baking sheets for his cookies. Use repeated addition to work out how many cookies are on this baking sheet.



Answer

$$3 + 3 + 3 = 9$$

OR

$$3 \times 3 = 9$$

Activity 10

1. Use repeated addition to work out how many biscuits are on each of the baking sheets.

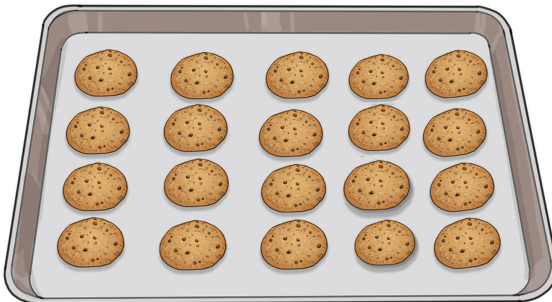
a)



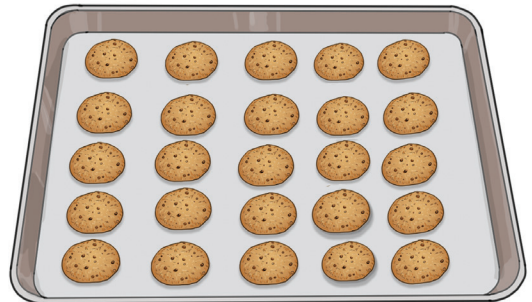
b)



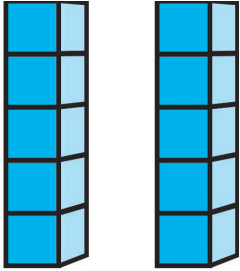
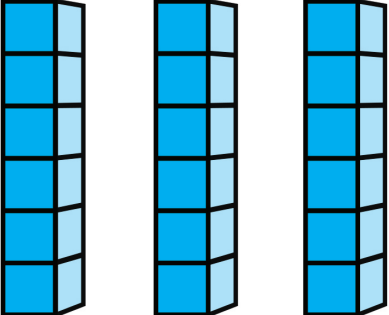
c)

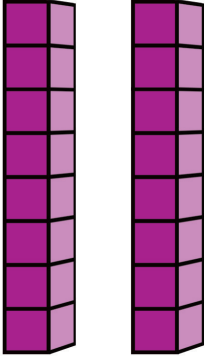
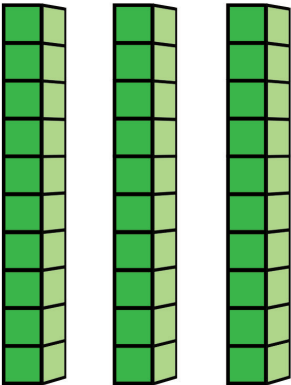


d)

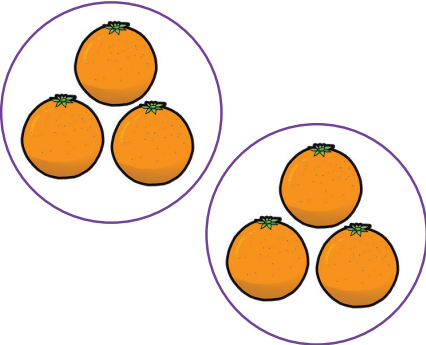
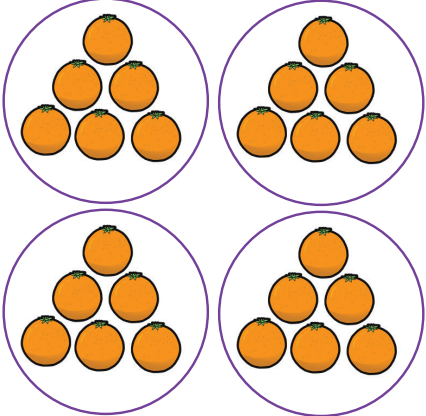


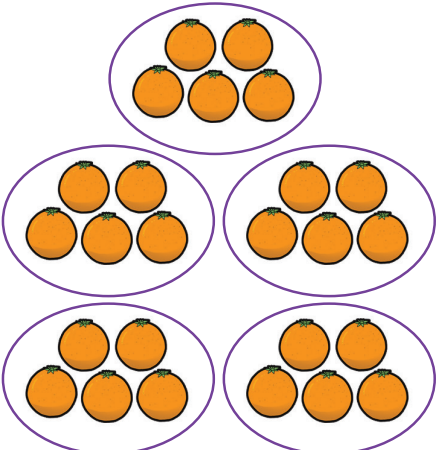
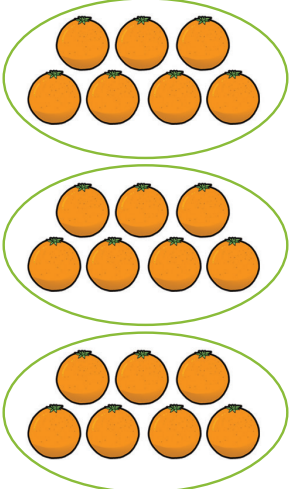
2. Copy and complete. The first one has been done for you.

<p>a)</p> 	$5 + 5 = 10$	$2 \times 5 = 10$
<p>b)</p> 		

c)			
d)			

3. Complete the last column. The first one has been done for you.

a)	There are 2 groups. There are 3 in each group.		<p>You can add: $3 + 3 = 6$</p> <p>OR</p> <p>You can multiply: $2 \times 3 = 6$</p>
b)	There are 4 groups. There are 6 in each group.		

<p>c) There are 5 groups. There are 5 in each group.</p>		
<p>d) There are 3 groups. There are 7 in each group.</p>		

4. Copy and complete.

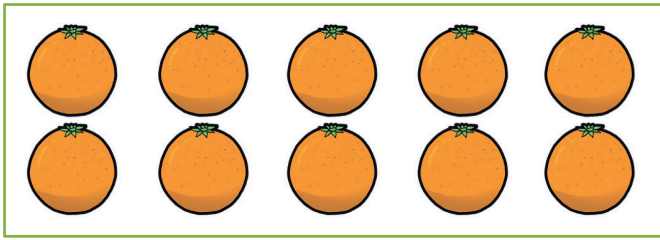
$\times 2$	1	2	3	4	5	6	7	8	9	10

5. Copy and complete.

$\times 5$	1	2	3	4	5	6	7	8	9	10

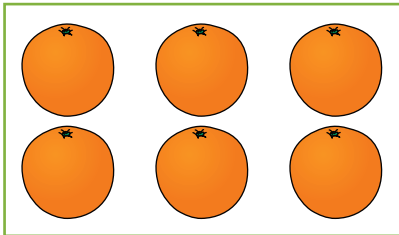
6. Copy and complete.

a)



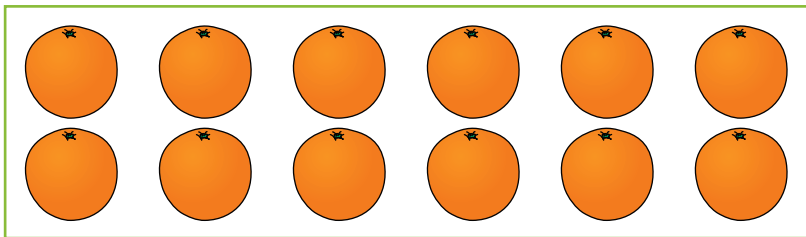
$$5 \times 2 = \underline{\hspace{2cm}}$$

b)



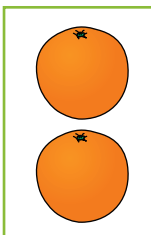
$$3 \times 2 = \underline{\hspace{2cm}}$$

c)



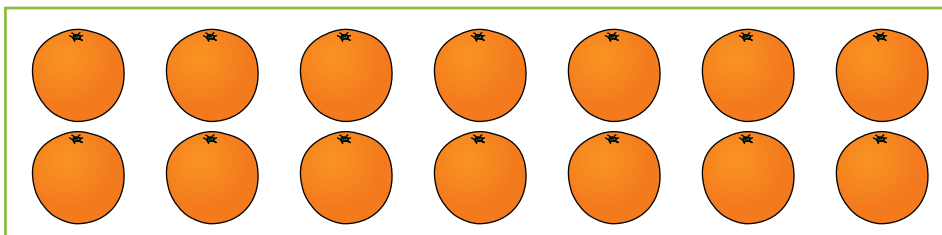
$$6 \times 2 = \underline{\hspace{2cm}}$$

d)



$$1 \times 2 = \underline{\hspace{2cm}}$$

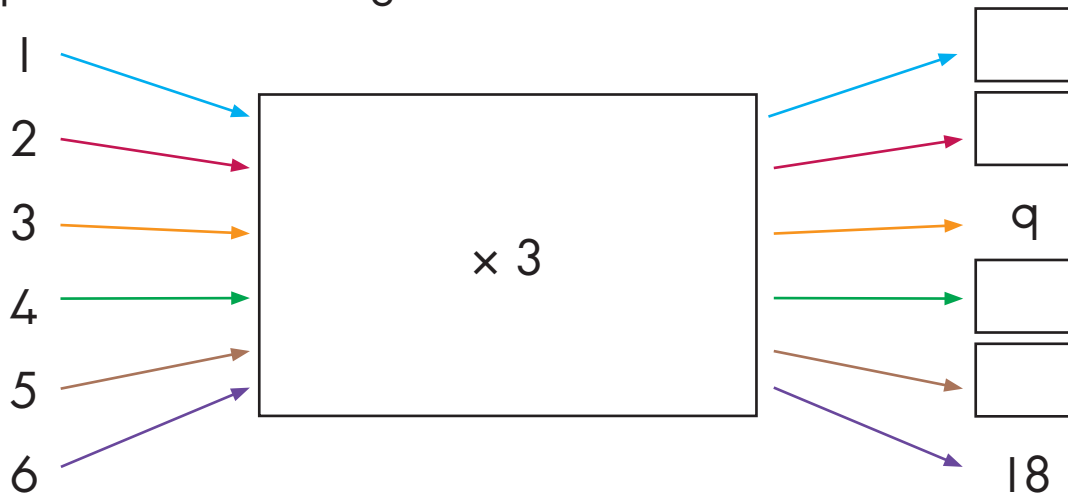
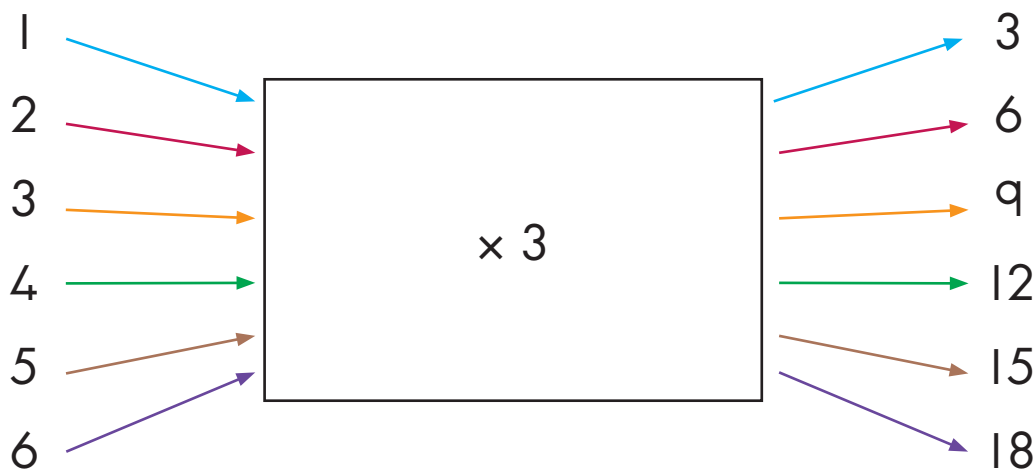
e)



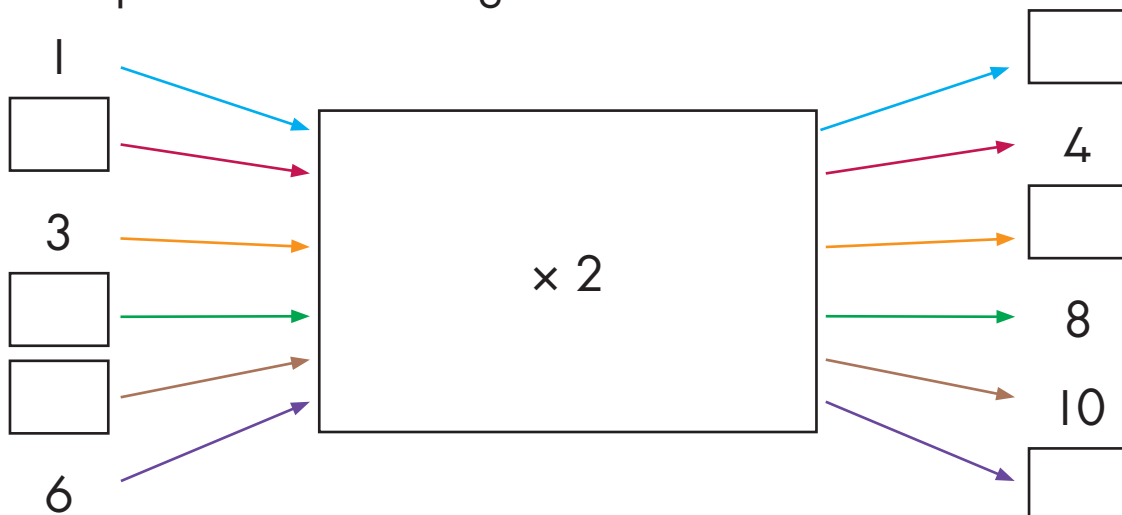
$$7 \times 2 = \underline{\hspace{2cm}}$$

Example

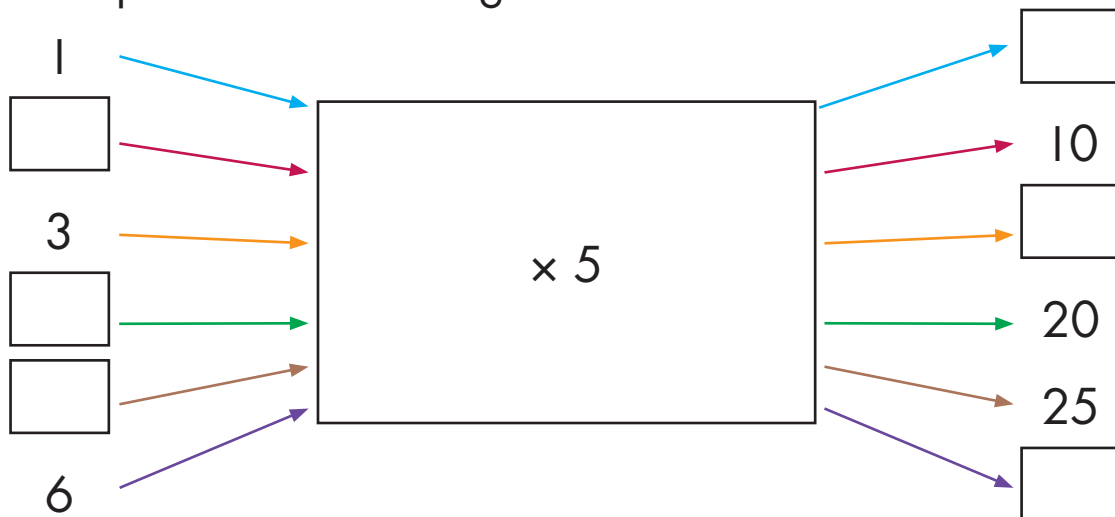
Complete the flow diagram.

**Answer**

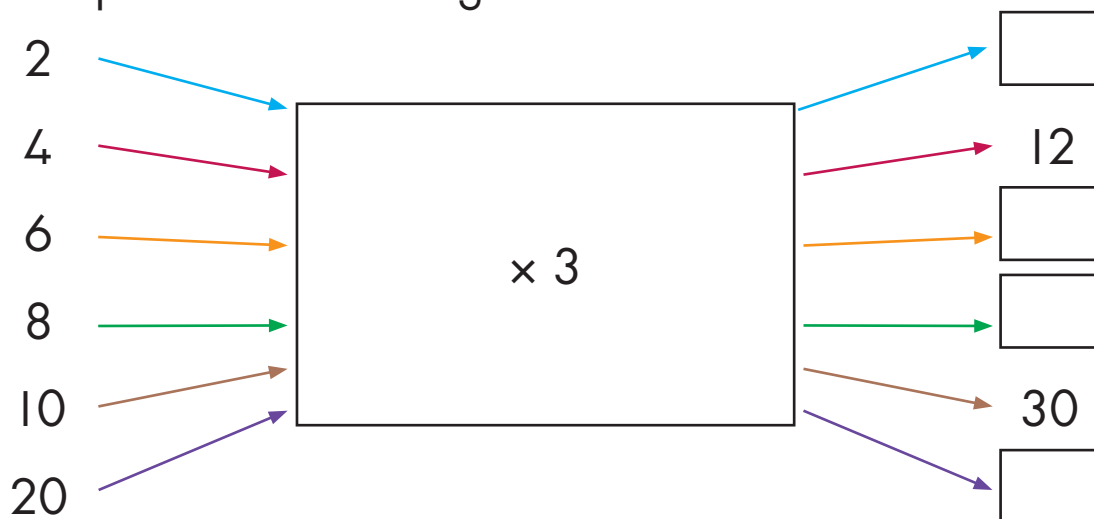
7. Complete the flow diagram.



8. Complete the flow diagram.



9. Complete the flow diagram.



10. Complete

a) $2 + 2 = 2 \times 2 =$

b) $2 + 2 + 2 = 3 \times 2 =$

c) $2 + 2 + 2 + 2 = 4 \times 2 =$

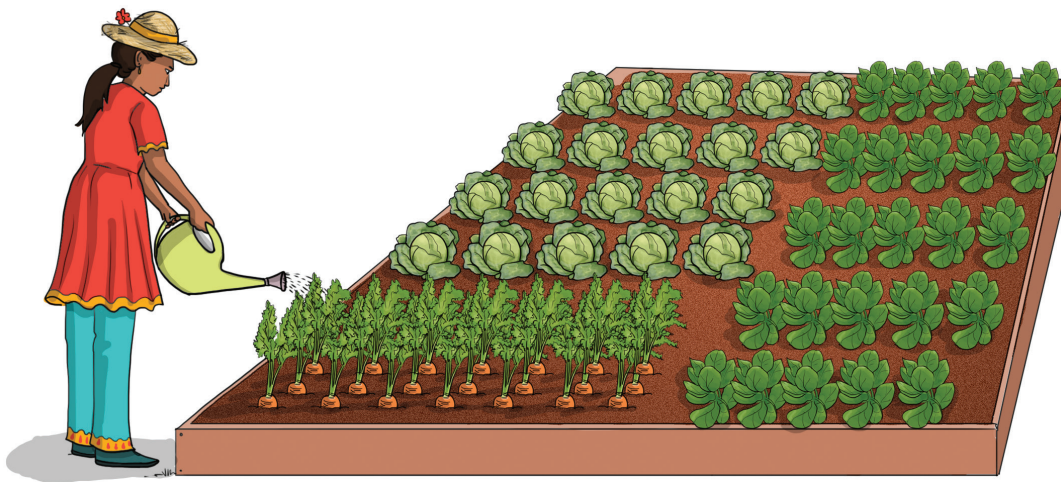
11. The doctor tells Cedric that he needs to drink at least 8 glasses of water per day.

Cedric drinks 28 glasses of water per week.

He should be drinking 56 glasses per week.

How many more glasses of water should he drink to get to 56?

12. Maddy decides to start a food garden for some of the people in her community.
- a) She grows 3 rows of 7 carrots. How many carrots does she grow?
 - b) She grows 4 rows of 5 cabbage plants. How many cabbage plants does she grow?
 - c) She grows 5 rows of 5 bunches of spinach. How many bunches of spinach does she grow?



13. A spider has 8 legs altogether. Maxwell saw 4 spiders in the field. How many legs did he see altogether?
14. Teacher Naledi uses 5 loaves of bread per day to make sandwiches for the learners.
- a) How many loaves of bread will Teacher Naledi use in 2 days?
 - b) How many loaves of bread will Teacher Naledi use in 4 days?
 - c) How many loaves of bread will Teacher Naledi use in 6 days?
 - d) How many loaves of bread will Teacher Naledi use in 8 days?

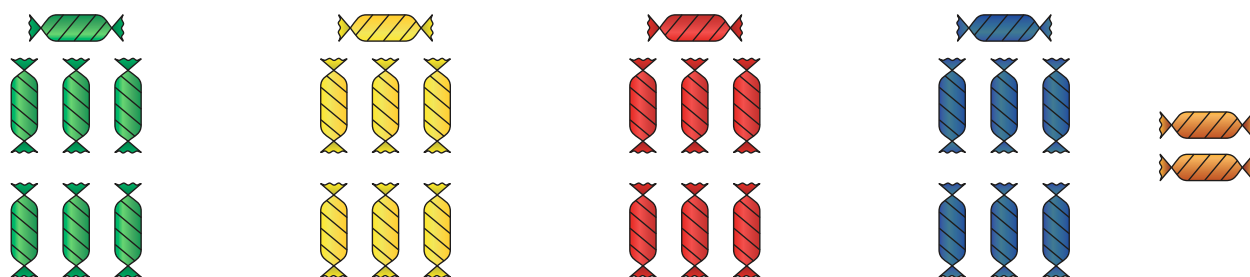
Grouping and sharing

When we have to work with problems that involve **grouping** and **sharing** we can use objects such as counters to help us solve them. We can then express the problem in words and by using **number sentences**.

Example

Simon is making party packets. Each party packet has 7 sweets in it. He has 30 sweets. How many packets of 7 sweets each can he make?

Answer

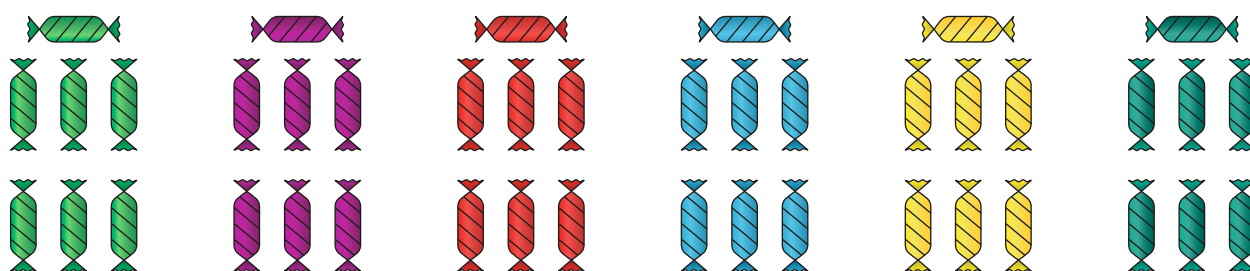


Simon can make 4 party packets of 7 sweets each.

Example

Nandi is making party packets. She wants to put 42 sweets into the party packets. How many party packets can she make if she puts 7 sweets in each party packet?

Answer



Nandi can make 6 party packets of 7 sweets each.

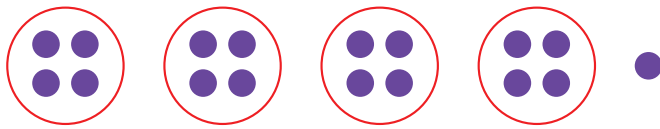
If we need to share things equally amongst a number of people, we can also use drawings to help us.

Example

Share 17 marbles amongst 4 friends so that they all get the same number of marbles. How many marbles will each friend get?

Answer

Each friend will get 4 marbles, with 1 marble left.



6. Mother bought 18 sunflowers. She wants to share these amongst 3 vases. How many sunflowers will there be in each vase?
7. Share 50 counters amongst 6 friends so that they all get the same number of counters. How many counters will each friend get?
8. Gerald and Ash take turns to work at the fruit stall. Gerald works 6 hours per day and Ash works 2 hours per day. They are paid R48. How must they share the money?



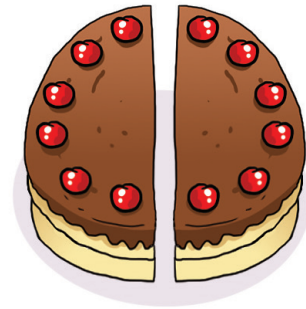
Sharing leading to fractions

A fraction is a part of a whole.

When we split something into 2 equal parts, we call each part a half .

Example

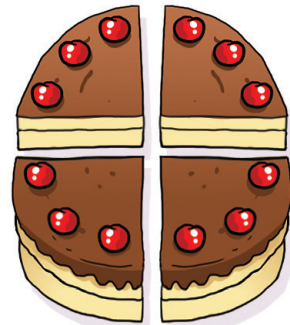
Here is Mo's birthday cake.
Her mom cuts the cake in half.



When we split something into 4 equal parts, we call each part a quarter .

Example

Here is Mo's birthday cake.
Her mother cuts the cake in quarters.



Activity 12

- I. Use a drawing to help you.
 - a) Stella has a chocolate. She wants to share it with her sister. How much of the chocolate will each girl get?



- b) If two of Stella's friends joins them, how much of the chocolate will each girl get now?

The part that Stella had to share in **b)** is called a quarter.

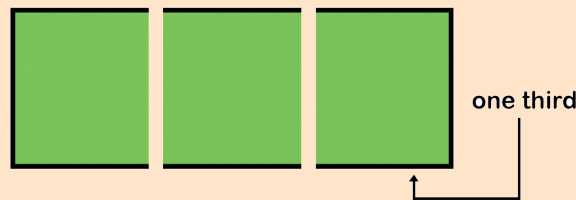
This means that 1 piece was shared equally amongst the four children.

Here are different fractions.

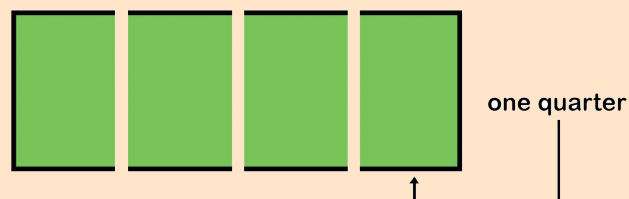
When we divide something into 2 equal parts, we call these parts **halves**.



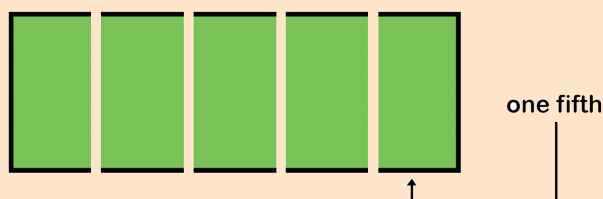
When we divide something into 3 equal parts, we call these parts **thirds**.



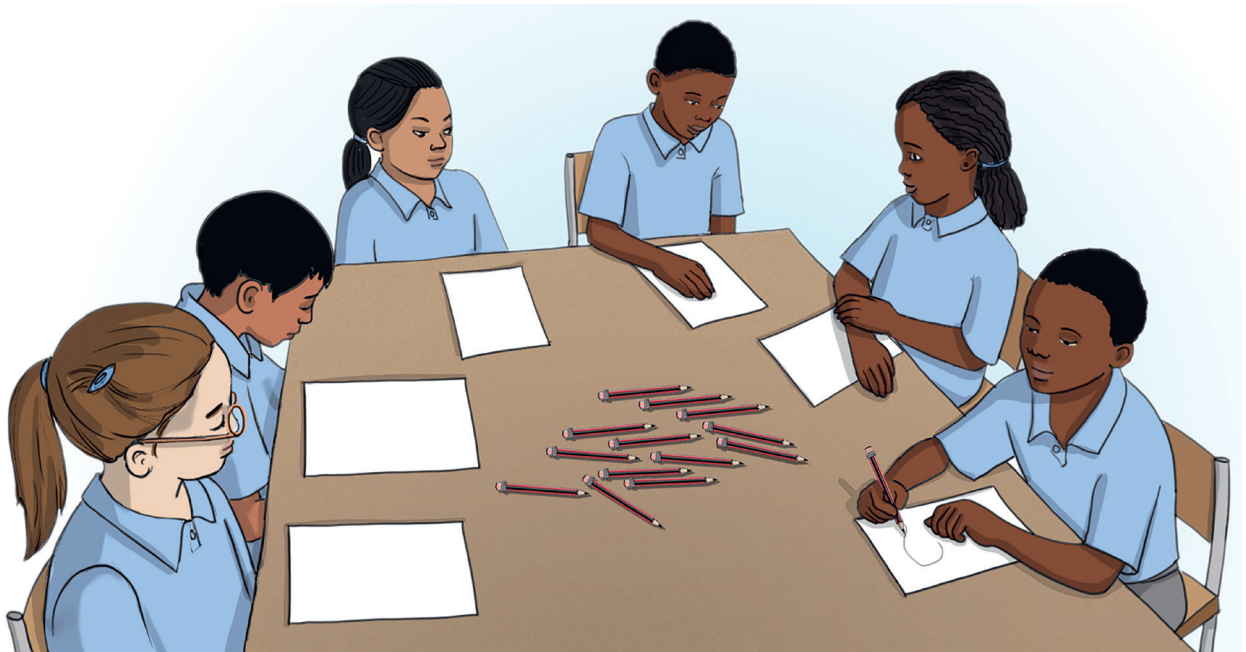
When we divide something into 4 equal parts, we call these parts **quarters**.



When we divide something into 5 equal parts, we call these parts **fifths**.



2. Solve the following problems. Use drawings to help you.
- a) Caleb, Caitlin, Lorcía and Zoe must share 5 bars of chocolate equally. How many bars of chocolate will each child get?
 - b) 6 learners sit together at their table. If their teacher gives them 13 pencils to share equally, how many pencils will each learner get?



- 3. If 4 people can fit into a taxi, how many taxis would you need to fit 24 people in?
- 4. Three judges at the skating contest award a score of 27. If each judge gave the same score, what score did each judge give?
- 5. Eight children were invited to Faiza's birthday party. Her mother shared 50 biscuits equally.
 - a) How many biscuits did each child get?
 - b) How many biscuits were left?

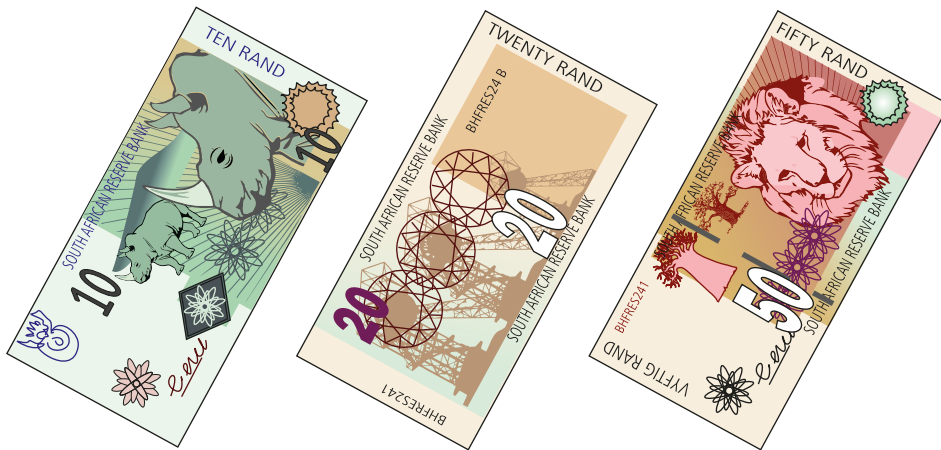
Working with money

We use money every day.

The coins we use in South Africa are:



Some of the bank notes we use in South Africa are:



Example

Here are some examples of when we use money.

- We use money to pay for what we want at the shop.
- We use money to pay for a taxi or bus.
- We use money to buy electricity.
- We use money to buy a movie ticket at the cinema.

Activity 13

- Sally has two 20c coins and one 10c coin.
 - How much does she have altogether?
 - Sally wants to buy a packet of chips that costs 50c. How much change will she have?

2. Nicky and Bongi each have some money.

These are the coins that Nicky has.



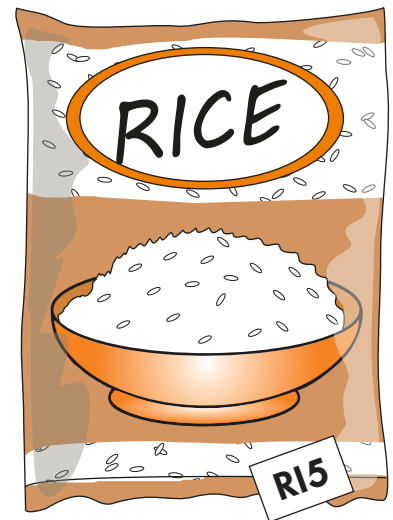
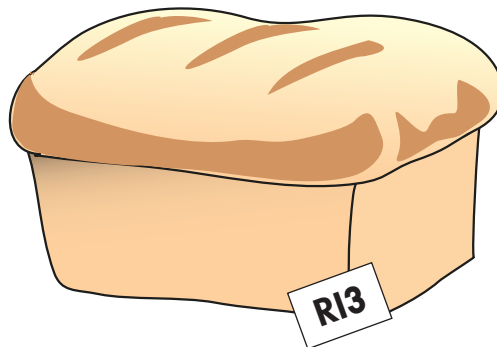
These are the coins that Bongi has.



Bongi says she has more money than Nicky. Is she right? Explain.

3. Vikesh and Martha go to the shop for Vikesh's mom. She gives them a R50 note.

These are the items they buy.



If Vikesh pays for all the items, how much change will he get?

4. Judy has these coins:




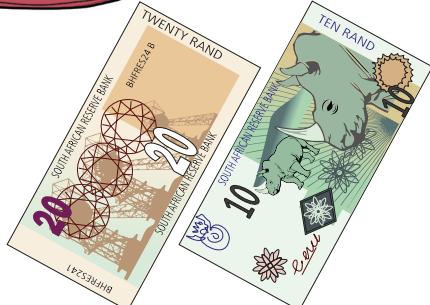


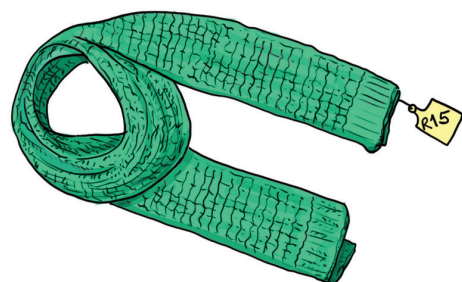

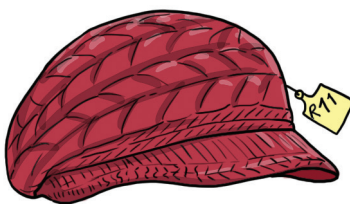


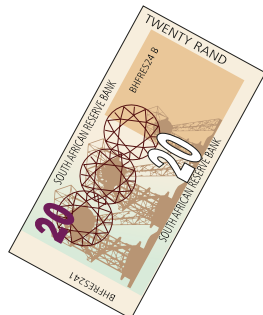


- a) How much money does she have altogether?
- b) Her sister borrows R3. What coins will Judy give her sister? Draw the coins.
- c) Judy gets R20 more from her father for her birthday. How much money does she have now?
- d) Judy has R30. She goes to the shop.
She buys a doll, a lollipop and a chocolate. How much change will she have?



5. Malik has 3 R10 notes and Aysha has 7 R5 coins. Who has more money?
6. Shayna wants to buy an art set that costs R20. So far she has saved R8, R2 and R1. How much more does she need?
7. At a sports day, Tristan bought 2 hot dogs and 1 cool drink. He spent R35 altogether.
 - a) If he had R50, how much change will he get?
 - b) Would he be able to buy a packet of chips of R5 and a roll of sweets of R8?

8. Can you buy it?

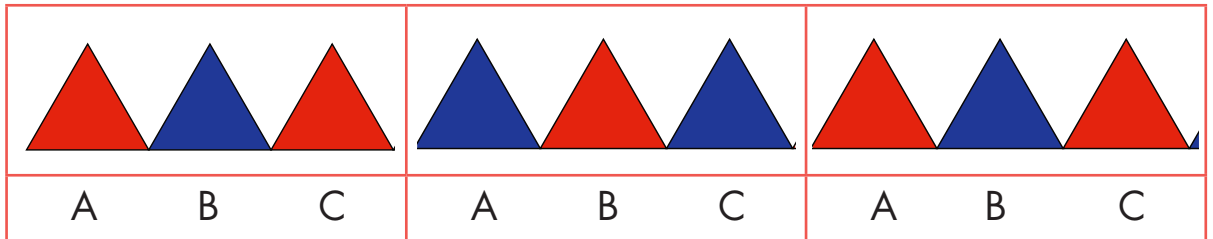
- Look at each item and its price.
- Do you have enough money to buy it?
- How much change is left?

Geometric patterns

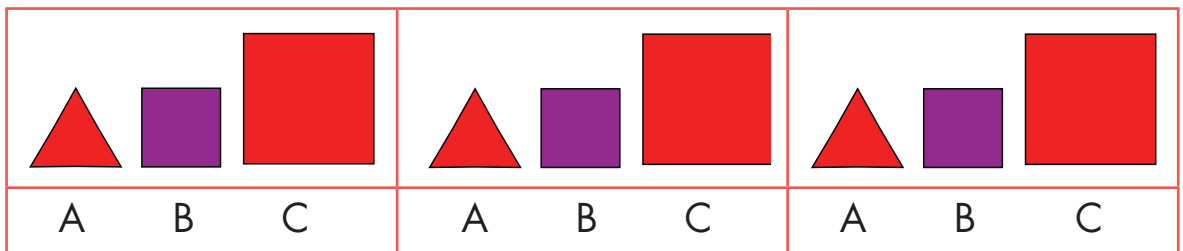
Activity 14

1. a) Copy and extend the pattern with twice.



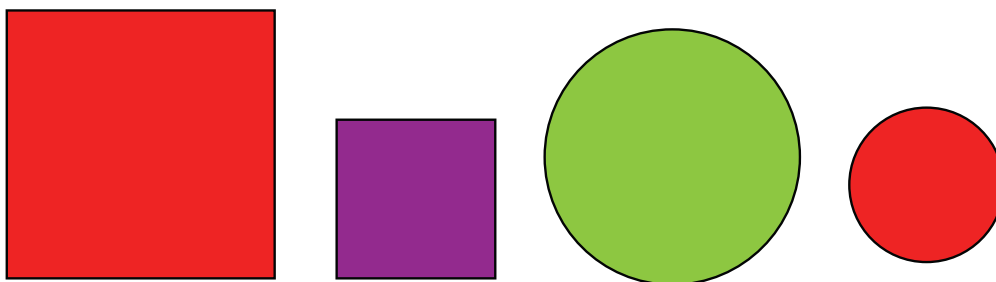
- b) Describe the pattern observed.

2. a) Copy and extend the pattern twice.



- b) Describe the pattern.

3. Use any of the shapes below to create your own pattern?



Number patterns

Activity 15

1. Look at the number grid. Tell your partner which numbers are missing.

71	72	73	74	75	76	77	78	79	80
81			84	85		87	88	89	90
91	92	93	94	95		97			100
101	102	103	104	105	106	107		109	110
111	112	113	114	115	116		118	119	120
121	122	123	124	125		127	128	129	130
131	132	133	134		136	137	138		
141	142	143	144	145	146	147	148		

2. Copy and complete the number patterns.

a) 144; 143; ; ; ;

b) 110; 109; 108; ; ; 105

c) 98; 100; ; ; 106

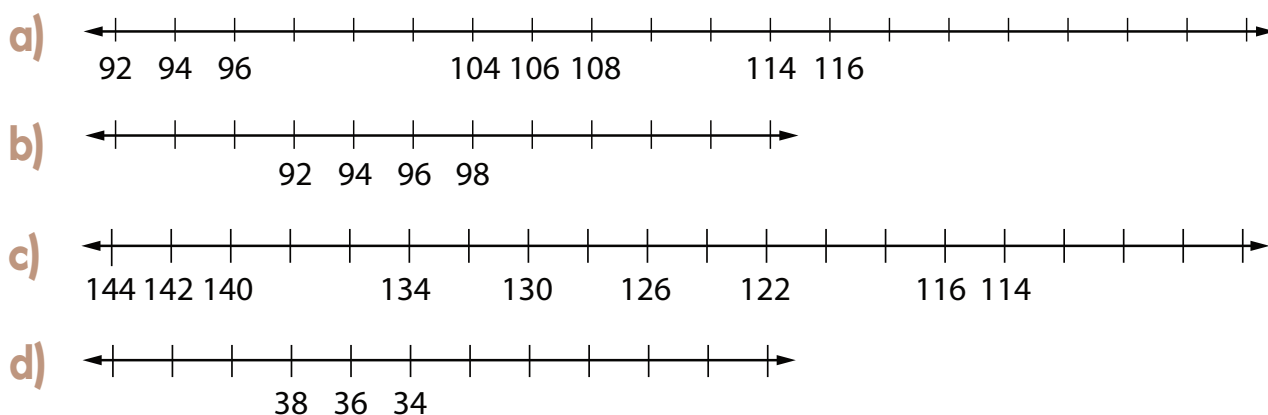
d) ; ; 118; 117; 116

3. Use the number grid to count the numbers.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150

- Count all the numbers from the smallest to the greatest.
- Extend the pattern of shading on the number grid.
- Describe how you extended the shading.
- The shaded numbers are called multiples of 2. Count all the shaded numbers from the smallest to greatest.

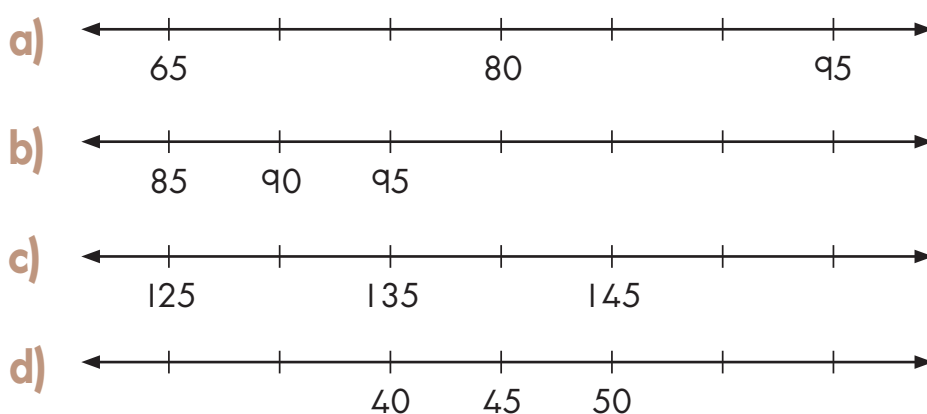
4. What numbers are missing?



5. What numbers are missing?

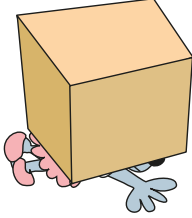
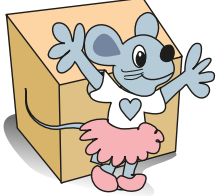
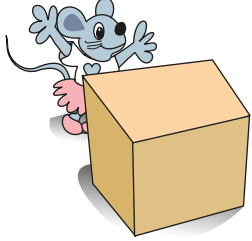

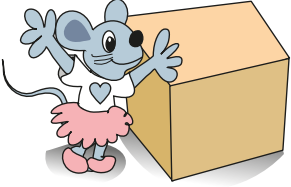
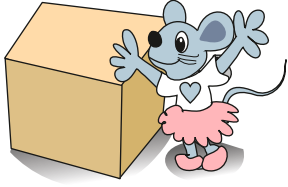
- a) ; 45; 50; 55; ; 65; ..
- b) ; ; 125; 130; 135;
- c) 115; 110; 105; ; ; .
- d) ; ; 80; 75; 70;

6. What numbers are missing?



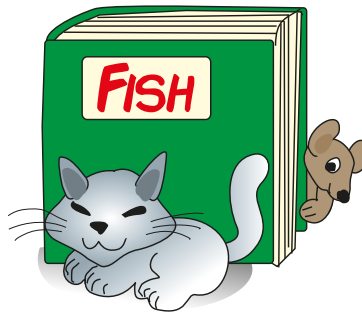
Position and direction

Study the words to describe the position of the mouse in relation to the box.

 <p>under</p>	 <p>in front of</p>	 <p>behind</p>
 <p>in</p>	 <p>left</p>	 <p>right</p>

Example

Look at the position of the cat and the mouse.



Complete:

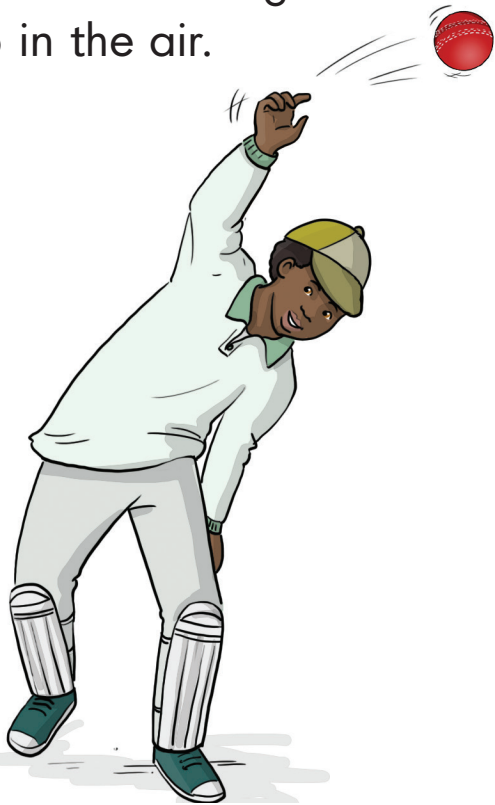
- a) The cat is _____ the book.
- b) The mouse is _____ the book.

Answer

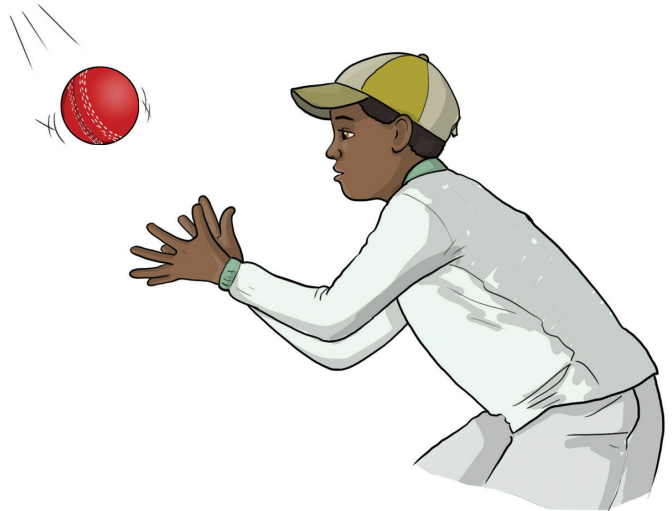
- a) in front of
- b) behind

Look at the following pictures.

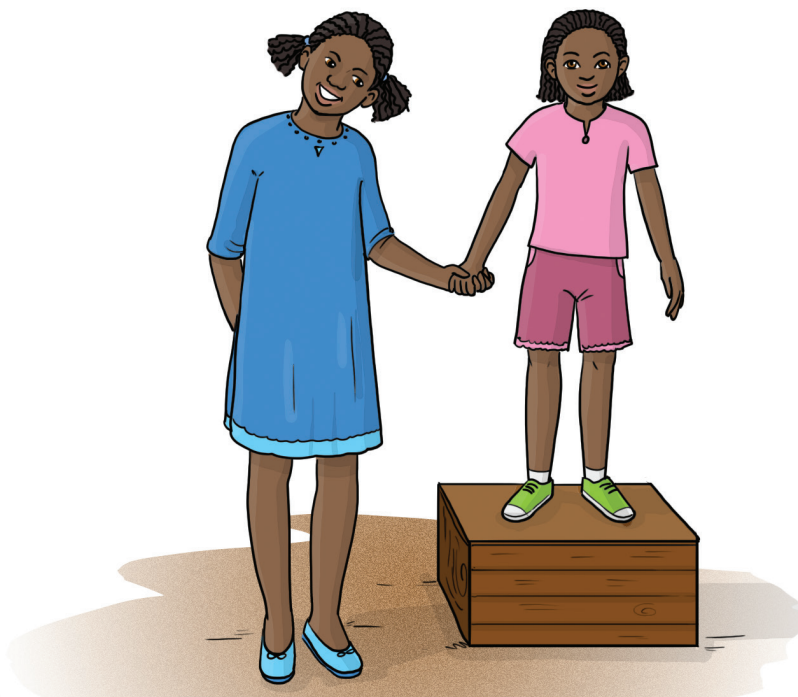
The ball is being thrown up in the air.



The ball is falling down towards the boy.



The girl wearing a pink shorts is on top of the crate. The girl wearing the blue dress is standing next to the crate.



Activity 16

1. Describe the position of the cat in relation to the box.

Use the words:

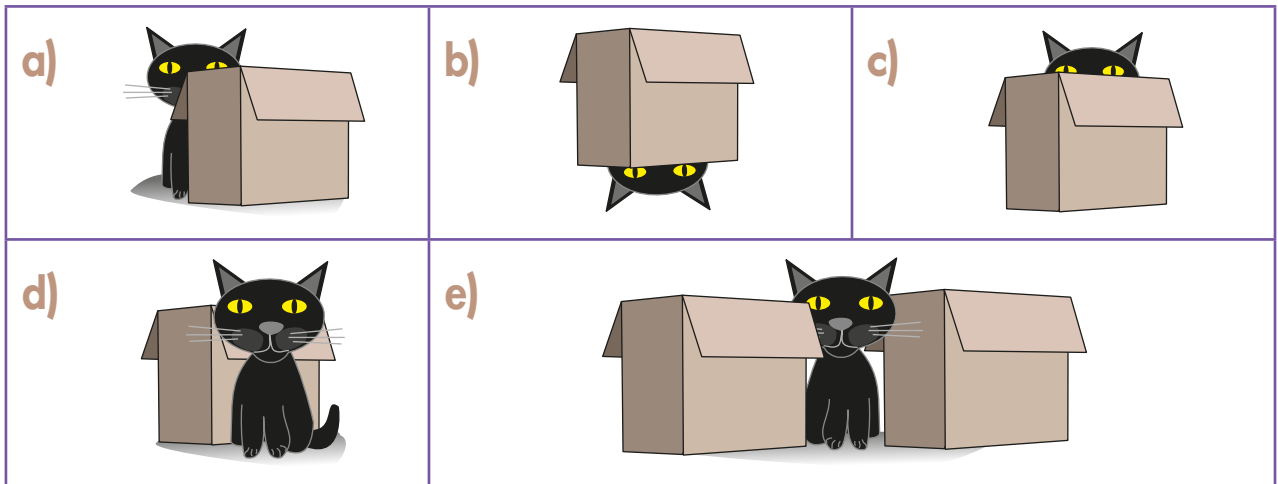
under

in

between

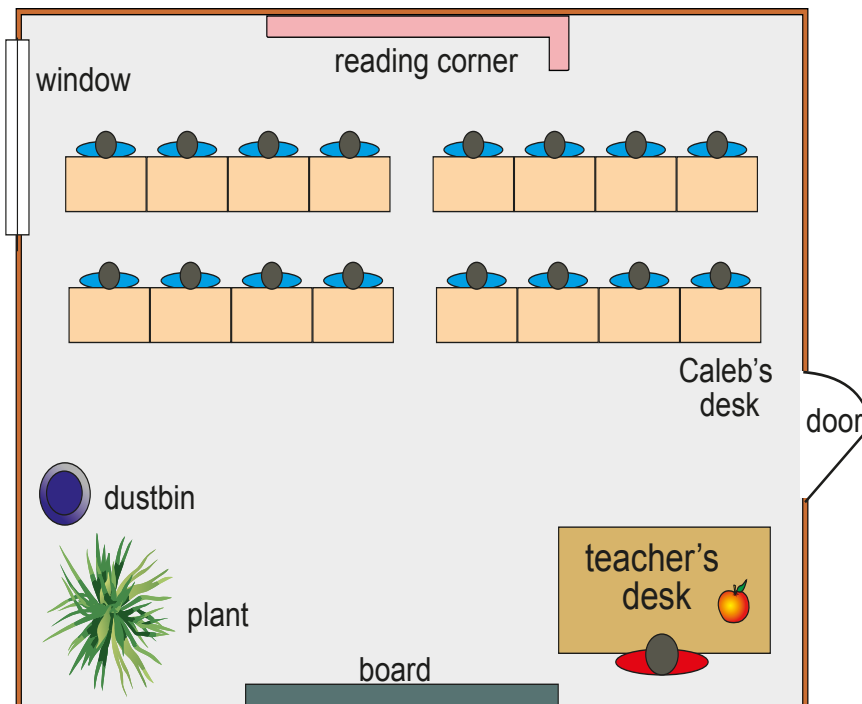
behind

in front of



TERM 2

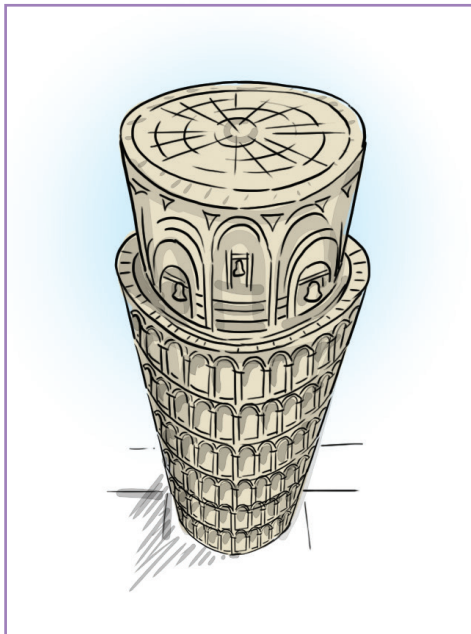
2. Look at the layout of a classroom.



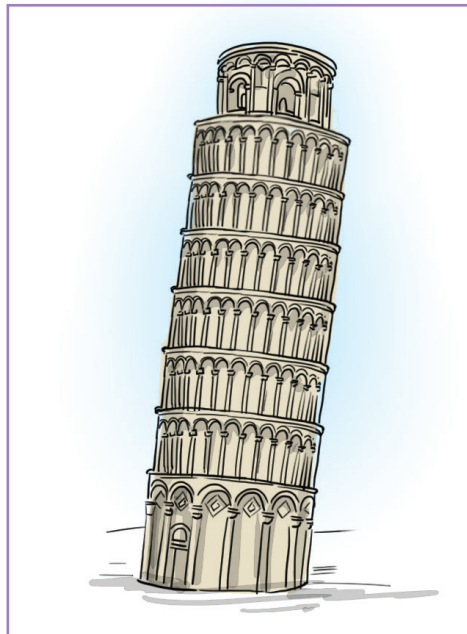
- a) Caleb's desk is in the front row on the right. Caleb stood up and walked to the back of the class. He then turned left. What will Caleb see?

b) You are seated in the back row, second desk from the left. Describe two different ways to get to the teacher's desk.

3. Look at the pictures. Both are showing the same building called the Leaning Tower of Pisa.



A



B

Choose the word that best describes the different views of the tower.

top view

front view

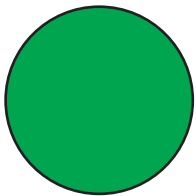
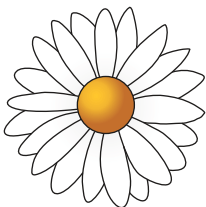


side view

a) Picture A shows the _____ of the *Leaning Tower of Pisa*.

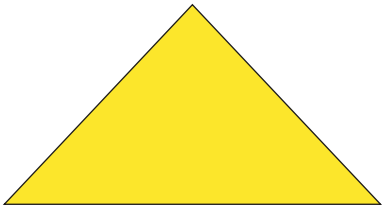


b) Picture B shows the _____ of the *Leaning Tower of Pisa*.

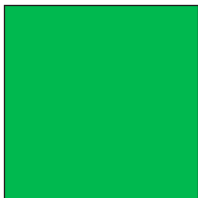
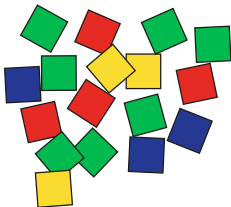

Two-dimensional shapes (2D shapes)




Let's take a look at different two-dimensional shapes.

Circles	Circles in real life		
			
A circle is a closed shape that has one round side.			

TERM 2

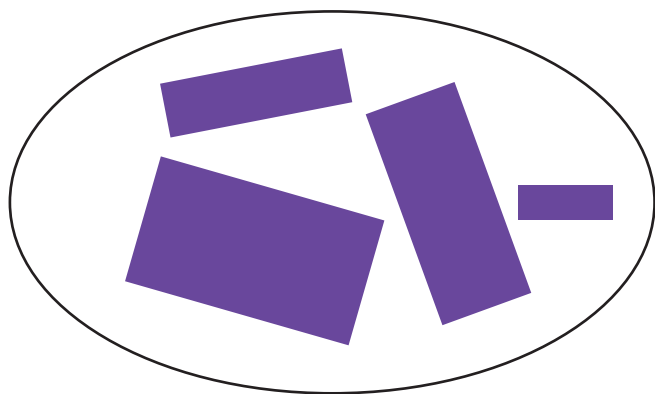
Triangles	Triangles in real life	
		
A triangle has three straight sides.		

Squares	Squares in real life	
		
A square has four straight sides with the same length.		

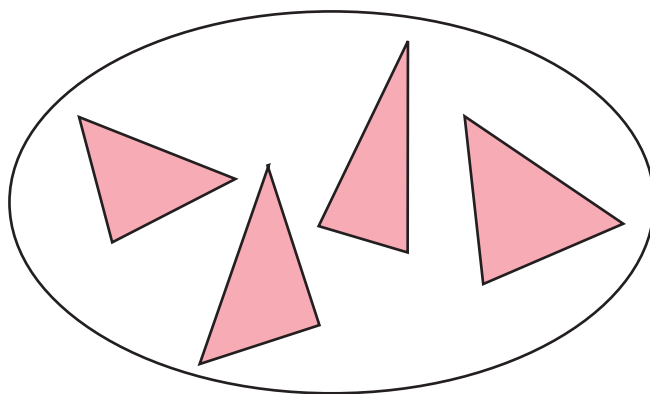
Rectangles	Rectangles in real life	
		
A rectangle has four straight sides with opposite sides of the same length.		

Example

Look at the two groups. How were they sorted?



Group A



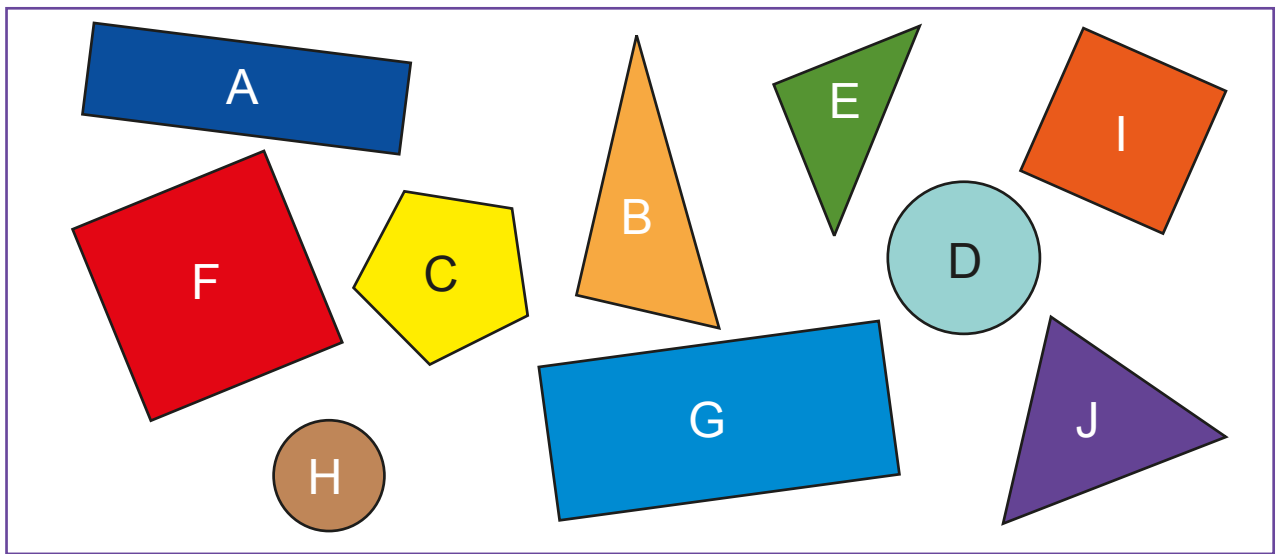
Group B

Answer

The shapes in Group A are all purple and are all rectangles.
The shapes in Group B are all pink and are all triangles.

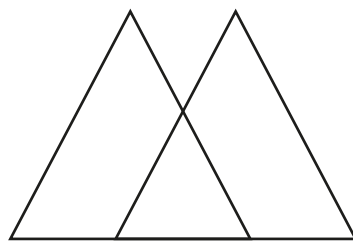
Activity 17

1. Look at the shapes and answer the questions.



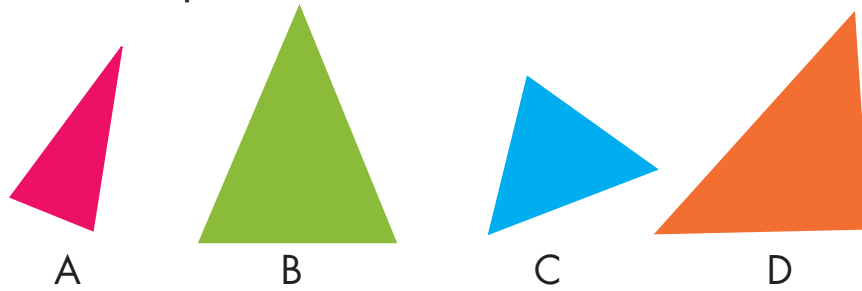
TERM 2

- List the squares.
 - List the rectangles.
 - List the circles
 - List the triangles.
2. a) Complete: There are _____ triangles in the diagram.



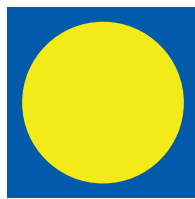
- b) Explain to your friend how you got to your answer.

3. Look at all the shapes.



- a) What two-dimensional shape are they?
- b) Order from the biggest to the smallest.

4. Look at the shapes.



- a) Name the two-dimensional shapes.
- b) Which of the two-dimensional shapes is smaller?
How do you know?

5. Look at the pattern with shapes.



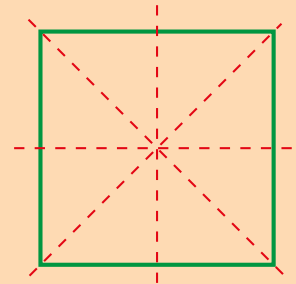
- a) Describe the pattern to your friend, talking about each two-dimensional shape and the colours of each shape.
- b) Make your own pattern using two-dimensional shapes.
Ask your friend to describe your pattern to you.

Learning about symmetry

Symmetry means balance. A shape is symmetrical when its two halves are mirror images along the line of symmetry.

Take note

A square is an example of a shape that has more than one line of symmetry.



TERM 2

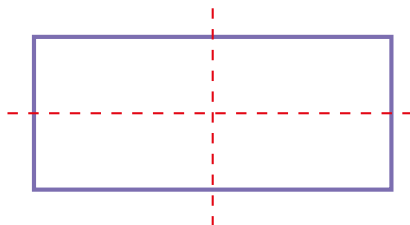
Example

How many lines of symmetry in this rectangle?



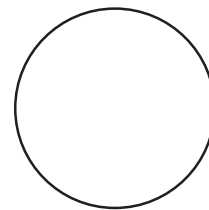
Answer

This rectangle has two lines of symmetry.



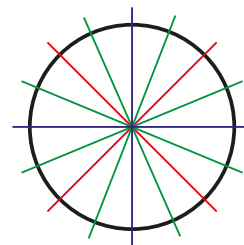
Example

How many lines of symmetry in this circle?



Answer

A circle has many lines of symmetry.



Example

Is the vertical dotted line on the shape a line of symmetry?

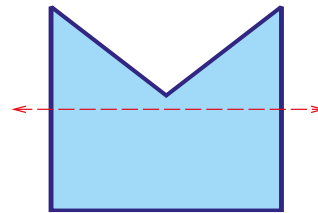


Answer

Yes. A shape is symmetrical when its two halves are the same.

Example

Is the horizontal dotted line on the shape a line of symmetry?

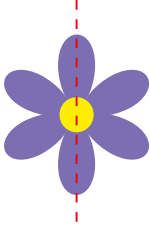

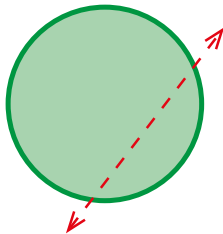
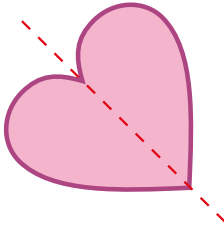
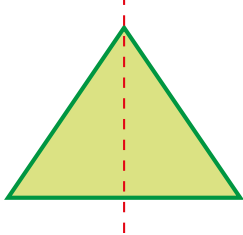
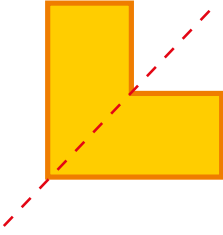
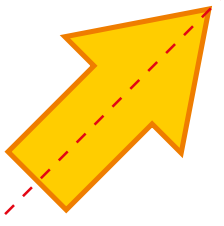
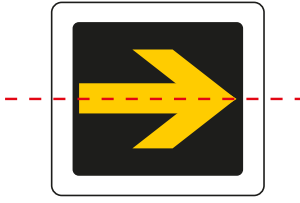
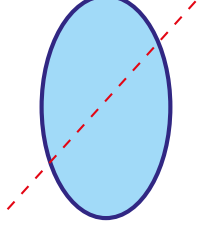


Answer

No. The shapes on both sides of the dotted line are not the same.

Activity 18

1. Say if the dotted line on each shape is a line of symmetry or not. Write yes or no.

a) 	b) 	c) 
d) 	e) 	f) 
g) 	h) 	i) 

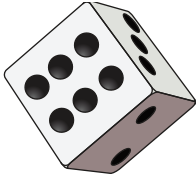
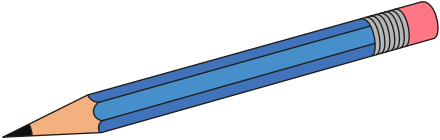
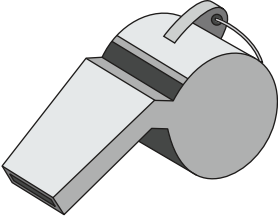

Finding mass using non-standard and standard measures

We can use non-standard measures to find the mass of different objects.

Let's try and find the mass of different objects.

Activity 19

- I. Estimate to measure how many paperclips will balance the following items:

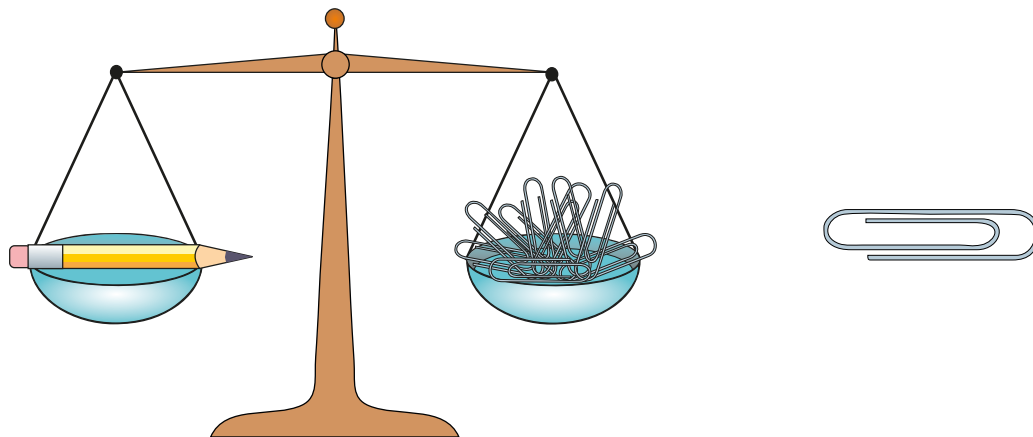
	Object	Estimate
a)		
b)		
c)		
d)		

We can also use standard measures to find the mass of objects. One standard measure is called a balance scale.

To measure the mass of an object we use a balance scale.

Example

The pencil is as heavy as 10 paperclips.

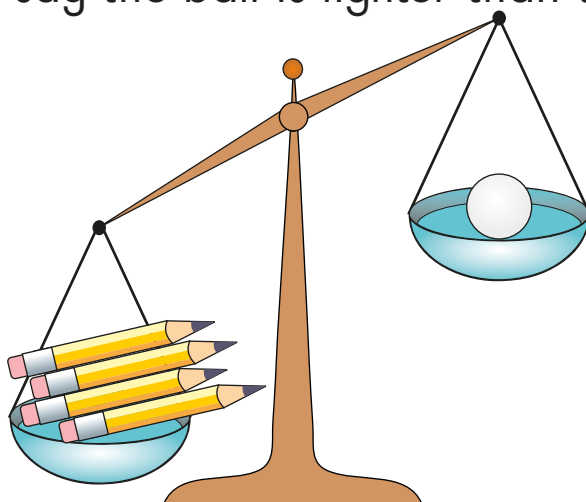


Example

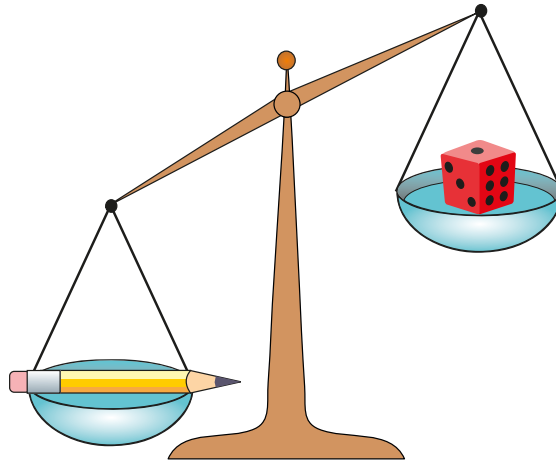
The balance scale is tilted to the left.

The 4 pencils are heavier than the ball.

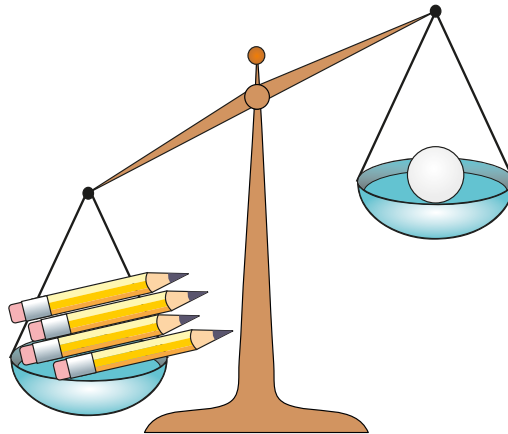
We can also say the ball is lighter than the 4 pencils.



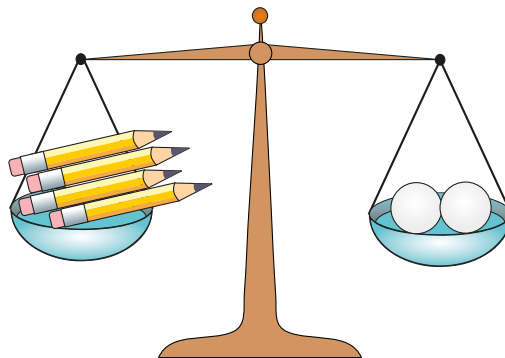
2. a) Which is lighter? The pencil or the dice?
Explain.



- b) Which is heavier? The ball or the pencils?
Explain.



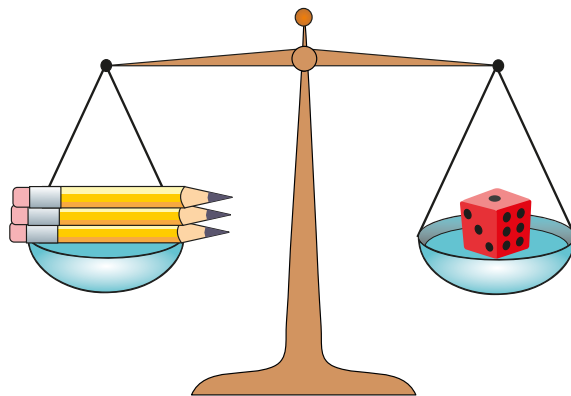
3. Look at the balance scale below and answer questions that follow:



- a) How many balls have the same mass as 4 pencils?
b) How many balls have the same mass as 2 pencils?

- c) Imagine what one pencil and one ball will look like on a balance scale. Which is heavier? The ball or the pencil?

4. Look at the balance scale below and answer questions that follow:

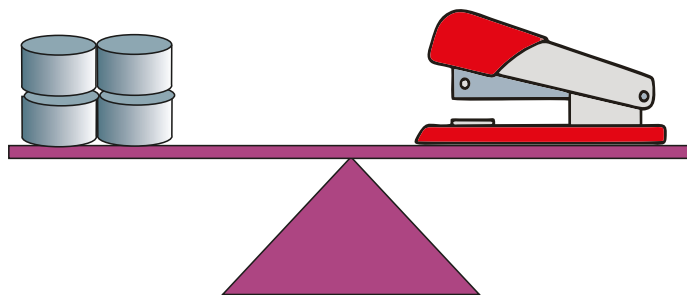


- a) How many pencils balance the dice?
b) Which is heavier? The dice or the pencil?

Example

The stapler is balanced by 4 

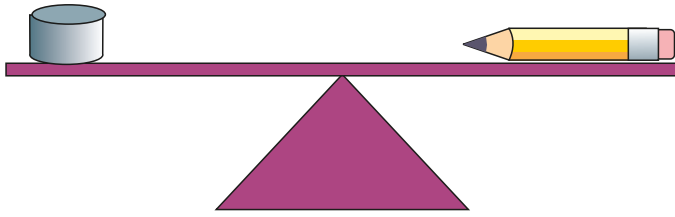
The stapler is as heavy as 4 



The mass of the stapler is 4 units.

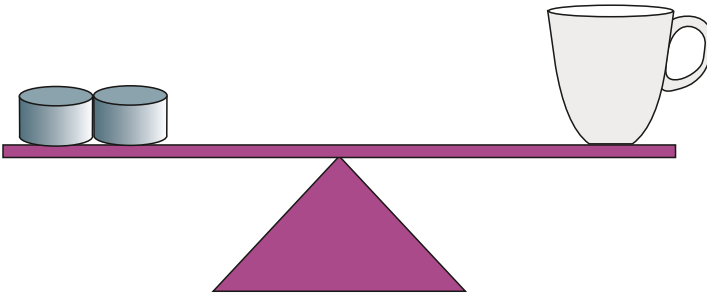
5. Find the mass of the following objects.

a)



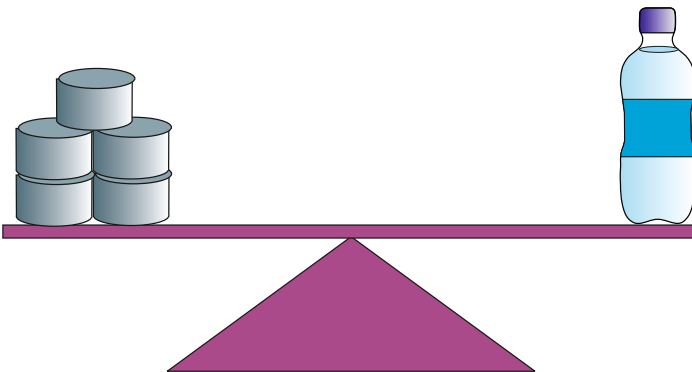
The mass of the pencil is _____ unit.

b)



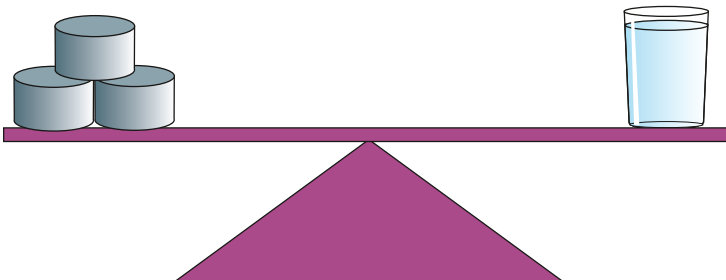
The mass of the mug is _____ units.

c)



The mass of the bottle is _____ units.

d)



The mass of the glass is _____ units.



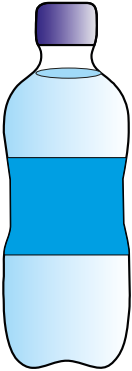
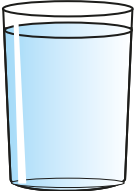
6. Arrange the objects from the lightest to the heaviest object.
Copy and complete.

Lightest object

Heaviest object

1 _____ 2 _____ 3 _____ 4 _____

Use A, B, C and D.

A	
B	
C	
D	

We can measure the mass of an object in kilograms.

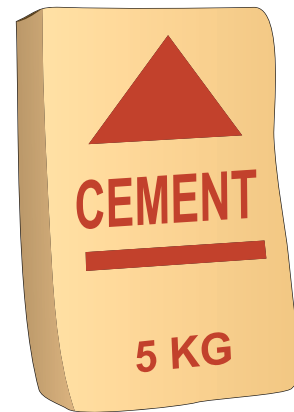
A kilogram is a unit of measuring mass.

A litre of water has a mass of 1 kilogram.

We write kg for kilogram.

Example

Instead of saying the mass of a bag of cement is 25 kilograms, we simply write 25 kg.

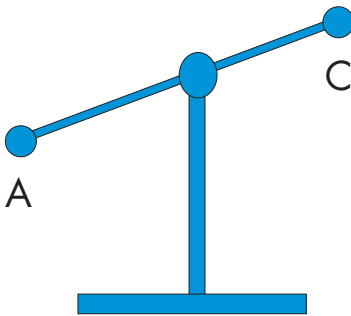
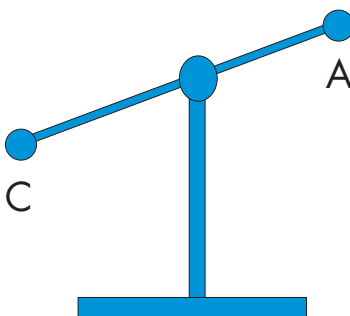


7. Look at the items below and answer the questions that follow.




A	B	C
A bag of laundry detergent with a blue and white design. It shows a red shirt and a yellow shirt. At the bottom, it says '5kg'.	A bag of laundry detergent with a yellow and white design. It shows a washing machine and two daisies. At the bottom, it says '2kg'.	A large can of laundry detergent with a blue and white design. It shows a yellow liquid drop. At the bottom, it says '30 kg'.

- What is the mass of item A?
- What is the mass of item B?
- Which item has the lightest mass?
- Which item has the heaviest mass?
- Order the items from lightest to heaviest.

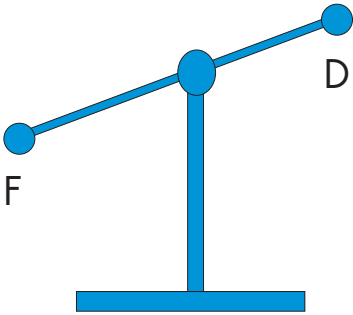
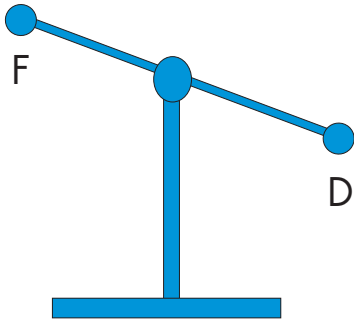
- f) Order the items according to their masses.
Start with the item that has the lightest mass.
Use A, B and C to order them.
- g) Which balance scale is correct about the masses of items A and C (1 or 2)? Explain your answer.

1	2
	
The soap is heavier than the paint.	The paint is heavier than the soap.

8. Look at the items below and answer the questions that follow:

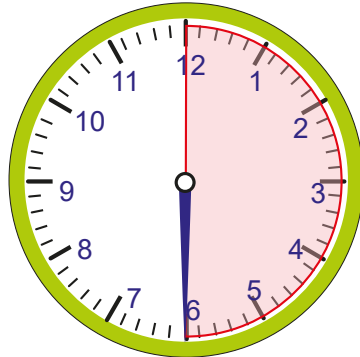
D	E	F
		

- a) Is it true that the mass of item E is bigger than that of item D? Explain.
- b) Which item has the lightest mass? State its mass.
- c) Which item would be the heaviest to carry? Explain.
- d) Order the items from the heaviest to the lightest to carry.
- e) Which balance scale (1 or 2) is correct about the masses of items D and F? Explain.

1	2
	
The rice is heavier than the washing powder.	The washing powder is heavier than the rice.

Tell the time in hours or half hours

We can divide a clock face into two halves. Each half represents half an hour.



An hour is 60 minutes.

There are 30 minutes in half an hour.

Half past the hour

When the long hand (the minute hand) points to the number 6, we say it is half past the hour.

Example

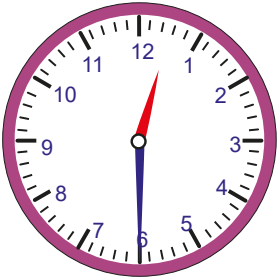
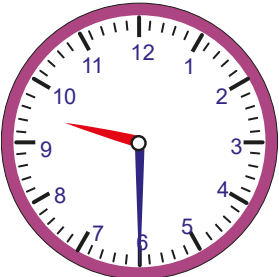
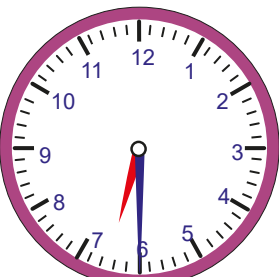
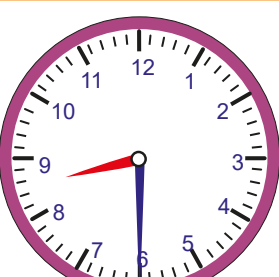
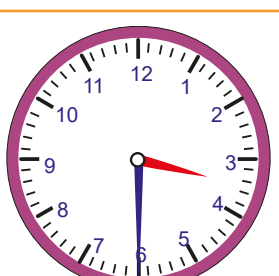
The short hand (hour hand) is pointing halfway between 4 and 5.

The time is half past 4.



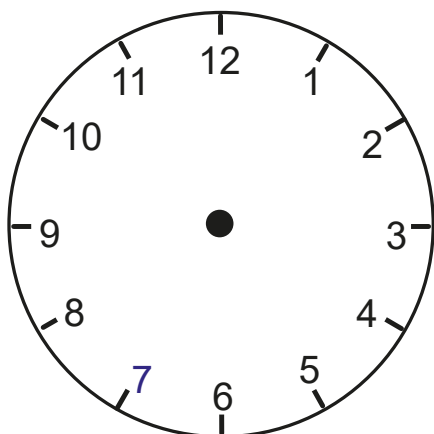
Activity 20

I. What is the time? Copy and complete.

	The clock	The minute hand points to	The hour hand is pointing halfway between	The time is
a)				
b)				
c)				
d)				
e)				

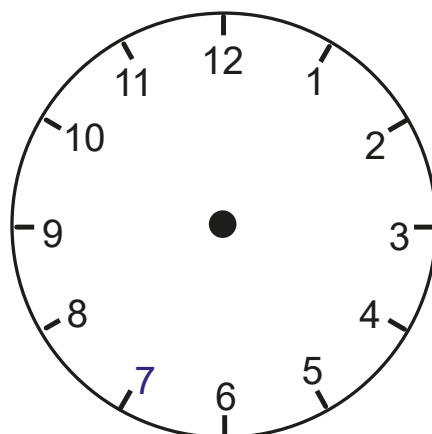
2. Copy the clock face in your exercise book. Draw hands on the clock face so that it tells the time shown in the box.

a)



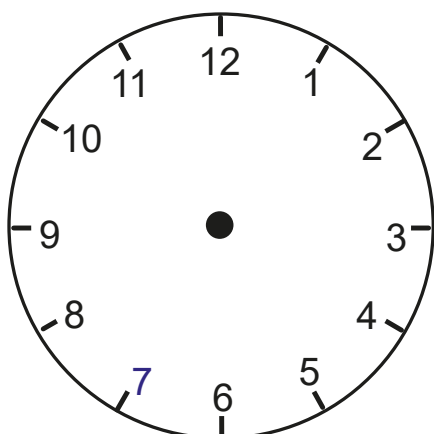
Half past 4

b)



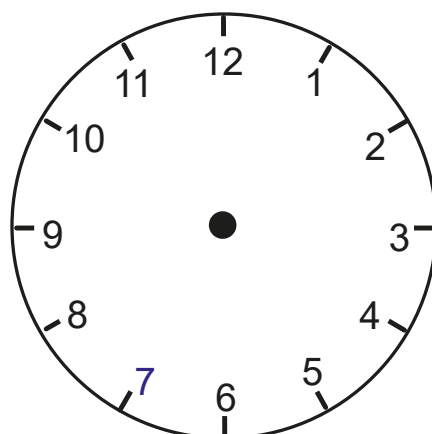
Half past 6

c)



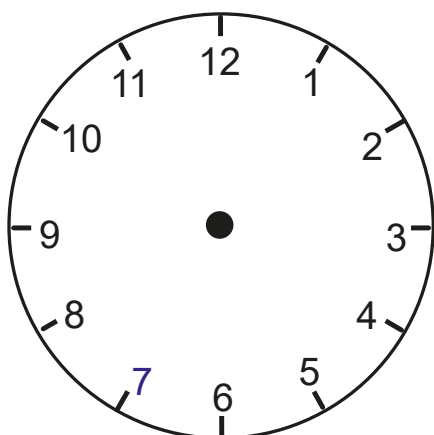
Half past 8

d)



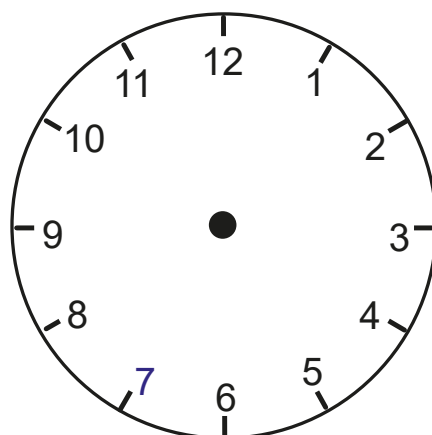
Half past 10

e)



Half past 5

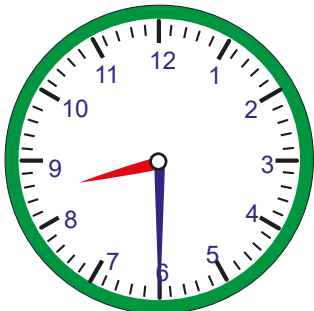
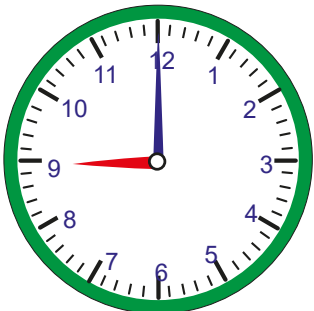
f)



Half past 1

Time now, time before, and time after

Example

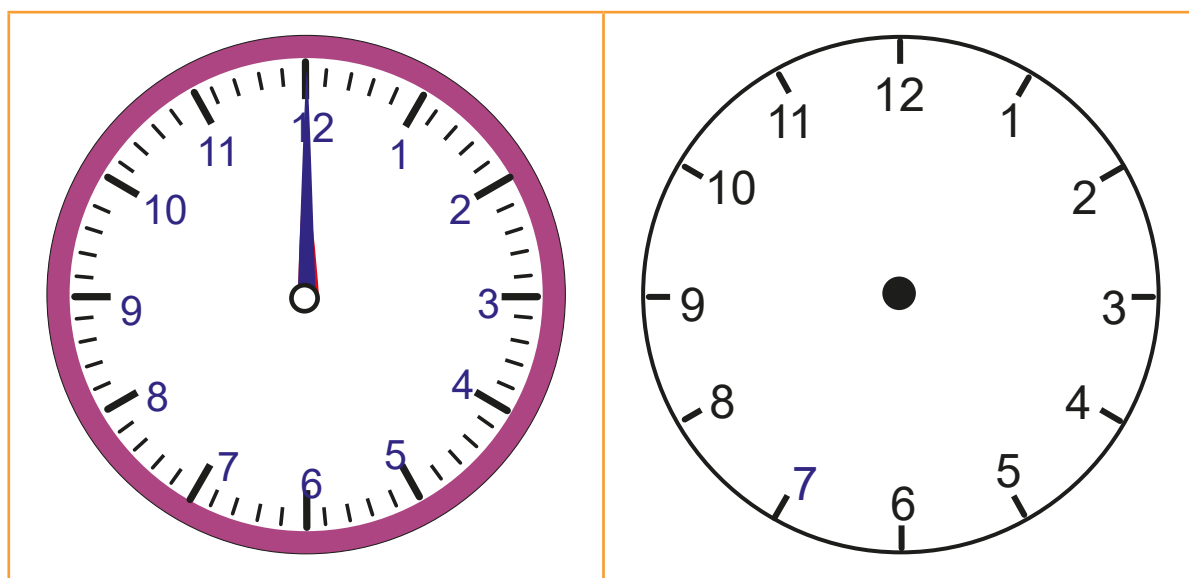
Half an hour before 9	Time now: 9 o'clock	Half an hour after 9
 <p>half past 8</p>	 <p>9 o'clock</p>	 <p>Half past 9</p>

TERM 2

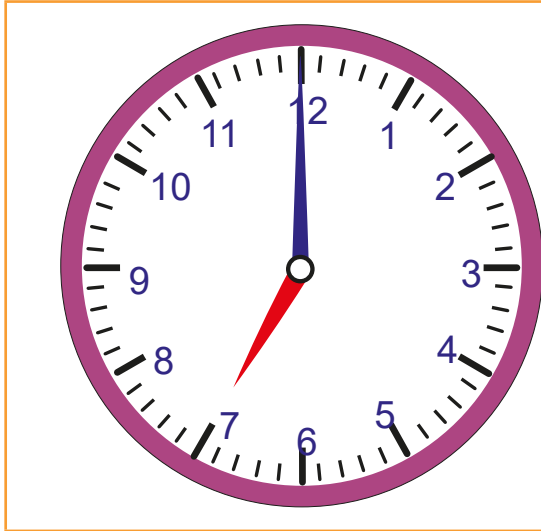
3. Show what time it will be:

a) Time now

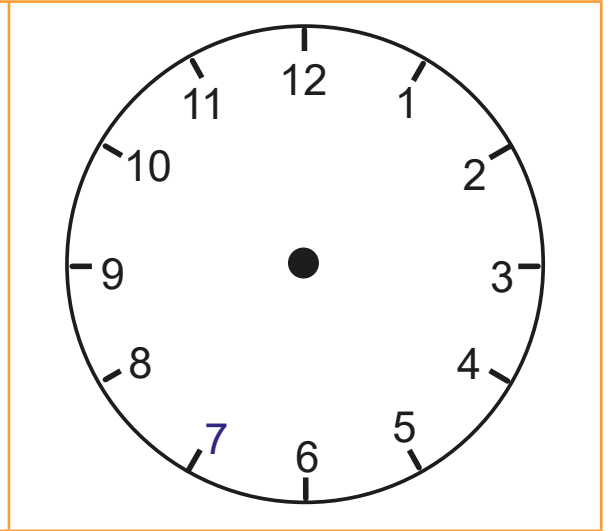
half an hour before
12 o'clock



b) Time now



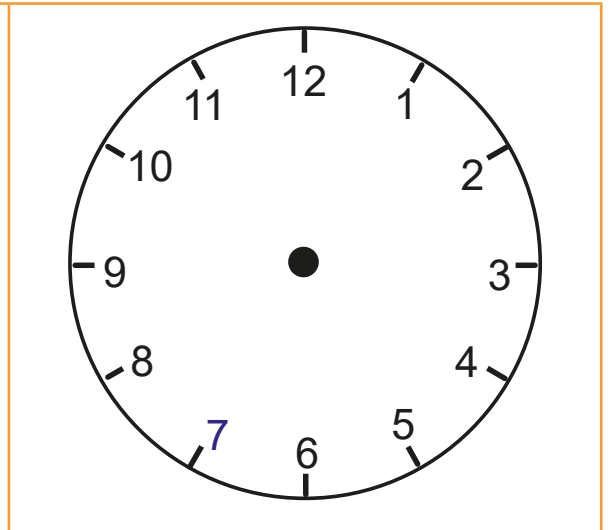
half an hour after 7 o'clock



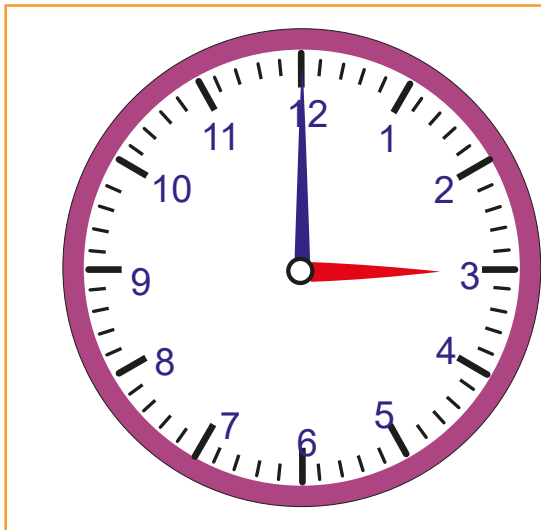
c) Time now



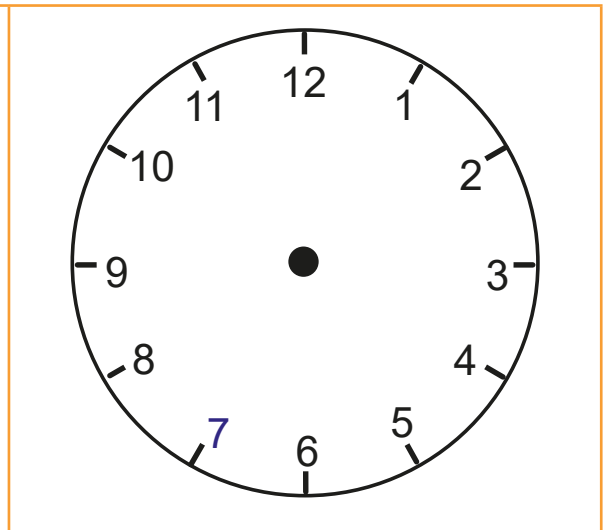
half an hour after 4 o'clock



d) Time now

























half an hour before 3 o'clock



Using pictographs to interpret data

A pictograph uses pictures to display data. It is a visual way to display data.

Example

Number of goals scored	
Thabo	  
Sheryl	
Andrea	    
Mike	   
Lebo	 
Zia	     
Key:  = 1 goal	

- How many more goals did Thabo score than Sheryl?
- Who scored the most goals? Who scored the least goals? What is the difference between the goals?
- Arrange the names of the learners from who scored the most goals to who scored the least.

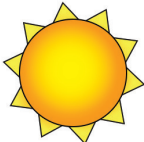
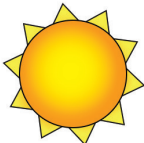

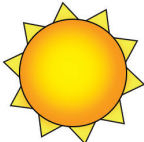

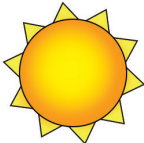


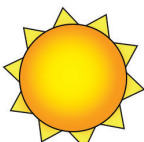



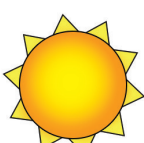



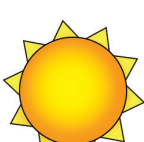







Answer

- $3 - 1 = 2$
- Zia scored the most goals. Sheryl scored the least goals.
 $10 - 1 = 9$
- Zia; Andrea; Mike; Thabo; Lebo; Sheryl

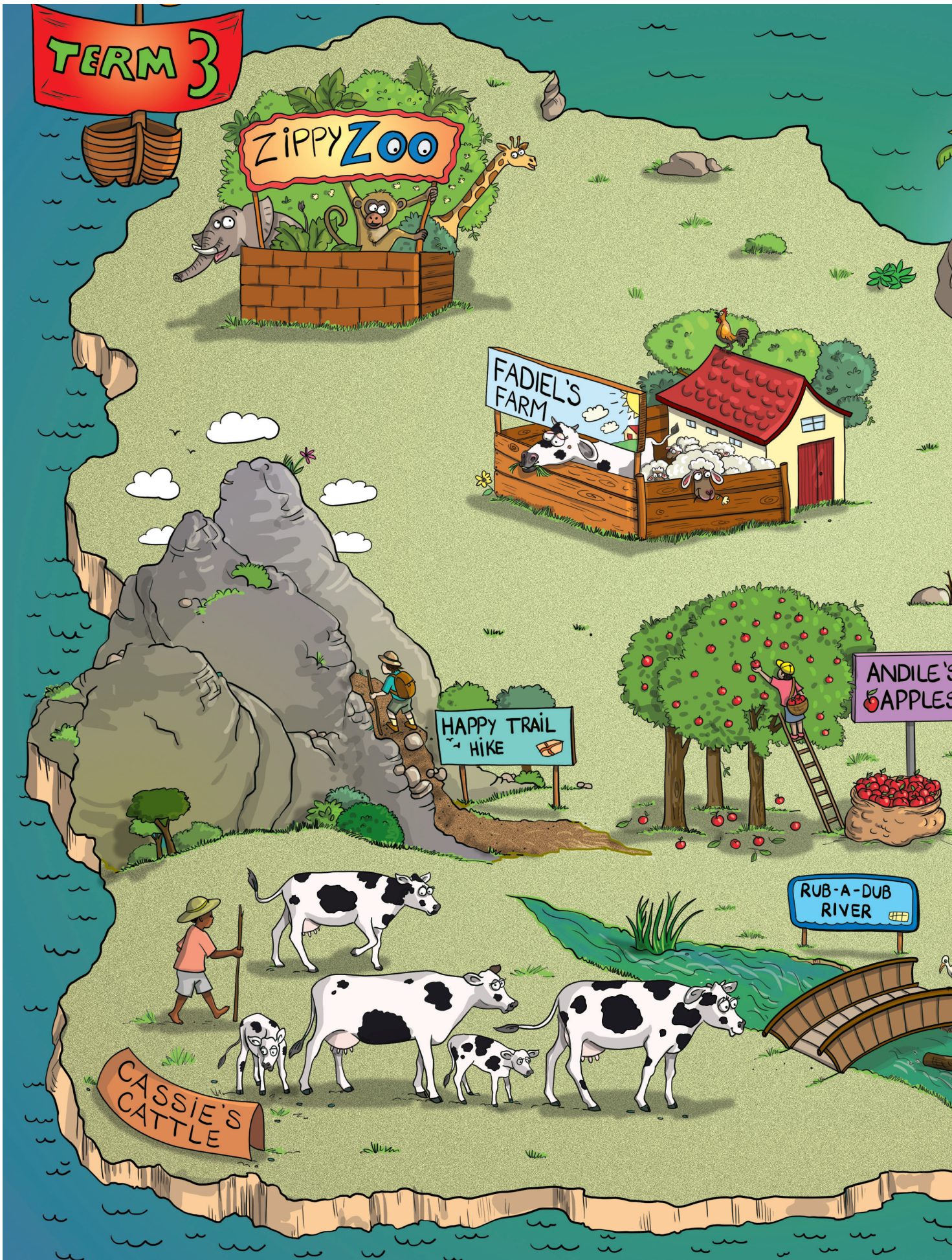
Activity 21

- I. Use the pictograph to complete the sentences below.

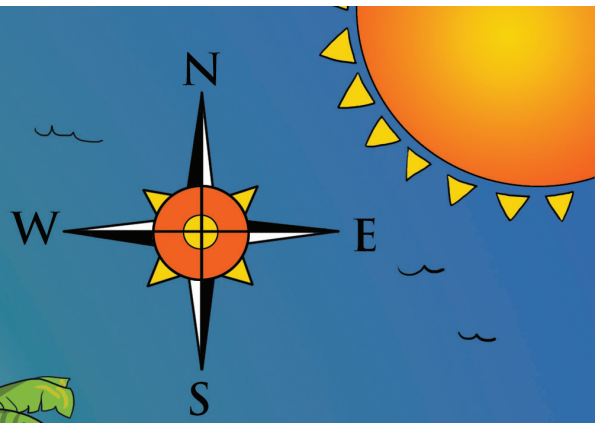
Weather for the last twenty days for a town in the Eastern Cape

7				
6				
5				
4				
3				
2				
1				
<p>Key</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">   </div> <div style="text-align: center;"> <p>= sunny days</p> <p>= rainy days</p> </div> <div style="text-align: center;">   </div> <div style="text-align: center;"> <p>= cloudy days</p> <p>= thunder days</p> </div> </div>				

- a) There were _____ rainy days.
 - b) There were _____ thunder days.
 - c) There were _____ more cloudy days than rainy days.
 - d) There was/were _____ more sunny day/s than cloudy days.
 - e) Which days were the most?
 - f) Which days were the least?
2. How many more sunny days were there than rainy days?
 3. How many more cloudy days were there than thunder days?
 4. If we added 5 more days to thunder days, would the sunny days still be the most?
 5. If there were 3 extra rainy days, what two kinds of weather would have an equal amount of days?



1, 2, 3... we've come so far.
Almost there, as we journey
on to Term 4!



Number symbols and number names

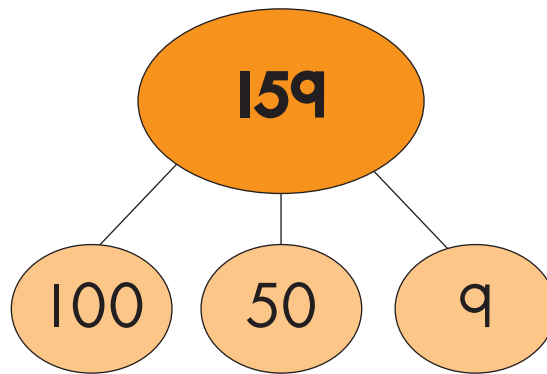
We can use these ten number symbols to build any number you want: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Example

Look at the number 159.

What number symbols is it made up of?

Answer



159 is made up of 100, 50 and 9

We say it as one hundred and fifty-nine.

Activity 1

1. What number symbols are these numbers made up of?

a) 65

b) 89

c) 109

d) 126

e) 157

f) 174

g) 198

h) 182

i) 77

j) 101

2. Copy and complete. Match the place value cards to the correct number symbol.

a)	90 7	158
b)	100 30 6	174
c)	100 50 8	136
d)	100 70 4	97

3. Look at the number 157:
What will happen if you replace 5 with 3?

Number names from 0 to 75

Let's practise writing number names.

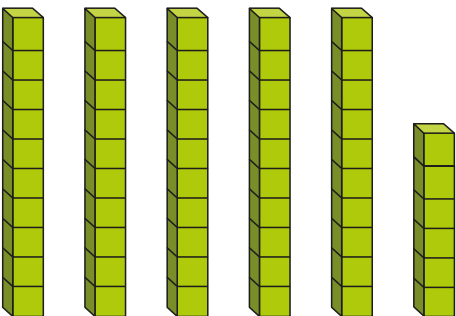
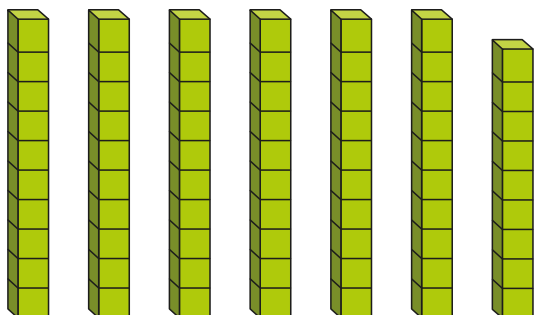
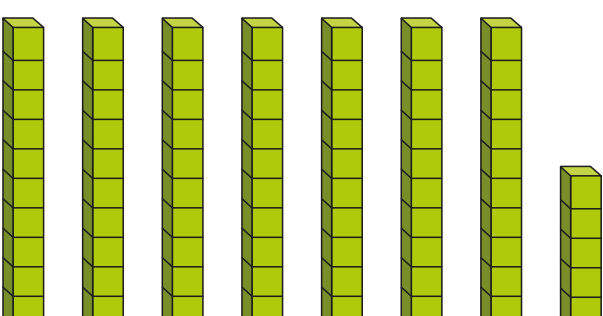
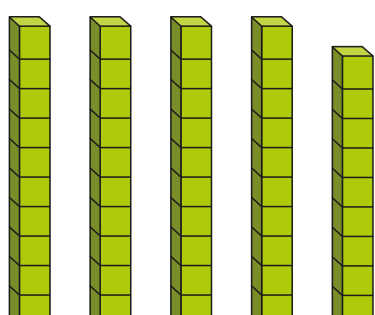
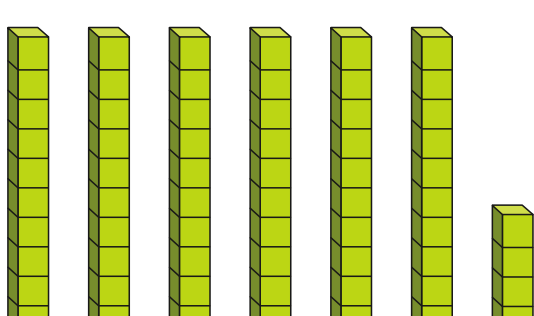
4. Write the number names for each number.

- | | |
|-------|-------|
| a) 28 | b) 49 |
| c) 57 | d) 69 |

5. For each number name write the number symbol.

a)	sixty-eight	
b)	twenty-seven	
c)	thirty-six	
d)	forty-four	
e)	fifty-two	

6. Write the number symbol and number names.

a) 	56	
b) 		sixty-nine
c) 	75	
d) 		forty-nine
e) 	64	

Counting to 180



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180

Activity 2

Use the number grid on the previous page to help you answer these questions.

1. Write the numbers from 156 to 178.
2. What number comes just before 134?
3. What number comes just after 163?
4. Skip count in 5s from 150 to 180. Write the numbers.
5. Skip count backwards in 10s from 180 to 10.
Write the numbers.
6. Skip count backwards in 2s from 176 to 134.
Write the numbers.
7. What number is between:
 - a) 129 and 131
 - b) 110 and 112
 - c) 138 and 140
 - d) 158 and 160
 - e) 178 and 180
8.
 - a) What number is 3 less than 134?
 - b) What number is 4 more than 118?
 - c) What number is 10 more than 149?
 - d) What number is 10 less than 180?
9. Develop five questions of your own and ask your friend to solve them. Look at the activities you have done for some ideas.

Counting a big number of objects can be difficult. Therefore, grouping objects is a much more efficient way of counting. So far you have learnt to count in 1s, 2s, 3s, 4s, 5s and 10s. It is also a faster way of counting.

Example

Look at Mishka. She works in a library and has to count the number of books on each shelf. There are more than 100 books that she needs to count. Is there an easier way to count?



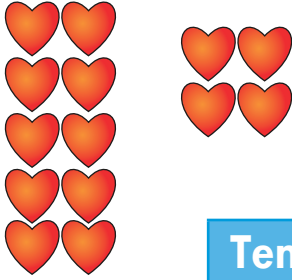
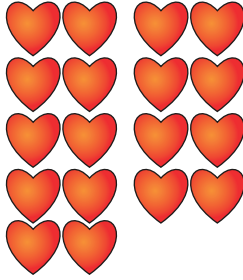
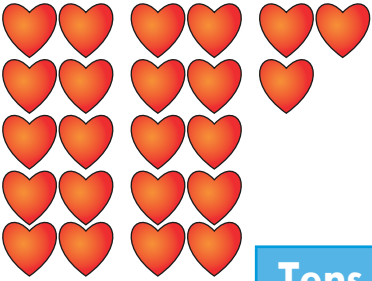
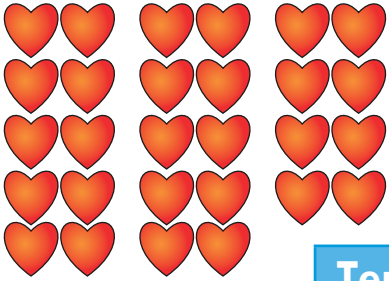

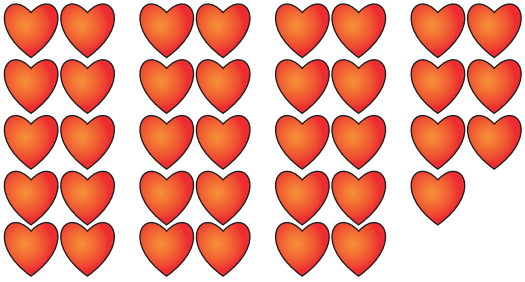
Answer

Mishka knows that counting in 10s would be easy for her. She estimates that there are about 20 books per shelf. Then she counts how many books are there altogether.

10. a) Estimate the number of birds in the tree.
- b) Count the number of birds in the tree.
- c) Was your estimation under or over the actual count?



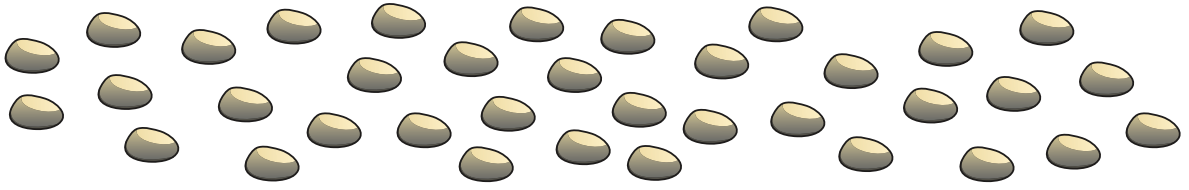
II. Write the number of tens and ones.

Example									
 <table border="1" data-bbox="491 548 754 678"> <tr> <th>Tens</th> <th>Ones</th> </tr> <tr> <td>1</td> <td>4</td> </tr> </table>	Tens	Ones	1	4	 <table border="1" data-bbox="1125 548 1388 678"> <tr> <th>Tens</th> <th>Ones</th> </tr> <tr> <td></td> <td></td> </tr> </table>	Tens	Ones		
Tens	Ones								
1	4								
Tens	Ones								
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Tens	Ones								
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Tens	Ones								
Tens	Ones								

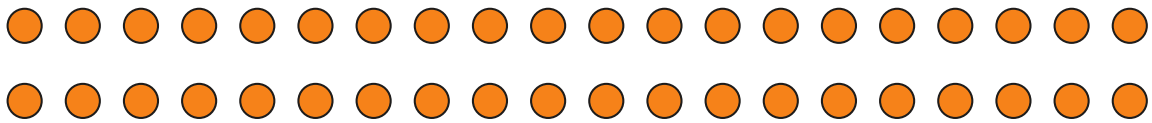
12. Work with a partner using counters for this activity.
- Lay out some counters on your table. Ask your partner to estimate how many counters are there.
 - Try to come up with a way that will make it easier to count many counters. Explain your method to the rest of the class.

13. Count by grouping.

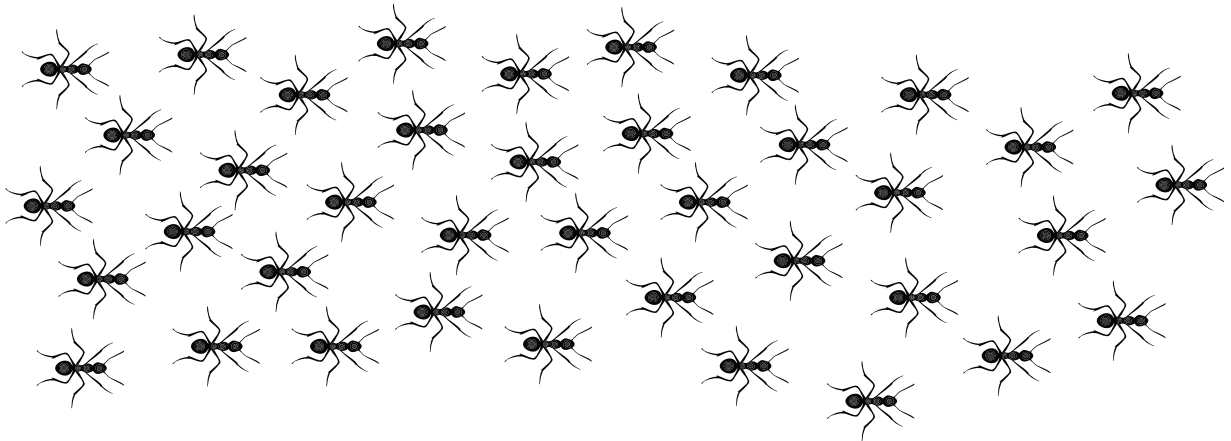
a) Divide the stones in groups of six.



b) Divide the dots into groups of four.

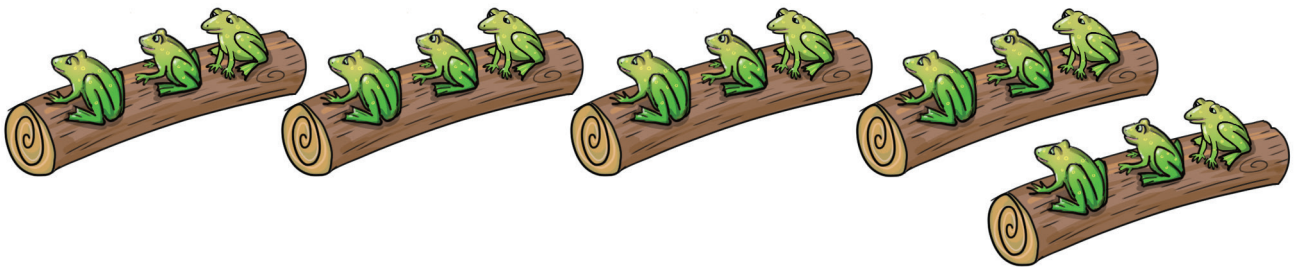


c) Divide the ants into groups of three.



14. Use grouping to answer this question.

There are 3 frogs on 5 logs. Two more frogs jump on each log. How many frogs are there on the logs?



Describe, compare and order numbers

We use smaller than, greater than, more than, less than and is equal to when we compare numbers.

Example

Use these words to make each statement true.

more than

equal to

greater than

smaller than

less than

- a) 34 is _____ 35
- b) 68 is _____ 6 tens and 8 units
- c) 74 is _____ 38

Answer

- a) 34 is **smaller than** 35
- b) 68 is **equal to** 6 tens and 8 units
- c) 74 is **greater than** 38

Activity 3

- I. Use these words to make each comparison correct.

more than

equal to

greater than

smaller than

less than

- a) 43 is _____ 46
- b) 67 is _____ 6 tens and 7 units

- c) 75 is _____ 65
d) 73 is _____ 7 tens and 3 units

2. Choose the words to make each comparison correct.

53	is greater than is less than is equal to	59	17	is greater than is less than is equal to	19	3 tens	is greater than is less than is equal to	30
25	is greater than is less than is equal to	15	4 ones	is greater than is less than is equal to	5	68	is greater than is less than is equal to	6 tens
75	is greater than is less than is equal to	65	19	is greater than is less than is equal to	45	63	is greater than is less than is equal to	55
28	is greater than is less than is equal to	2 tens	44	is greater than is less than is equal to	64	28	is greater than is less than is equal to	38

3. Use these words to make each comparison correct.

is greater than

is less than

is equal to

$10 + 5$ $10 \text{ groups of } 5$

$6 \text{ groups of } 3$ $6 + 3$

$32 - 16$ $16 + 16$

$7 \text{ tens and } 3 \text{ units}$ 37

$18 + 2$ 20

$$75 \quad \boxed{} \quad 57$$

$$56 - 2 \quad \boxed{} \quad 2 + 54$$

$$4 \text{ tens and } 8 \text{ units} \quad \boxed{} \quad 48$$

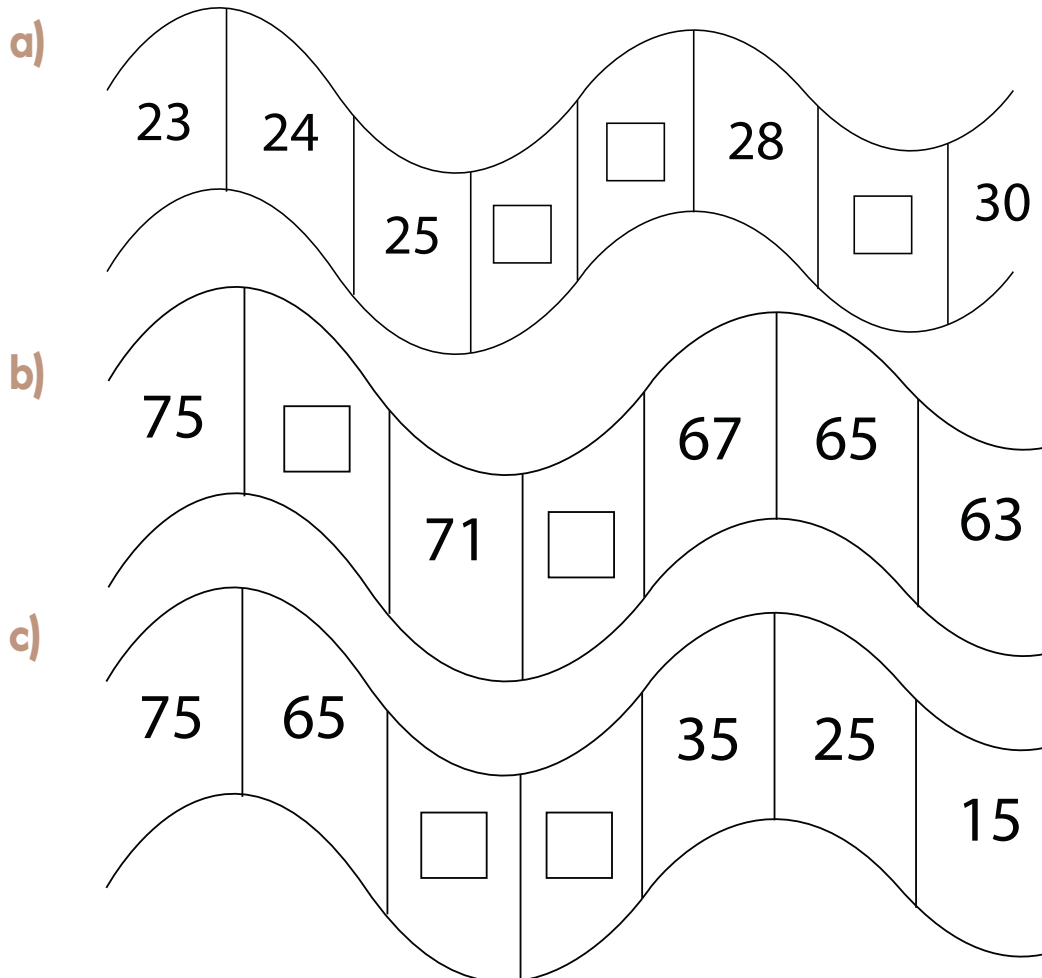
When you place numbers in their correct order, it means you order numbers.

4. Write from greatest to smallest.

a) 45, 64, 58, 34, 24 b) 75, 38, 53, 49, 28

c) 34, 48, 73, 23, 4 d) 54, 56, 49, 38, 45

5. Look at the number tracks. Write the missing numbers.

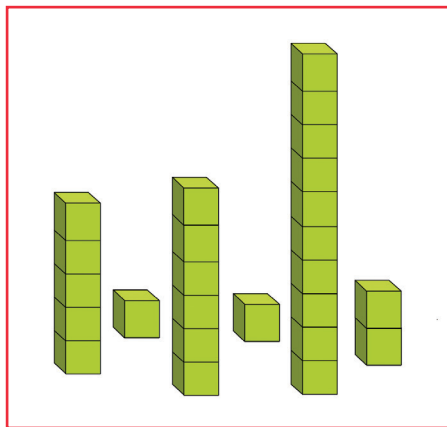


Place value

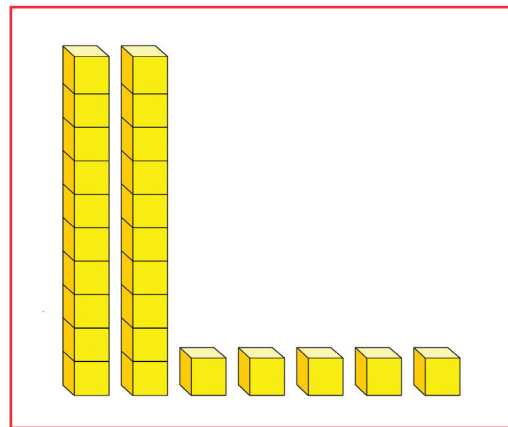
Place value helps you understand the value of each digit in a number.

Example

What is the value of each group?



A



B

Answer

Each group shows 25.

Example

Break down 73 into tens and units.

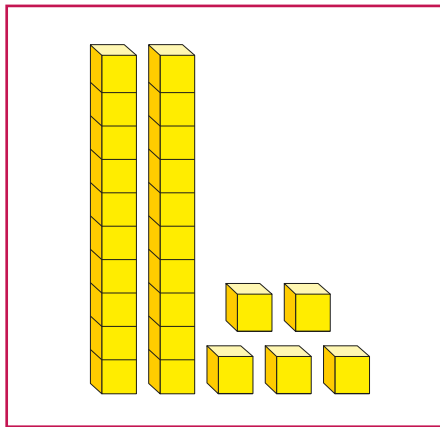
Answer

$$73 = 70 + 3$$

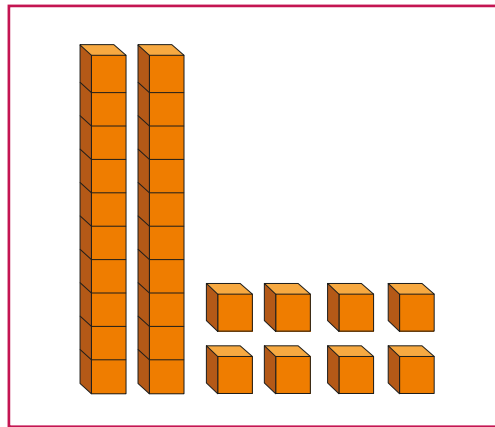
Place value also helps you understand the value of different numbers.

Example

What number is greater?



A



B

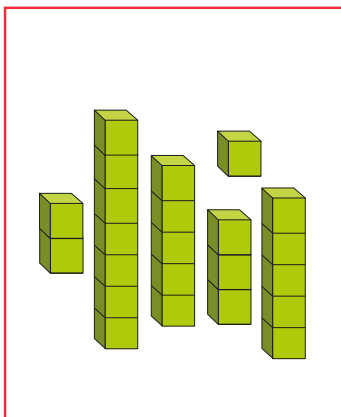
Answer

You can see that box B shows a greater number. It has 2 groups of 10s and 8 units, while box A has 2 groups of 10s and only 5 units.

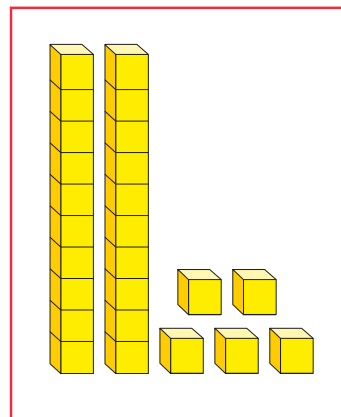
Activity 4

I. What is the value of each group?

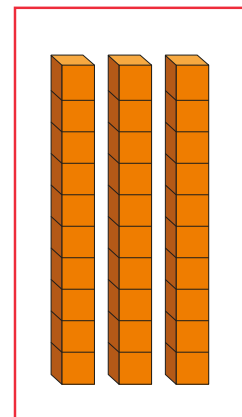
a)



A

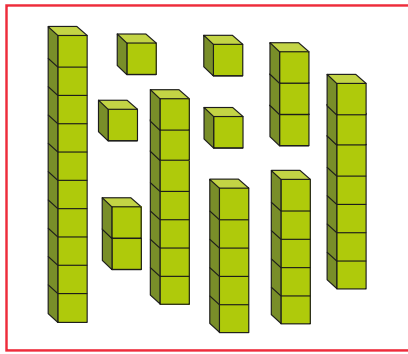


B

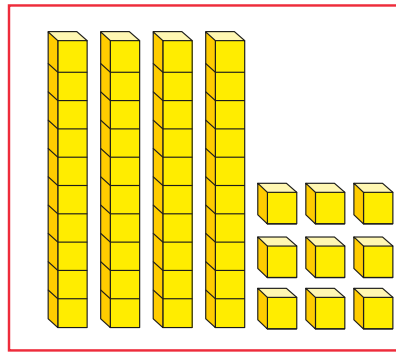


C

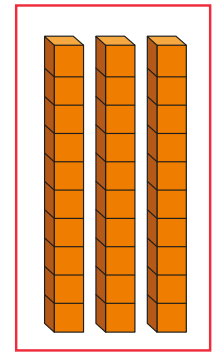
b)



A



B

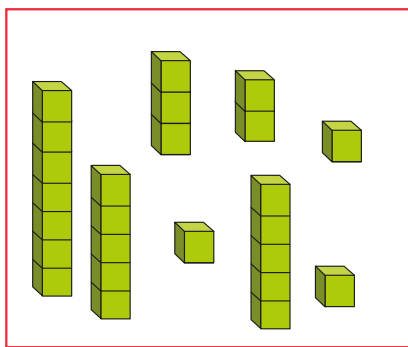


C

c) Use blocks to make two groups, then ask your friend which group's value is greater.

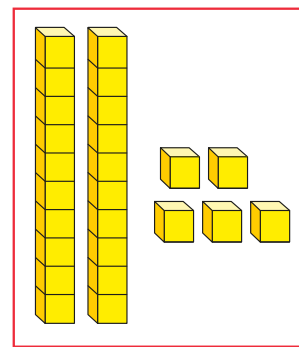
2. Write greater than, smaller than, or equal to.

a)



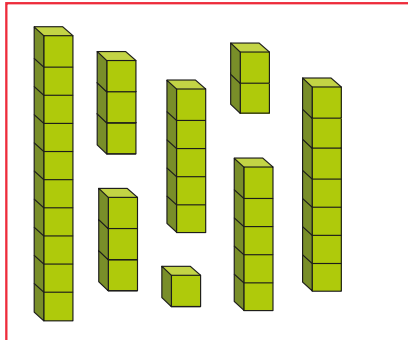
A

is _____



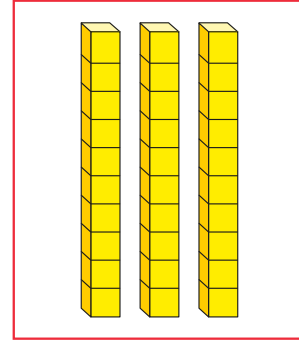
B

b)



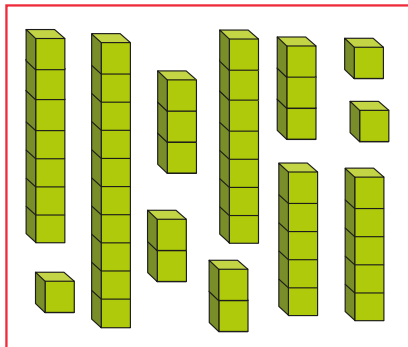
A

is _____



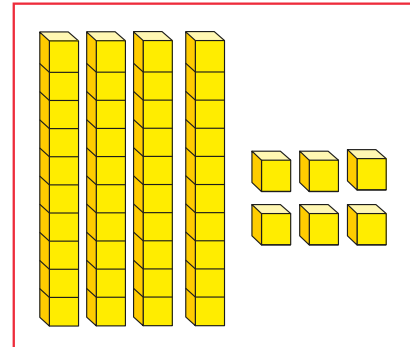
B

c)



A

is _____



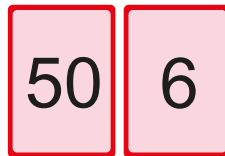
B

- d) Shane has 5 loose blocks, 2 groups of 10 blocks and one group of 5 blocks. Makgotshi has 28 blocks. Who has the most blocks? How do you know this?

Remember that when you understand place value, it helps you to recognise patterns in numbers.

Example

- a) What is the value of each digit shown?

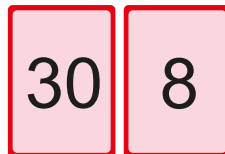


- b) Write the number symbol.
c) Write the number name.

Answer

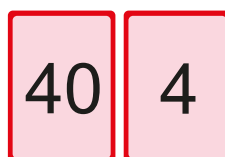
- a) 5 tens and 6 ones
b) 56
c) fifty-six

3. a) What is the value of each digit shown?



- b) Write the number symbol.
c) Write the number name.

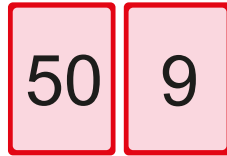
4. a) What is the value of each digit shown?



- b) Write the number symbol.

c) Write the number name.

5. a) What is the value of each digit shown?



b) Write the number symbol.

c) Write the number name.

6. Complete.

a) $25 = 2$ groups of tens and 5 ones.

$25 = 20$ and 5

b) $37 =$ ____ groups of tens and ____ ones.

$37 =$ ____ and 7

c) $48 =$ ____ groups of tens and ____ ones.

$48 =$ ____ and 8

d) $57 =$ ____ groups of tens and 8 ones.

____ = 50 and ____

e) $64 =$ ____ groups of tens and 4 ones.

$64 =$ ____ and ____

f) $69 =$ ____ groups of tens and ____ ones.

____ = ____ and ____

g) What does the number 8 in 58 represent?

h) What does the number 4 in 43 represent?

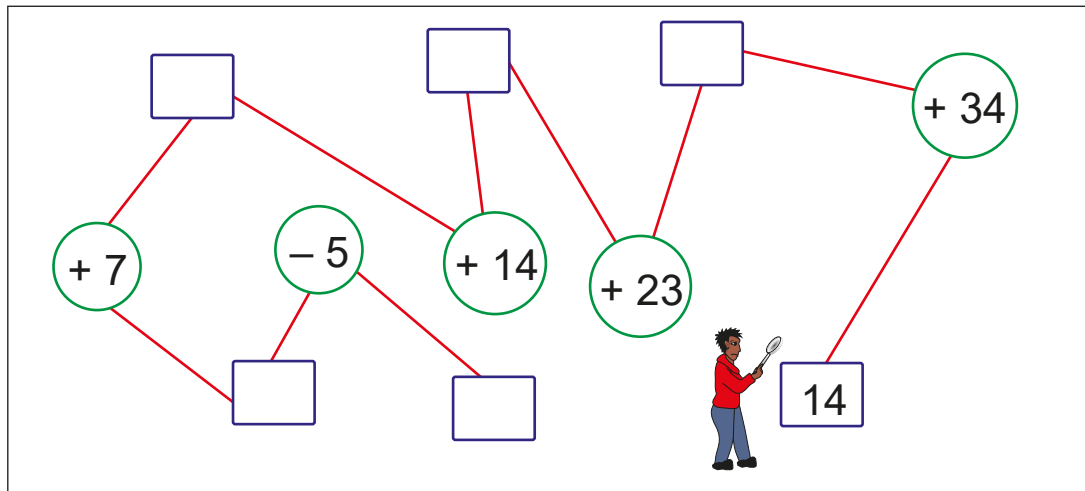
i) What does the number 6 in 69 represent?

j) What does the number 7 in 70 represent?

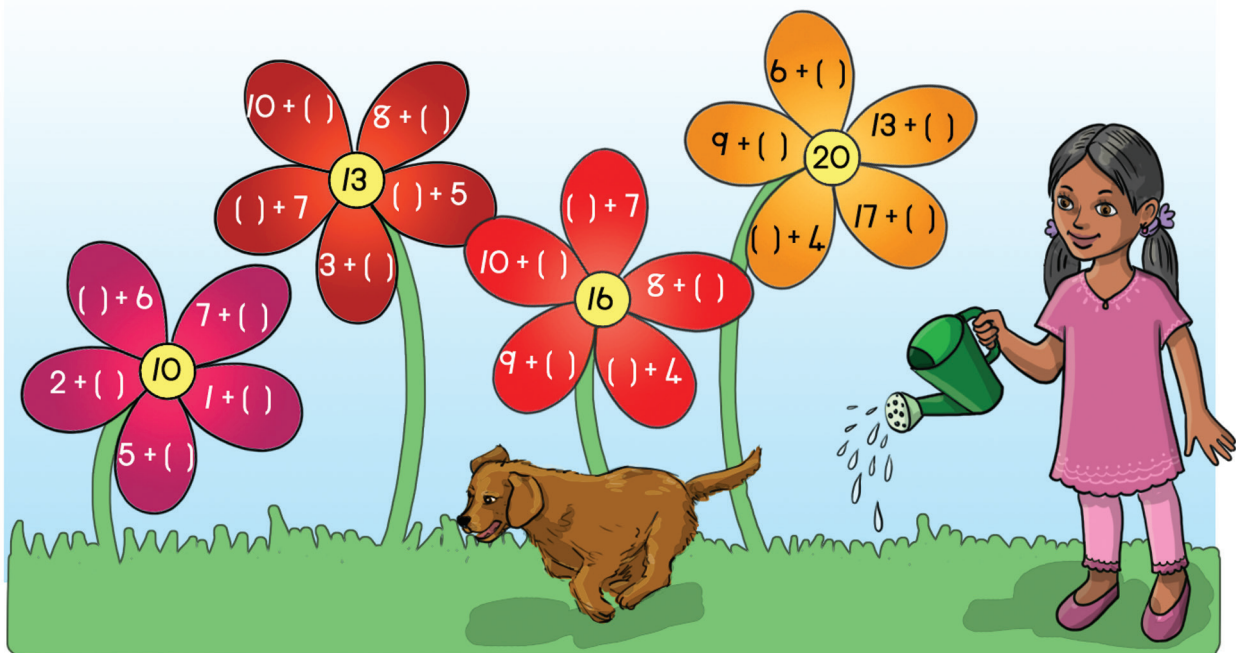
Addition and subtraction

Activity 5

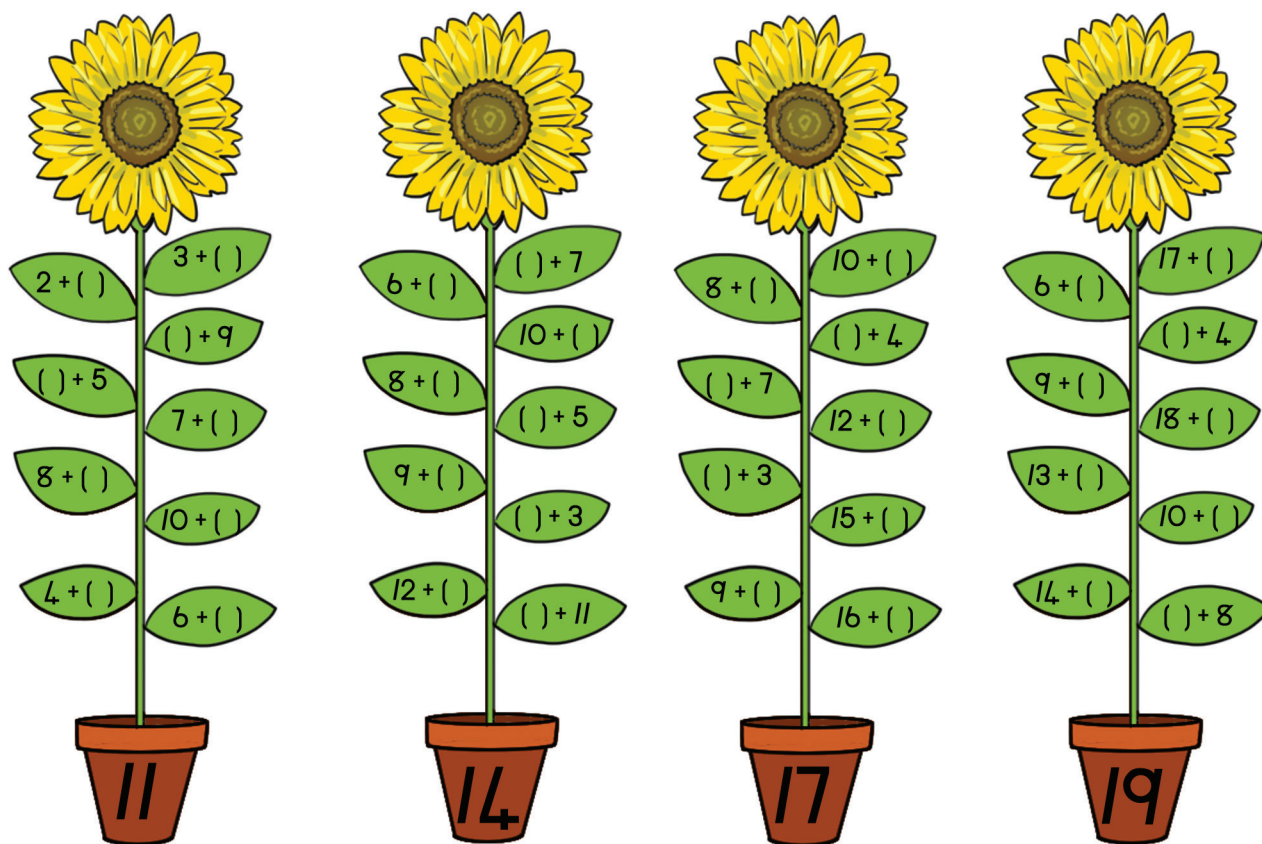
- Complete the number trail. Start at 14.



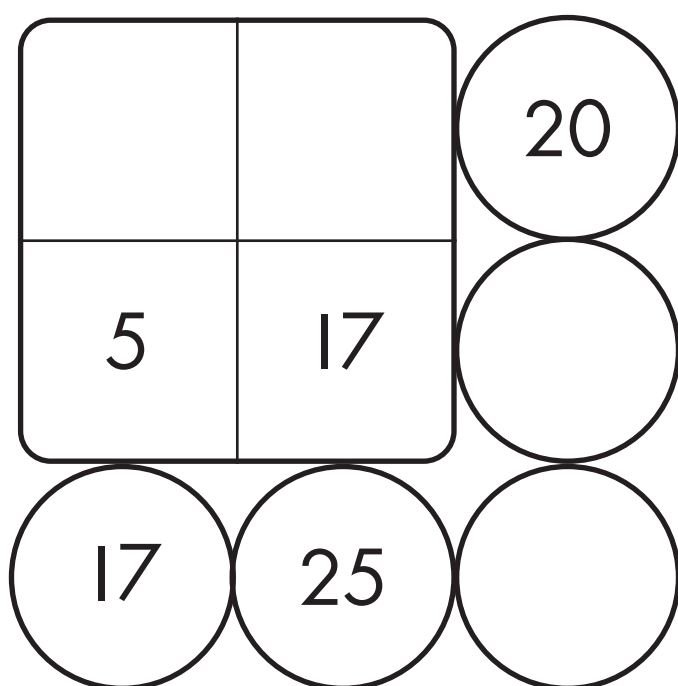
- Complete each number bond to equal the number in the middle.



3. Complete each number bond to equal the number on the flowerpot.



4. Complete the puzzle. Each row must equal the numbers in the circles.



Example

Complete the following:

$$23 + \boxed{} = 40, \text{ therefore } \underline{\hspace{2cm}}.$$

Answer

$$23 + 17 = 40, \text{ therefore } 40 - 23 = 17.$$

5. Complete the following:

a) $\boxed{} + 18 = 47$, therefore $\underline{\hspace{2cm}}$.

b) $32 + \boxed{} = 65$, therefore $\underline{\hspace{2cm}}$.

c) $\boxed{} + 28 = 75$, therefore $\underline{\hspace{2cm}}$.

d) $36 + \boxed{} = 61$, therefore $\underline{\hspace{2cm}}$.

e) $\boxed{} + 44 = 54$, therefore $\underline{\hspace{2cm}}$.

6. Zaida has 36 balloons that she must hang at the party. 9 balloons burst. How many balloons are left?

7. Zia and Zara have 24 teddy bears altogether.

a) If Zia has 16 teddy bears, how many teddy bears does Zara have?

b) If Zia gives 5 of her teddy bears to Zara, how many teddy bears would she have now?

c) If Zia gets 4 dolls for her birthday, how many dolls and teddy bears does she have altogether?

d) If Zara gets 3 dolls for her birthday, how many dolls and teddy bears does she have altogether?

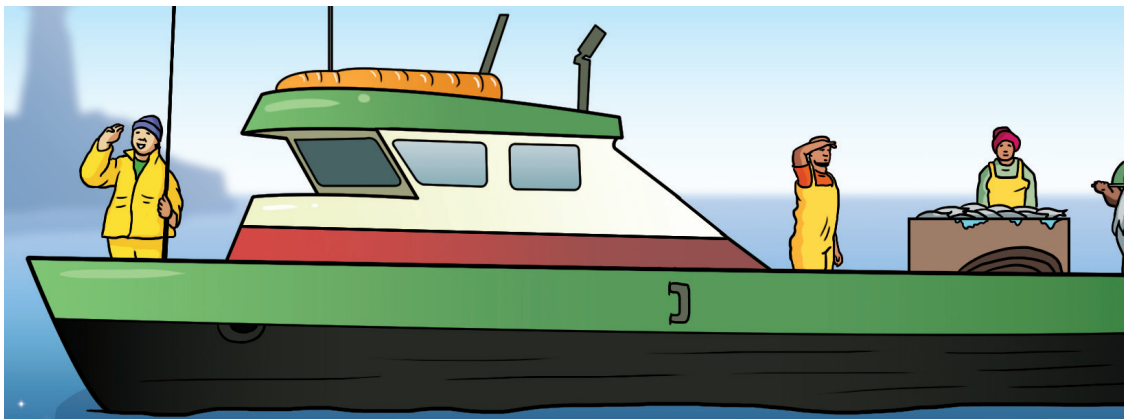
Problem solving

Use counters to help you solve problems

We use counters and what we have learnt about place value to help us solve problems.

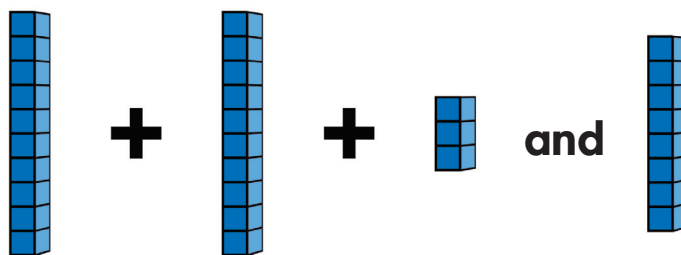
Example

Local fishermen bring in a catch of 23 fish in one catch. The following day they bring in a catch of only 8 fish. How many fish did they bring in during the two days?



Answer

$$23 + 8 = \square$$



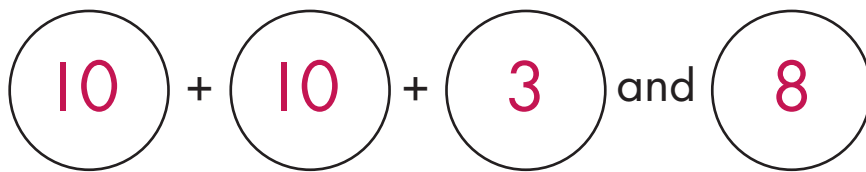
$$10 + 10 + 3 \text{ and } 8 = \square$$

Rearrange to make groups of 10s:

$$10 + 10 + 8 + 2 + 1 \rightarrow 20 + 10 + 1 \rightarrow 30 + 1 = 31$$

OR

$$23 + 8 = \square$$



$$10 + 10 + 3 \text{ and } 8 = \square$$

Rearrange to make groups of 10s:

$$10 + 10 + 8 + 2 + 1 \rightarrow 20 + 10 + 1 \rightarrow 30 + 1 = 31$$

They brought in 31 fish.

Activity 6

1. A local fisherman can catch a limited number of 30 crayfish per day, 25 shrimp per day and 15 crabs per day.
 - a) On the first day of fishing, the fisherman caught 25 crayfish, 10 shrimp and 5 crabs. How many did he catch altogether?
 - b) On the second day, the fisherman caught 35 crayfish. How many crayfish did he catch more than the limit?
 - c) If the fisherman caught the limited number of crayfish for 3 days, how many crayfish did he catch altogether?
2. A sardine net caught 75 sardines in 1 trip.
 - a) If the fisherman found that 12 sardines were too small to keep, how many sardines would he have remaining?
 - b) If there were 3 fishermen who shared the catch equally amongst themselves, how many sardines would each fisherman get?

Break down and build up numbers to help you solve problems

Remember that you can also **break down numbers** into small parts that are easier to work with, then build them up again to find the answer.

Example

Nathi is given this problem to solve:

$$49 + 12 = \square$$

Answer

This is how he solved it.

$$\begin{aligned} 49 + 12 &= \\ &= (40 + 9) + (10 + 2) \\ &= (40 + 10) + (9 + 2) \\ &= 50 + 11 \\ &= 61 \end{aligned}$$

Therefore, $49 + 12 = 61$

3. Solve the following problems:

- a) A shop-assistant is hanging up poster advertisements about their weekend specials in their shop.

They are running specials on 35 items. If the shop-assistant has already hung 14 posters, how many more posters does he need to hang?

- b) Cedric is a baker. He bakes 12 milk tarts, 5 chocolate cakes, 11 apple tarts and 6 vanilla cakes. How many cakes did he bake altogether?

- c) If he sells 6 milk tarts, 4 chocolate cakes, 8 apple tarts and 3 vanilla cakes, how many cakes does he have left?



Use doubling and halving to help you solve problems

Check if you can solve a given problem using **doubling** or **halving**. Try to find near doubles and work from there.

Example

Mpho is given this problem to solve:

$$18 + 24 = \square$$

Answer

This is how he solved it.

Rearrange the sum: $24 + 18 = \square$

$$24 + 18 =$$

$$= (20 + 4) + (20 - 2)$$

$$= (20 + 20) + (4 - 2)$$

$$= 40 + 2$$

$$= 42$$

Therefore, $18 + 24 = 42$

4. Solve the following problems:

- a) Marcus collects different playing cards. He has 19 so far. He buys a pack of 25 more. How many cards does he have altogether?
- b) Lesego sells fudge and peanut clusters at school. She has 29 pieces of fudge and 32 peanut clusters. How many does she have altogether?

Use number lines to help you solve problems

Also remember that using **number lines** can help you solve number problems.

Example

Tebogo is given this problem to solve:

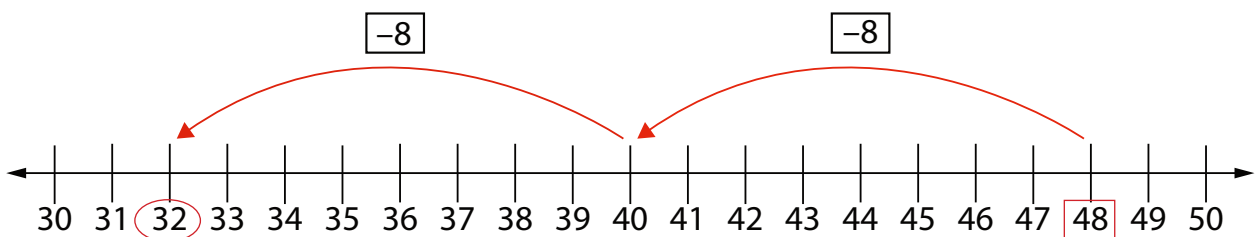
$$48 - 16 = \square$$

Answer

This is how he solved it.

Hint:

You can skip count in 2s, 4s, 5s or use any other skip counting that will work to solve this problem.



$$48 - 16 \rightarrow 48 - (8 + 8) \rightarrow 48 - 8 \rightarrow 40 - 8 = 32$$

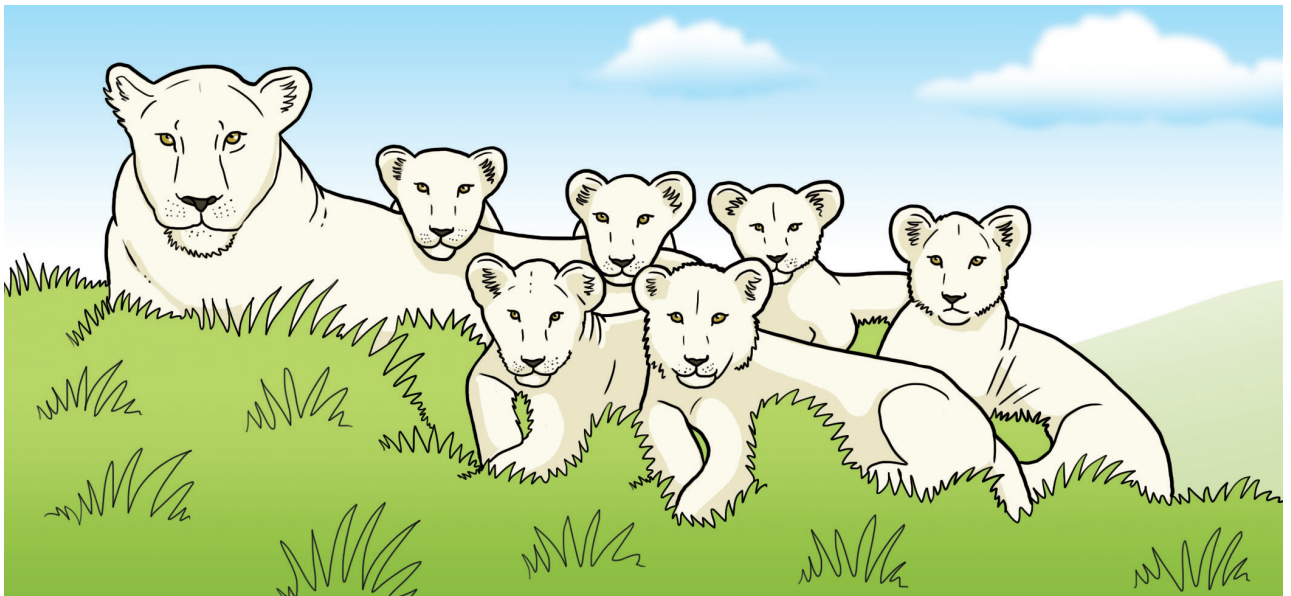
5. Solve the following problems:

- a) Keto and his group had to complete an assignment. They had 56 items to complete their project. Keto brings 17 items. How many more items are needed?
- b) If another member of the group brought 18 items, how many more items do they still need?



Solve these problems using any method you prefer.

- 6. One wagon has 4 wheels. How many wagons can you build if you have 32 wheels?
- 7. Sarah and her family are visiting the lion park. They see different lions and cubs there.



- a) Sarah sees 5 lionesses. Each lioness has 6 cubs. How many cubs are there altogether?
- b) There are 40 lions altogether. If 18 are males, how many females are there?

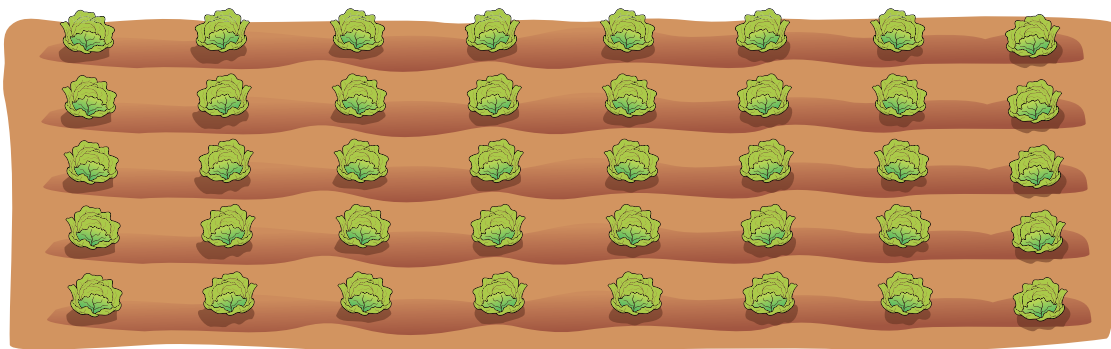
- c) If Sarah sees 6 lionesses. Each lioness has 6 cubs. How many cubs are there altogether?
 - d) There are 32 lions, 17 are sent to different parks in the country. How many lions are left?
8. If 5 hands have 25 fingers, how many fingers do 6 hands have?
9. Share 39 crayons equally amongst 8 boxes in the classroom. How many crayons are in each box?
10. Mother plants petunias, daisies and sunflowers. There are 48 plants altogether.
- a) If half the flowers are petunias, how many petunias are there?
 - b) If 12 flowers are sunflowers, how many daisies are there?
11. Work in pairs. Make up five of your own problems. Exchange your problems with another pair for them to solve.
- a) Check the other pairs' work once completed to see if they have worked the answers out correctly.
 - b) If their answers are incorrect, explain why and help them to solve the problem correctly.
12. a) List six ways to make 13.
- b) List seven ways to make 15.
- c) List eight ways to make 18.
- d) List ten ways to make 20.

Repeated addition

Repeated addition leads to multiplication. Remember that we use the \times symbol to show multiplication.

Example

Mr Nkosi is planting cabbages. He plants 5 rows of 8 cabbages each. Use repeated addition to work out how many cabbages he planted.



Answer

$$8 + 8 + 8 + 8 + 8 = 40$$

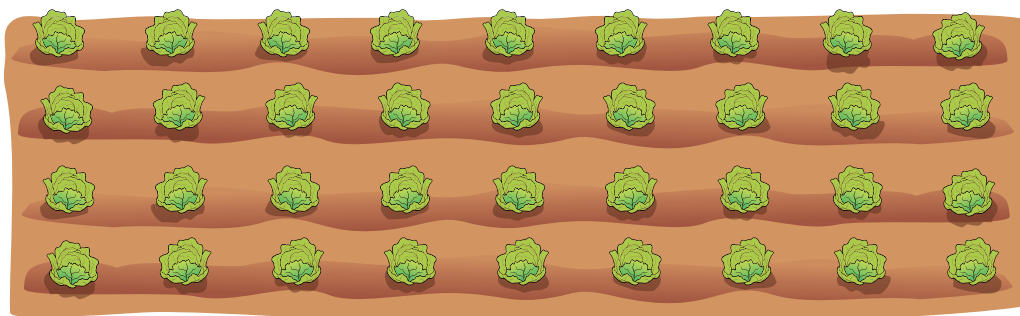
$$\text{OR} \quad 5 \times 8 = 40$$

Activity 7

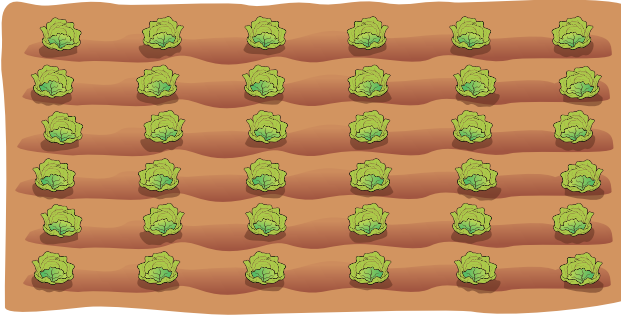
Solve the following problems using repeated addition and multiplication.

1. How many cabbages?

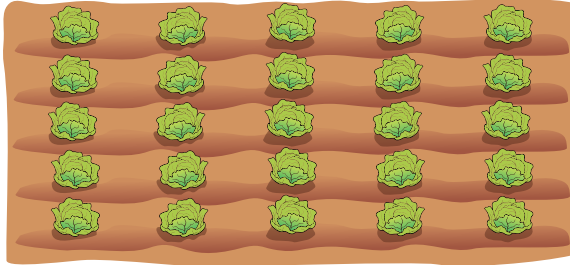
a)



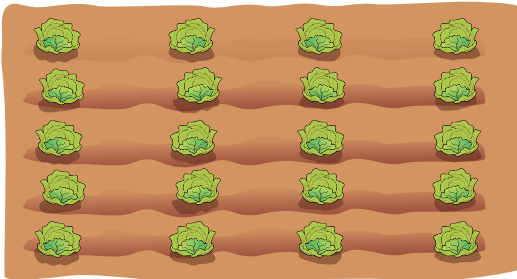
b)



c)

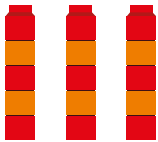


d)



2. Complete. The first one has been done for you.

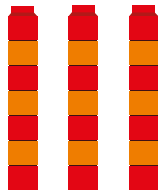
a)



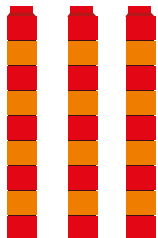
$$5 + 5 + 5 = 15$$

$$3 \times 5 = 15$$

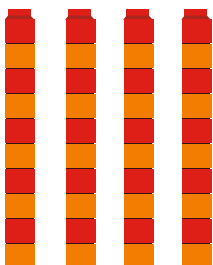
b)



c)



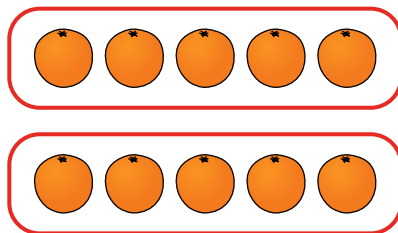
d)



3. Complete. The first one has been done for you.

a)

There are
2 groups.
There are
5 in each
group.



You can add:

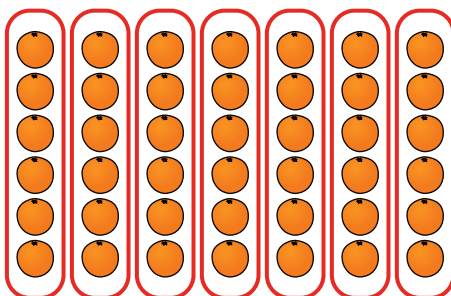
$$5 + 5 = 10$$

You can multiply:

$$2 \times 5 = 10$$

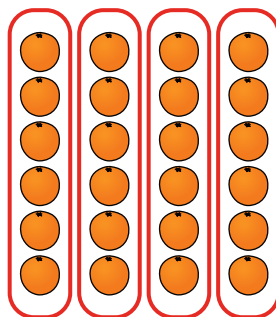
b)

There are
7 groups.
There are
6 in each
group.



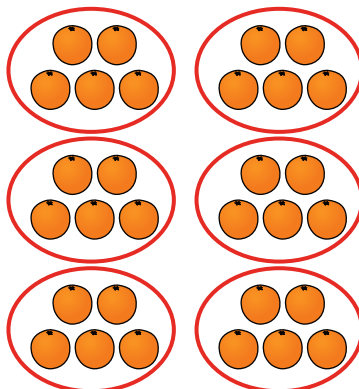
c)

There are
4 groups.
There are
6 in each
group.



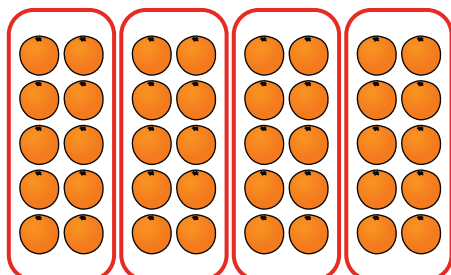
d)

There are
6 groups.
There are
5 in each
group.



e)

There are
4 groups.
There are
10 in each
group.

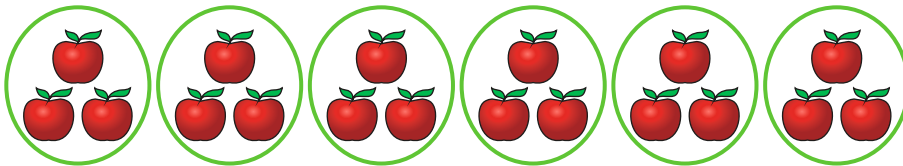


4. Complete.

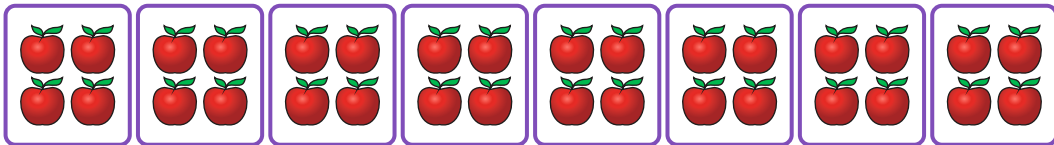
×	1	2	3	4	5
1	1				
2		4			
3			9		
4				16	
5					25
6					
7					
8					
9					
10					

5. Complete.

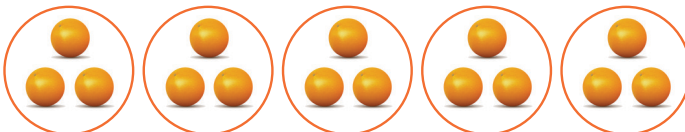
a) How many altogether?



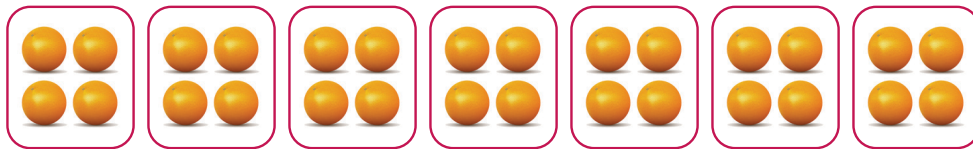
b) How many altogether?



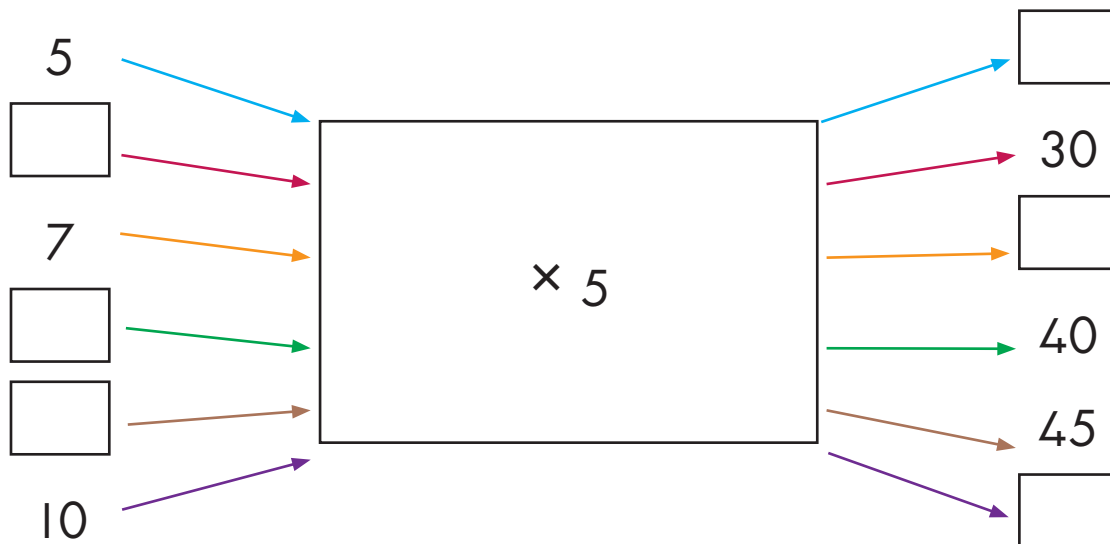
c) How many altogether?



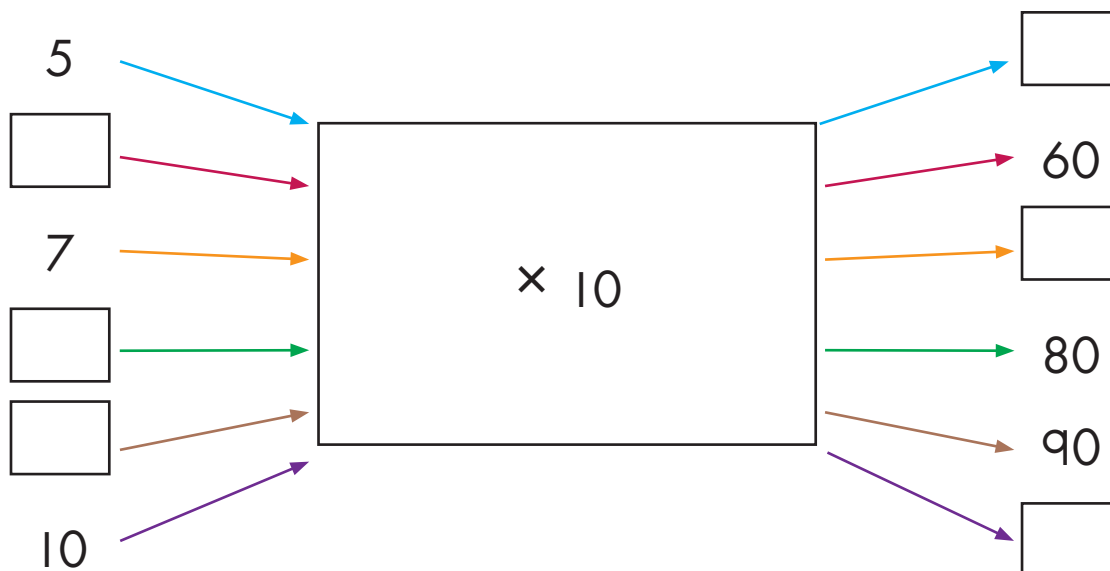
d) How many altogether?



6. Copy and complete the flow diagram.



7. Copy and complete the flow diagram.



8. Layla's violin teacher says that she needs to practise at least 6 times per week to prepare for her concert.

Currently, she practises only 4 times per week.



- a) If she has been practising for 5 weeks already, how many days has she been practising?
 - b) If she changes her practice times to 6 times a week, for how many days will she practise over the next 5 weeks?
 - c) If she needs to practise for 28 days in the next 5 weeks, how many days of practice will she need to add to her practice time?
9. Lara is selling cookies to raise funds for her leadership camp.
- a) She sells 4 packs of 6 chocolate cookies. How many chocolate cookies did she sell?
 - b) She sells 3 packs of 12 chocolate chip cookies. How many chocolate chip cookies did she sell?
 - c) She sells 5 packs of 6 yoghurt cookies. How many yoghurt cookies did she sell?
 - d) How many cookies did she sell altogether?

Grouping and sharing

Problems that involve grouping and sharing can be solved using counters and by writing the problem using number sentences.

Example

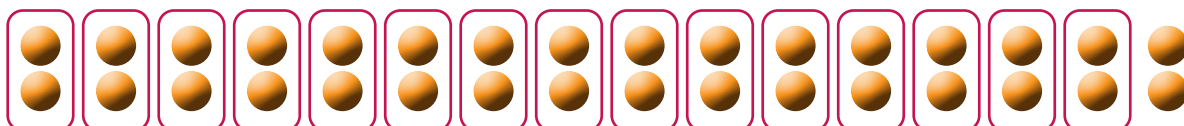
After the rugby match, Manare shared 32 oranges equally amongst 15 players.

- a) How many oranges did each player get?
- b) How many oranges are left?



Answer

- a) Each player got 2 oranges.



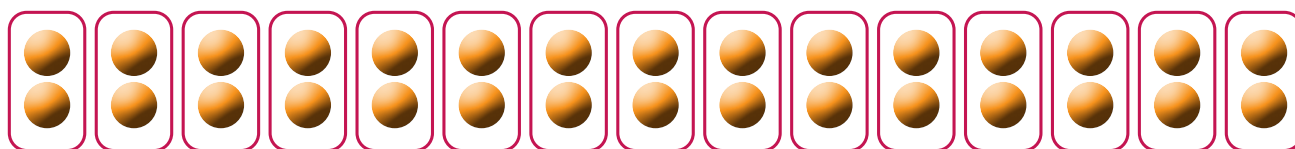
- b) There are 2 oranges left.

Example

Manare shared 30 oranges equally amongst 15 players.
How many oranges did each player get?

Answer

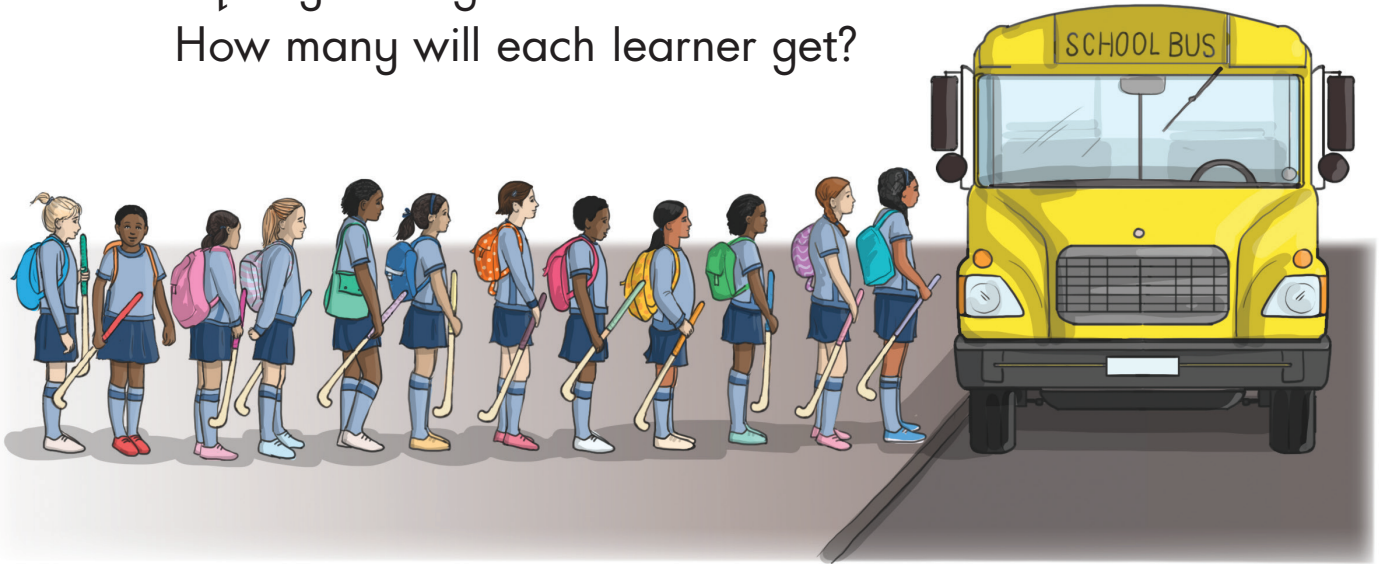
Each player got 2 oranges.



Activity 8

1. At the carnival there are 6 rides.
 - a) At the first ride there are 40 children waiting.
Each car can take 6 children.
How many cars will they fill up?
 - b) At the second ride there are 32 children waiting.
Each car can take 8 children.
How many cars can they fill up?
 - c) At the third ride there are 35 children waiting.
This ride can take 10 on one side and 10 on the other side.
How many children will have to wait until the next ride?
2. Miss Swanepoel has to hand out 40 paint brushes to 7 learners. How many paint brushes will each learner get? Will there be any paint brushes left?
3. Vuyo works at the spaza shop.
He needs to make up bags of 8 oranges each.
Vuyo has 24 oranges.
How many bags with 8 oranges can he fill?
4. Solve the following problems. Use drawings to help you.
 - a) Mpho and her 4 sisters must share 6 apples equally.
How many apples will each child get?

- b) 12 learners travel together in a school bus to a hockey match.
The coach gives them 28 energy drinks to share equally amongst themselves.
How many will each learner get?



We can also use drawings to help us when working with problems involving sharing.

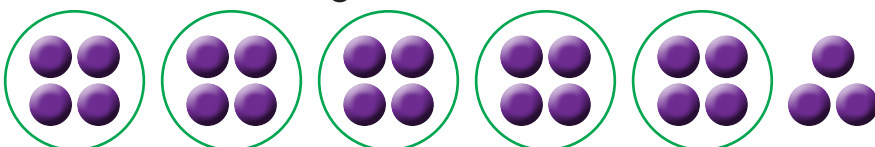
Example

Share 23 sweets amongst 5 friends so that they all get the same number of sweets.

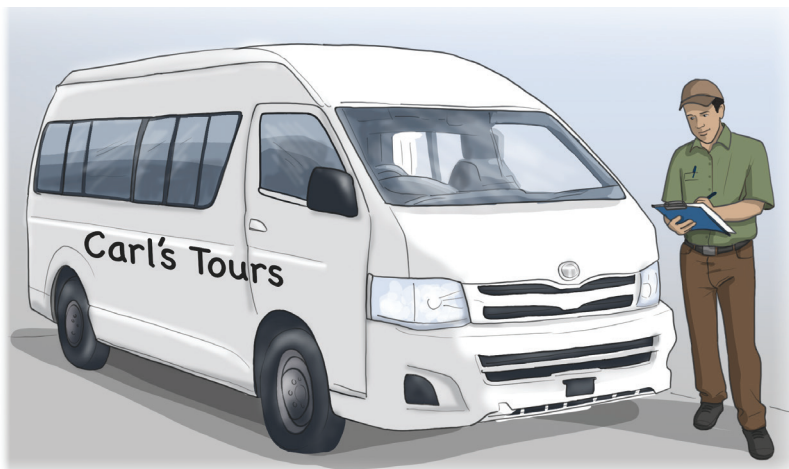
Answer



Each friend will get 4 sweets, with 3 sweets left.



5. Carl is a tour operator. He has 5 vans, and each van takes 8 passengers. Forty visitors want to use his vans. How many passengers will be in each van?



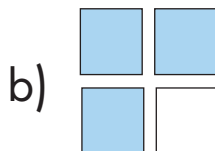
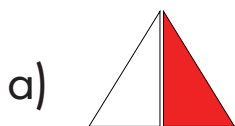
6. Share 30 sweets amongst 10 friends so that they all get the same number of sweets.
7. Lesego and Tebogo run a shop. They take turns to work. Lesego works 4 hours per day. Tebogo works 6 hours per day. They are paid R40. How must they share the money?

Work with fractions

Remember that a fraction is a part of a whole.

Example

What fraction does each shaded part show?



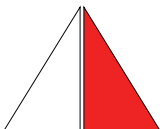

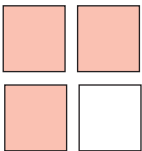
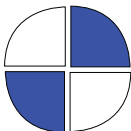
Answer

a) one half

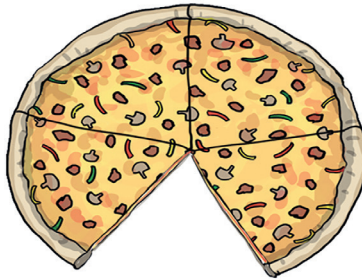
b) three quarters

Activity 9

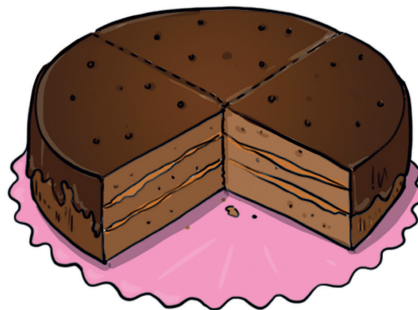
I. Match what fraction of the shaded drawing is represented.

a) 	two quarters
b) 	three quarters
c) 	one half
d) 	two fifths

2. a) Explain to your friend what you think a fraction is. You can use drawings to help with your explanation.
- b) Give at least two examples of how you think we use fractions in every day life.
3. This pizza was cut into 5 pieces.



- a) How much of the pizza has been eaten?
- b) How much of the pizza is left?
4. Look at this cake.



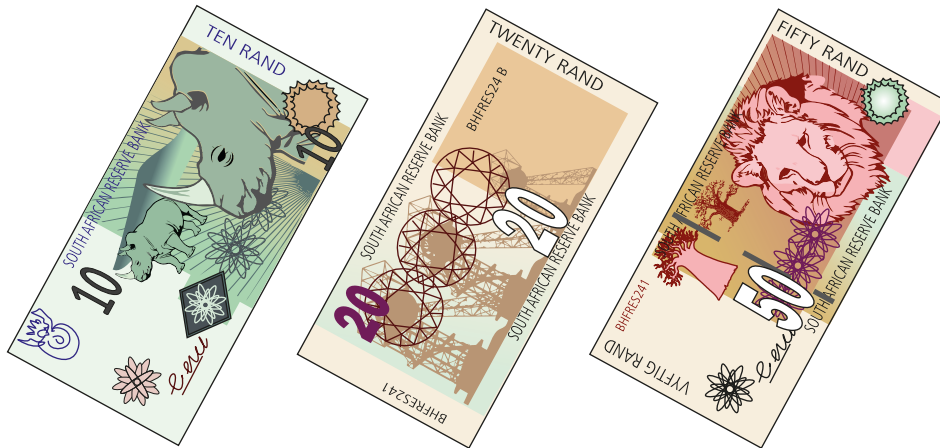
- a) How many equal parts are there?
- b) What do you call each part?
- c) If Jake eats two parts of the cake, how many pieces will be left?

Work with money

The coins we use in South Africa are:



Some bank notes we use in South Africa are:



Activity 10

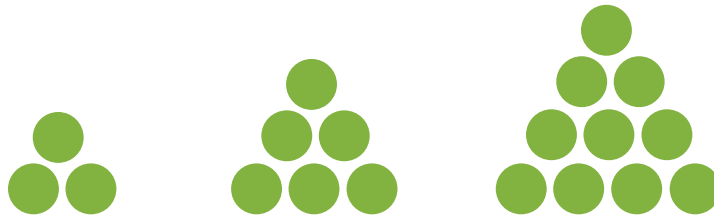
1.
 - a) Michelle has two 50c coins, one R1 coin, one R5 coin, and one R10 note. How much money does she have altogether?
 - b) Michelle wants to buy a bag of apples for R8 and a bag of bananas for R10. Does she have enough money? How much more money will she need?
2. Mishka and 20 of her classmates visit the aquarium with their teacher.
Each learner has to pay R2,50 for entry to the aquarium.
What total must their teacher pay for all the learners?
3. Tristan takes the bus to school 5 days a week.
He pays R4,99 per trip to and from school.
How much does he spend for 5 days?

Learn about patterns

Patterns with objects, shapes and lines

Example

Describe the geometric pattern.



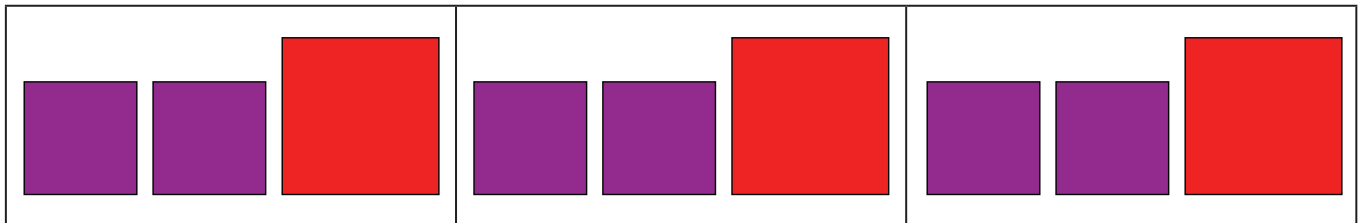
Answer

It is an increasing geometric pattern.

TERM 3

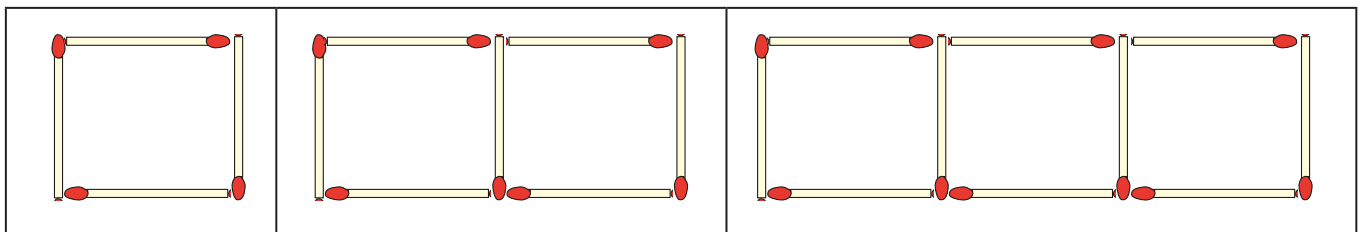
Activity II

1. a) Copy and extend the pattern twice.



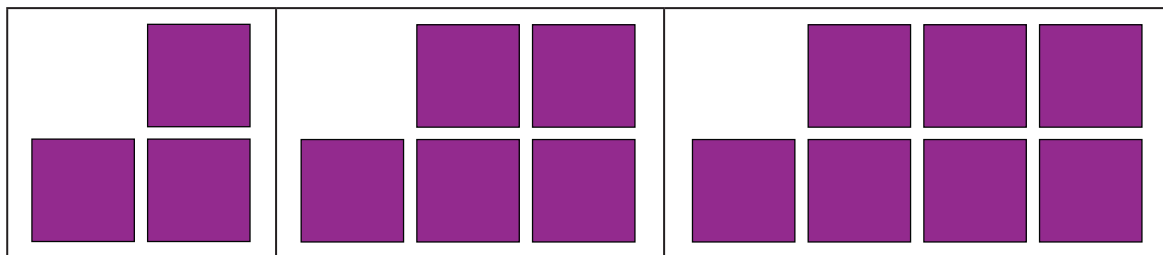
b) What do you notice about the squares in each group?

2. a) Use match sticks or toothpicks to copy and extend the pattern twice.



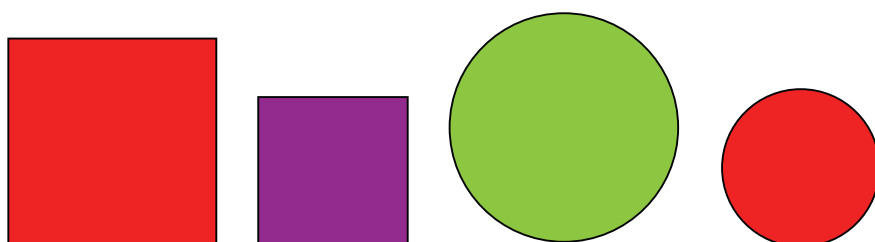
b) What do you notice about the rectangle in each group?

3. a) Copy and extend the pattern twice.



- b) What do you notice about the number of squares in each group?

4. Use any of the shapes below to make your own pattern?



Number patterns

5. a) Count on from 91 to 180.

91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	116	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180

- b) Count backwards in 10s from 180

6. Fill in the missing numbers:

a) 180; 170; 160; ; .

b) ; ; 163; 164; ; 166; .

c) 115; 114; 113; ; ; ; .

d) 150; 147; 144; ; ; .

7. Use the number grid to count the numbers.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180

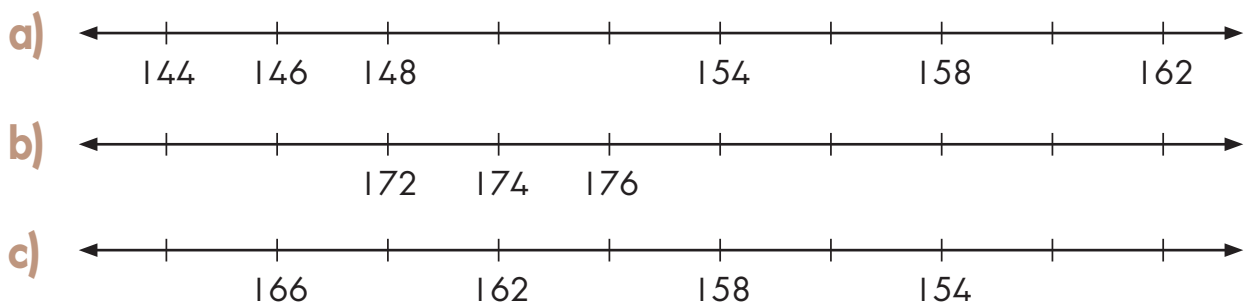
a) Read the numbers on the number grid from the smallest to the greatest.

If you had to extend the pattern of shading on the number grid how would you describe the shading.

b) Count all the multiples of 2s from the smallest to the greatest.

c) The shaded numbers are called multiples of 2s.
Why do we say so?

8. Fill in the missing numbers



9. Count all of the numbers on the number lines a) to c).

10. Count backwards in 2s from 180.

11. Fill in the missing numbers.

- a) 140; 150; 160; ; 180.
- b) 130; 140; 150; ; ; .
- c) 180; 170; 160; ; 140; ; 120; .

12. Identify the number pattern and write the missing numbers.

- a)

70	68	66	64	62				
----	----	----	----	----	--	--	--	--
- b)

10	13	16	19	22				
----	----	----	----	----	--	--	--	--
- c)

25	26	27	28	29				
----	----	----	----	----	--	--	--	--
- d)

45	40	35	30	25				
----	----	----	----	----	--	--	--	--
- e)

10	20	30	40	50				
----	----	----	----	----	--	--	--	--

13. Choose the correct number to complete the pattern.

a)

25; 30; 35;

45	40	50
----	----	----

b)

155; 160; 165;

170	169	164
-----	-----	-----

c)

100; 110; 120;

145	135	130
-----	-----	-----

d)

132; 133; 134;

135	143	136
-----	-----	-----

e)

68; 70; 72;

74	68	76
----	----	----

f)

105; 110; 115;

120	125	130
-----	-----	-----

g)

133; 130; 127;

124	126	125
-----	-----	-----

h)

180; 160; 140;



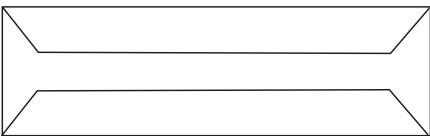

130	120	141
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Views and position

Different views


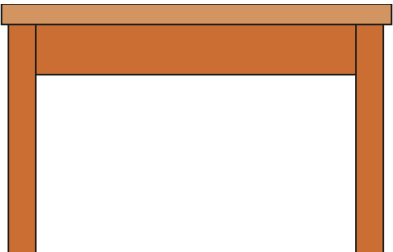


Look at the different views of the box.

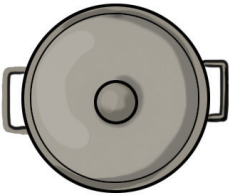
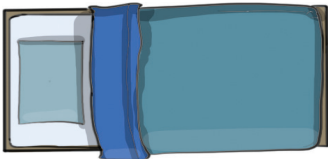
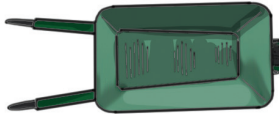

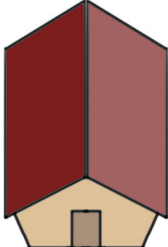
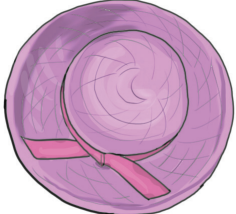


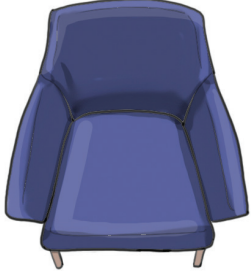
Side view	
Front view	
Bottom view	
Top view	

Activity 12

- Look at the different views of a table. Choose the correct view.

	Top view	Side view
a) 		
b) 		

2. a) Look at the top view of the objects. Match it to the words in the box. Write for example, a) a rubbish bin.

a rubbish bin	a pot	a bed
a bicycle	a hat	a wheelbarrow
an aeroplane	a chair	a house
a) 	b) 	c) 
d) 	e) 	f) 
g) 	h) 	i) 

- b) Look at the pictures above. Use the following words to complete these sentences.

left

right

up

down

next to

The bicycle is to the _____ of the house. The hat is to the _____ of the house. To get to the wheelbarrow from the pot, you move two spaces _____ and one space to the _____. To move from the bed to the aeroplane, you move two spaces _____ and one space to the _____. The chair is one block _____ the pot.

Position and direction

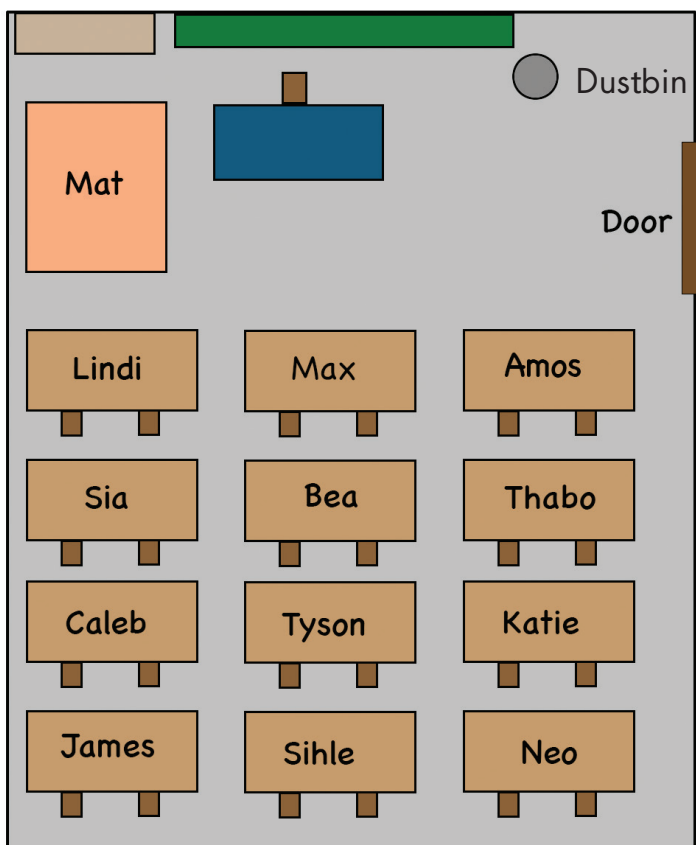
Giving clear directions is a skill you need to practise.

Do not leave out any information when giving directions.

When explaining directions, make sure the person knows the difference between left and right.

Activity 13

Look at the layout of the classroom.



- a) Name the learner who is sitting nearest to the door.
- b) Who is sitting in front of Tyson?
- c) Who is sitting between Caleb and Katie?
- d) Sihle is new in the class. Explain to Sihle where the dustbin is in the classroom.
- e) James walked to the front of the class and passed Tyson and

Caleb's desks. At the next desk he is talking to a girl. Who is James talking to?

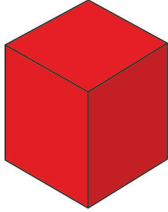
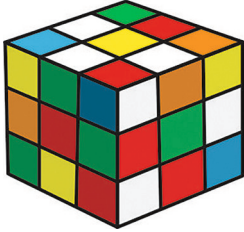
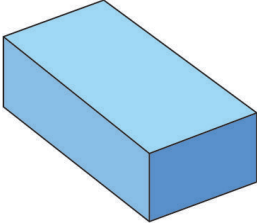
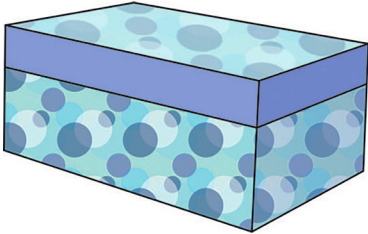
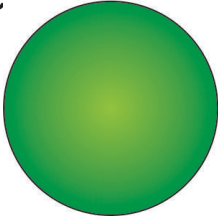

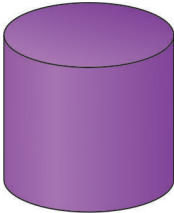
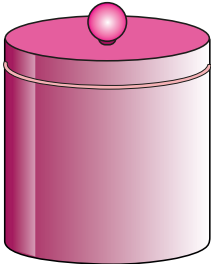
- f) All the learners need to go and sit on the mat. Explain the directions to Sihle to make sure she is taking the shortest route.

Three dimensional objects

A three-dimensional object is solid and not flat.

A three-dimensional object has height, length and width.

We use the abbreviation 3-D object when referring to a three-dimensional object .

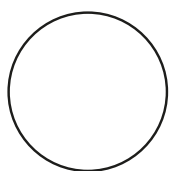
Name	We can see ...	Can it roll or slide?
Prism 		<ul style="list-style-type: none"> It can slide.
Prism 		<ul style="list-style-type: none"> It can slide.
Sphere 		<ul style="list-style-type: none"> It can roll.
Cylinder 		<ul style="list-style-type: none"> It can roll and slide.

Example

Look at the cylinder. Draw the top view of the cylinder.



Answer



Example

Can Lerato stack the cylinders?



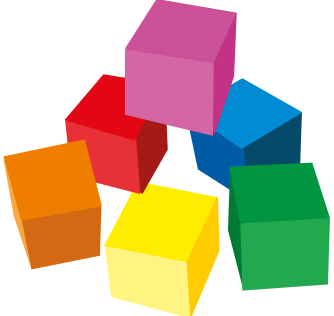
Answer

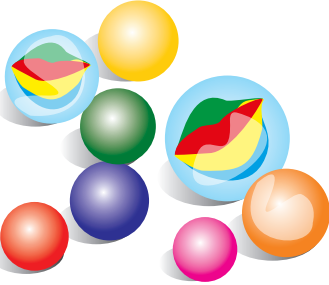
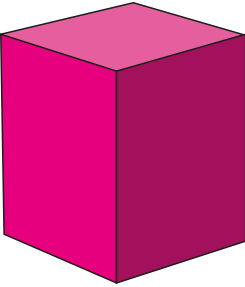
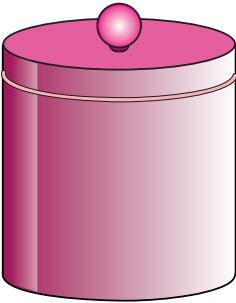
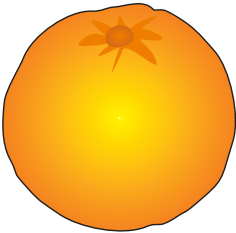
Yes, it can stack.

Activity 14

I. Copy and complete the table.

a)

	Name the 3-D object	Will the object slide on a floor? Yes or No
		

	Name the 3-D object	Will the object slide on a floor? Yes or No
b)		
c)		
d)		
e)		

2. Explain to your partner why a square is not a three-dimensional object.
3. Use play dough to make your own three-dimensional objects.

The calendar

This is the calendar for September 2017.

2017 SEPTEMBER						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

One of the days highlighted on the calendar is 24 September.

The date three days before 24 September is 21 September.

The date two days after 24 September is 26 September.

A week has 7 days.

Activity 15

- I. What day of the week will it be:
 - a) 4 days before 30 September?
 - b) 2 days after 29 September?
 - c) 5 days after 21 September?
 - d) 3 days before 21 September?
 - e) 1 day before 29 September?

2. A week has 7 days. Complete the table showing the relationship between the number of weeks and the number of days.

Number of weeks	1	2	3	4
Number of days	7			

3. Copy and complete the table in your classwork book. Use the calendar to answer the questions about the date.

	One week ago	Date now	One week later
a)		17 September	
b)		20 September	
c)		30 September	

4. Copy and complete the table in your classwork book.

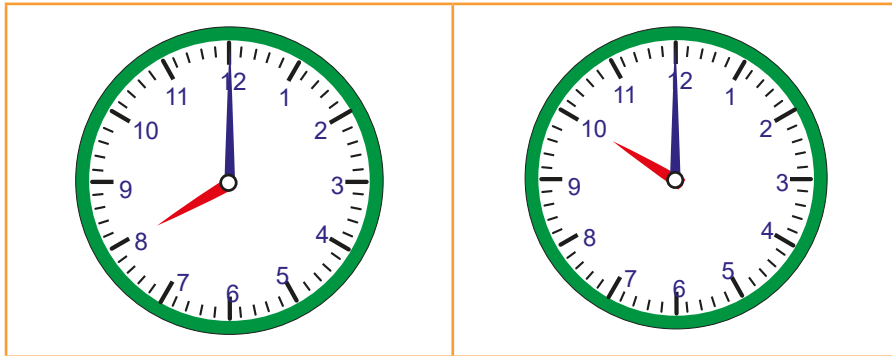
	One week ago	Date now	Two weeks later
a)		17 September	
b)		15 September	

5. Find out on what day any of your family members celebrate their birthday.
- Work out five questions about this date.
 - Ask your friend to work out the answers.

Calculating the length and passing of time in hours and half hours

Example

The clocks below show the time at 8 o'clock and at 10 o'clock. How many hours is it from 8 o'clock to 10 o'clock?

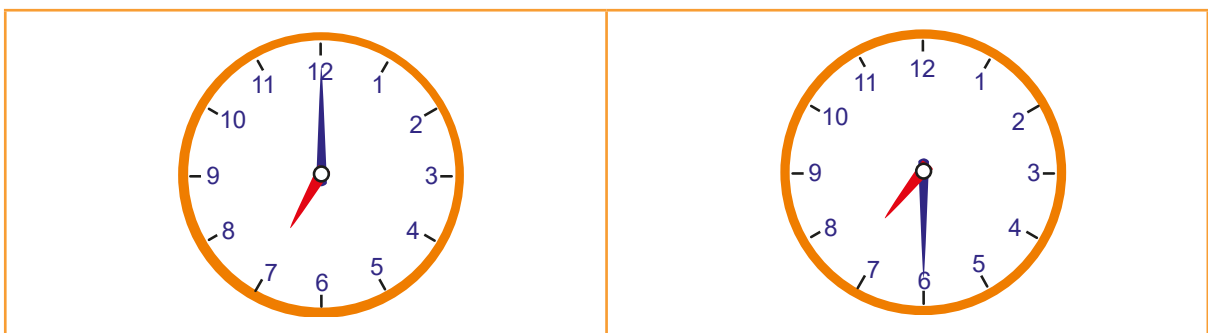


Answer

There are 2 hours from 8 o'clock to 10 o'clock.

Example

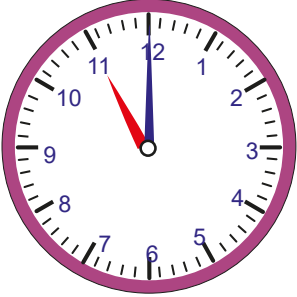
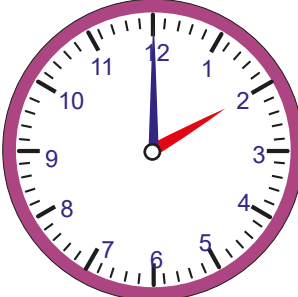
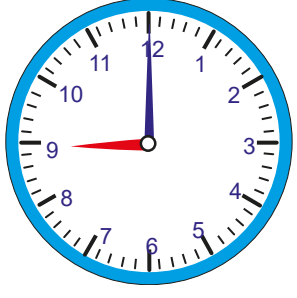
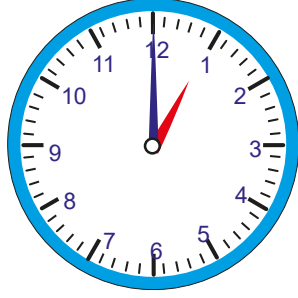
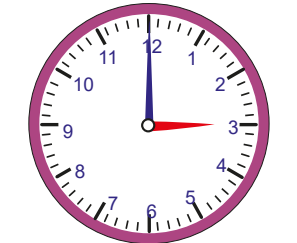
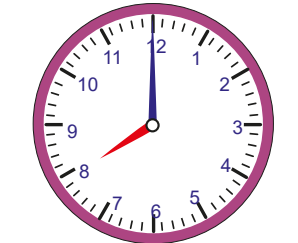
The clocks below show the times at 7 o'clock and at half past 7.



The time from 7 o'clock to half past 7 is 30 minutes.

Activity 16

1. How many hours is it?


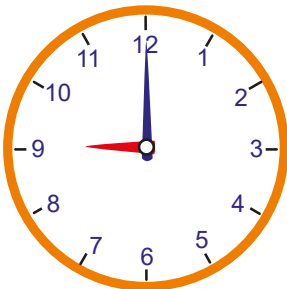


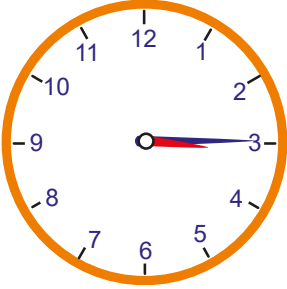

	From	To	Number of hours that have passed
a)			
b)			
c)			

2. How many hours is it?

from	a) 6 o'clock	b) 5 o'clock	c) 1 o'clock	d) 10 o'clock
to	11 o'clock	11 o'clock	4 o'clock	7 o'clock
hours				

3. Sihle needs to bake a cake for 30 minutes. If she puts the cake in the oven at 10 o'clock, what time will the cake be ready to come out of the oven?

4. Tebogo has to train for 30 minutes twice per week. On Monday he trains from 11 o'clock until half past 11. On Thursday he starts training at quarter to 11. What time will he be done with his training?
5. Cammy has a break for half an hour after every hour of studying.
- If she had a break starting at half past three, what time will she start studying again?
 - Try to work out when her next break will be. Work with a friend to try and find the answer.
6. How many minutes is it?

	From	To	Number of minutes that have passed
a)			
b)			
c)			

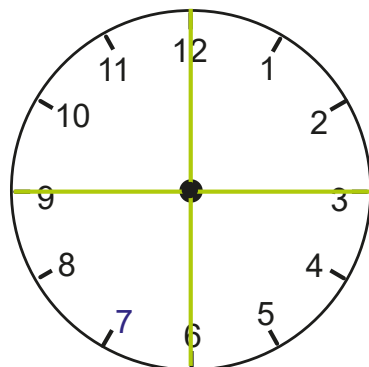
7. How many minutes

from	a) 6 o'clock	b) half past 4	c) quarter past 8	d) quarter to 7
to	half past 6	5 o'clock	quarter to 9	quarter past 7

8. Hazel did her homework from 7 o'clock until quarter past 8. How much time did Hazel spend on her homework?
9. a) How many minutes are there in one hour?
 b) How many minutes are there in half an hour?
 c) Petula says that there are 120 minutes in 2 hours. Is she right or wrong? Explain to your friend why you say so.
10. Harry started a cross-country race at 6 o'clock in the morning.
 a) He passed a water point at quarter to 7. For how long was he running?
 b) If he runs for another half an hour before he gets to the next water point, what time will he reach the water point?

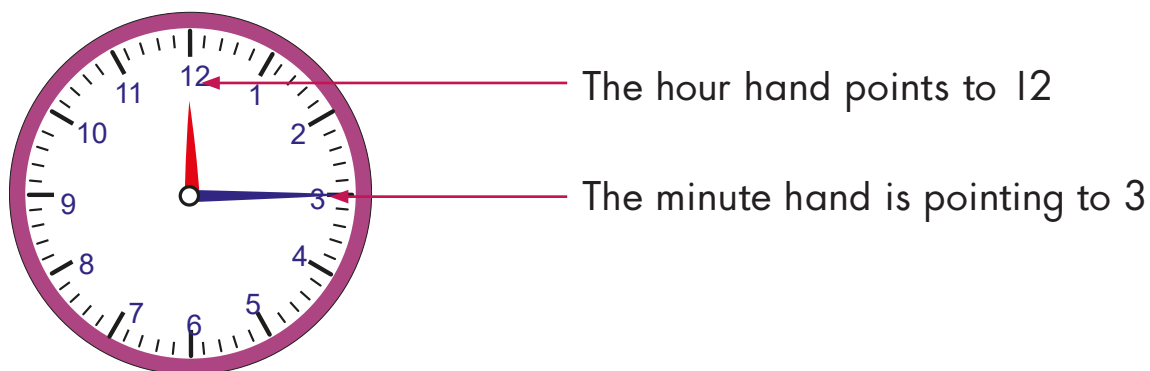
Quarter past and quarter to the hour

We can divide the clock face into four quarters.



There are 15 minutes in a quarter of an hour.

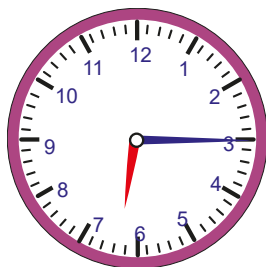
When the long hand (minute hand) points to the number 3, we say it is quarter past.



The time on the clock is quarter past 12.

Example

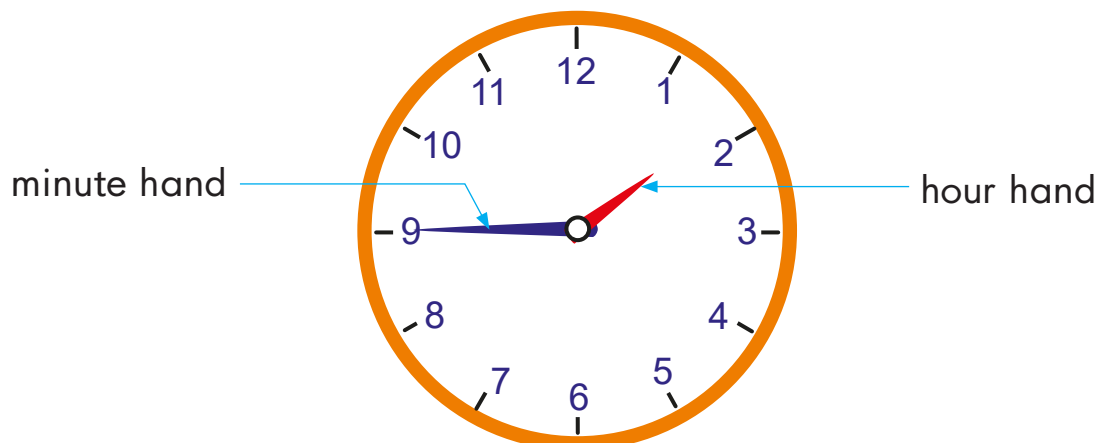
What time is shown on the clock?



Answer

The time on the clock is quarter past 6.

When the minute hand points to the number 9, we say it is quarter to.



The time is quarter to 2.

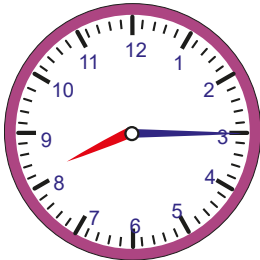
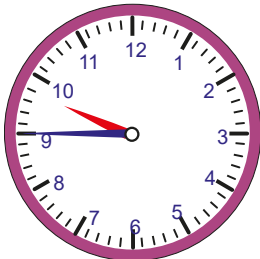
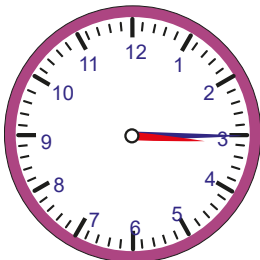
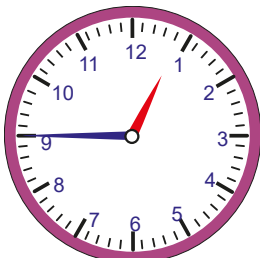
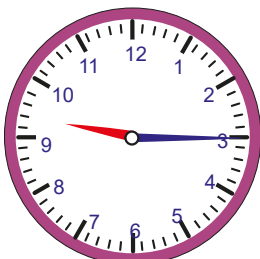
Example

Time now, time 15 minutes before, and time 15 minutes after

Quarter of an hour before	Time now	Quarter of an hour after
Quarter to 2	2 o'clock	Quarter past 2

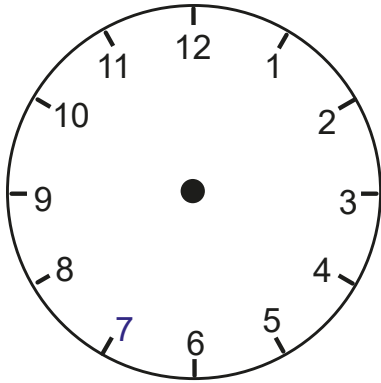
Activity 17

I. What is the time?

	The clock	The minute hand points to	The hour hand points to	The time is
a)				
b)				
c)				
d)				
e)				

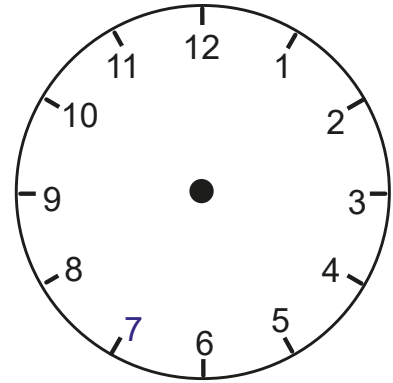
2. Copy the clock face in your classwork book. Draw hands on the clock face so that it tells the time shown in the box.

a)



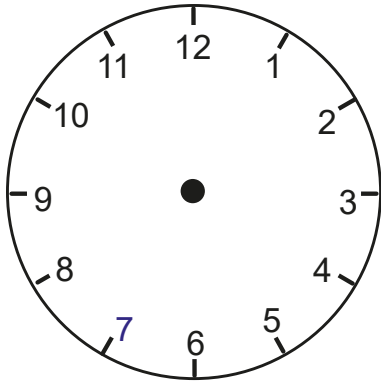
quarter past 4

b)



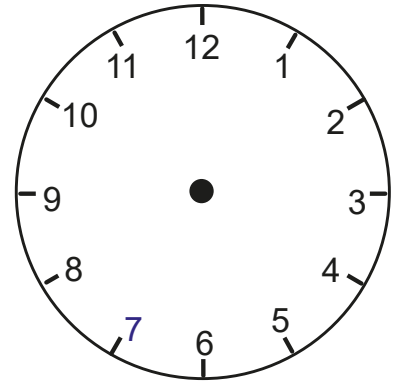
quarter to 7

c)



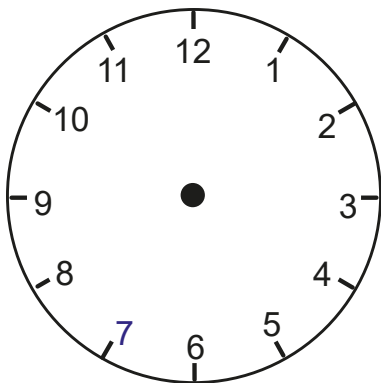
quarter to 11

d)



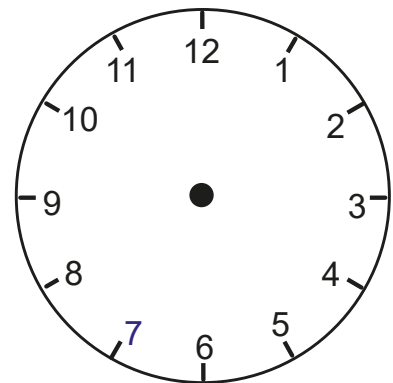
quarter past 1

e)



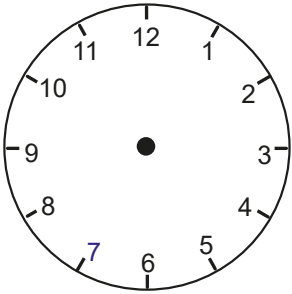
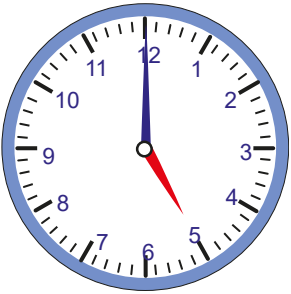
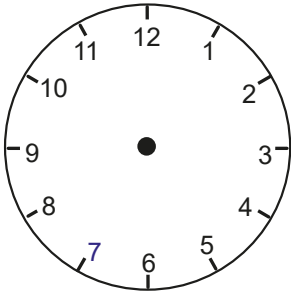
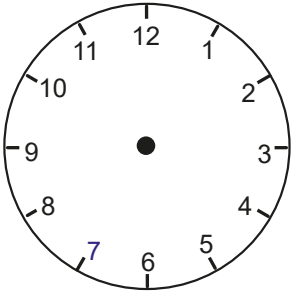
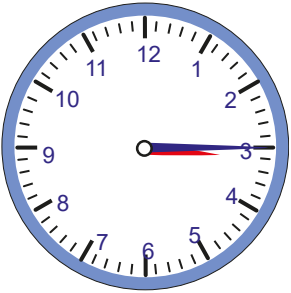
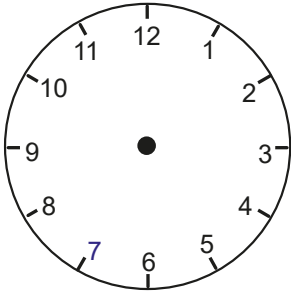
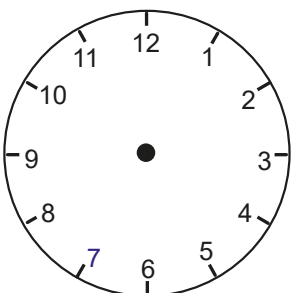
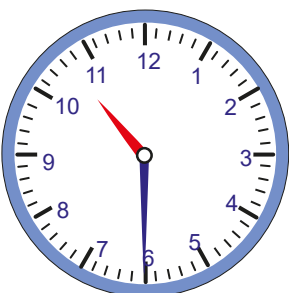
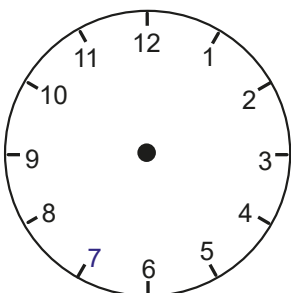
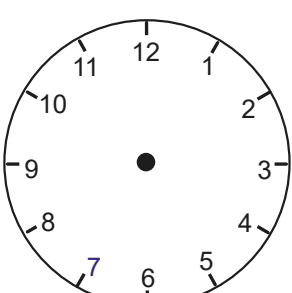
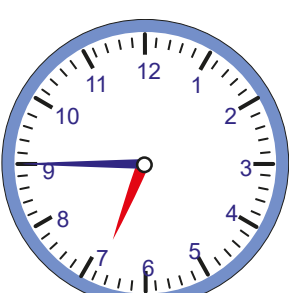
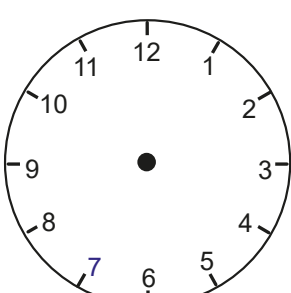
quarter past 5

f)



quarter to 2

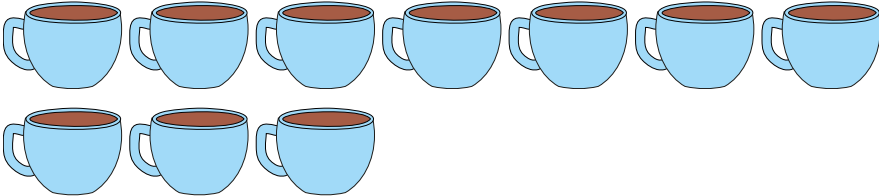


3. Show what time it will be on the clock face. Write the time in the box.

	Quarter of an hour before	Time now	Quarter of an hour after
a)		 5 o'clock	
b)		 quarter past 3	
c)		 half past 10	
d)		 quarter to 7	

Learn about capacity

Measure and compare capacities using non-standard units

We can find out the capacities of the containers by pouring their contents into cups that are the same.





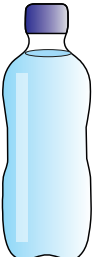

Container A	
Container B	
Container C	




TERM 3

Activity 18

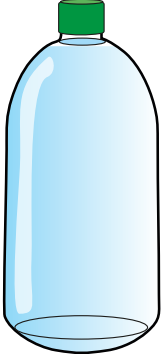
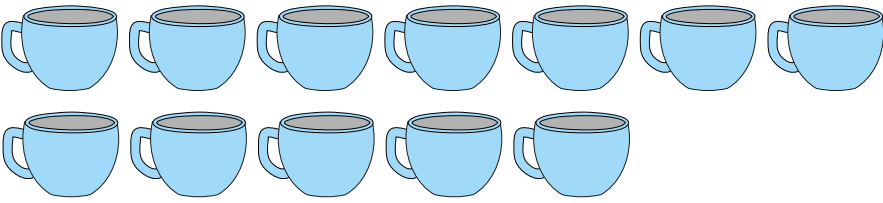
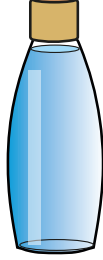

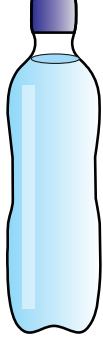

- Container A can fill how many cups?
 - The capacity of container A is _____ cups.
- Container B can fill how many cups?
 - The capacity of container B is _____ cups.
- Container C can fill how many cups?
 - The capacity of container C is _____ cups.
- Which container has the smallest capacity? Explain.
- Which container has the largest capacity? Explain.




6. Several cups of water can be filled from a pot, an electric kettle and a water bottle, as shown below.

- a) There are _____  in a pot.
- b) There are _____  in an electric kettle.
- c) There are _____  in a water bottle.
7. What is the capacity of the:
- a) pot?
- b) kettle?
- c) bottle?
8. Arrange the capacities of the pot, the kettle and the bottle from the smallest to the largest.

9. The following containers can fill several cups as shown.

A		
B		
C		

- a) There are _____  in container A.
- b) There are _____  in container B.
- c) There are _____  in container C.
- d) Arrange the capacities of the containers from the smallest to the largest.

Measure capacity in litres

The litre is a unit of measure for capacity.

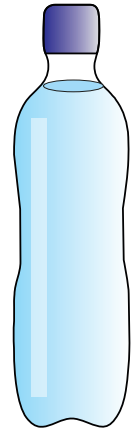
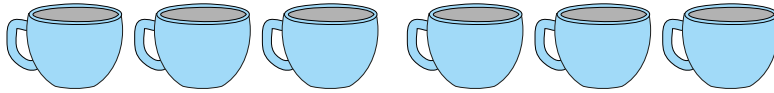
We write ℓ for litre.

Example

The container on the right is a one litre bottle.

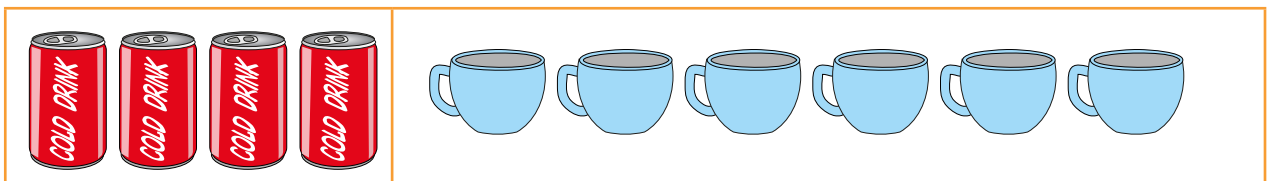
There is one litre of water in the bottle.

The one litre bottle can fill 6 cups with water.



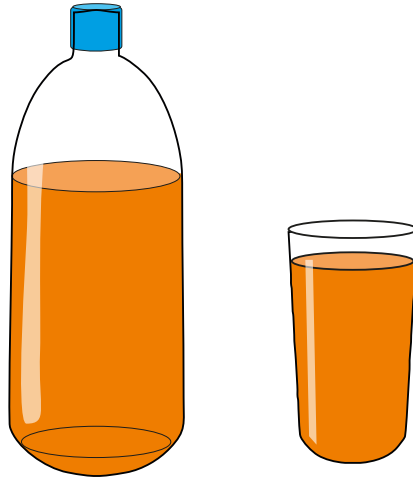
Activity 19

1. If a container that has a capacity of one litre can fill 6 cups:
 - a) What is the capacity of a container that can fill 12 cups?
 - b) What is the capacity of a container that can fill 18 cups?
2. A 1ℓ bottle can fill 6 cups. The same one-litre bottle can fill four cans, as shown below.



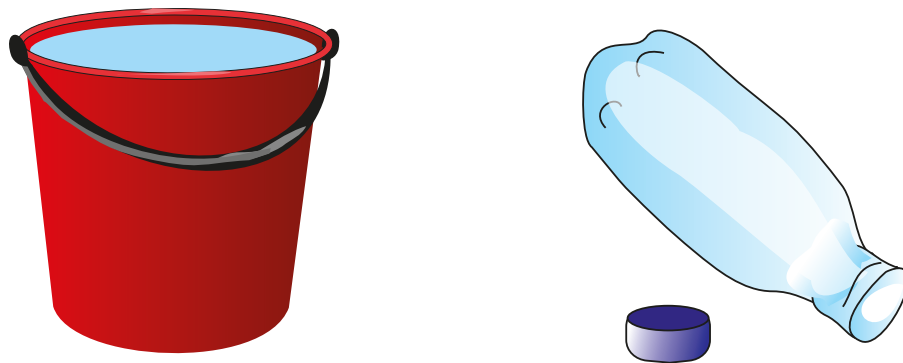
- a) The capacity of the can is (more than/ less than) the capacity of the cup.

- b) How many cans can fill a 2ℓ bottle?
 - c) How many cups can fill a 2ℓ bottle?
 - d) Which container, a can or a cup, would you use to fill a 3ℓ container? Explain.
3. Juice is poured from the bottle into the glass as shown below.









The capacity of the bottle is (more/less) than the capacity of the glass.

4. Water is poured from the bottle into the bucket.



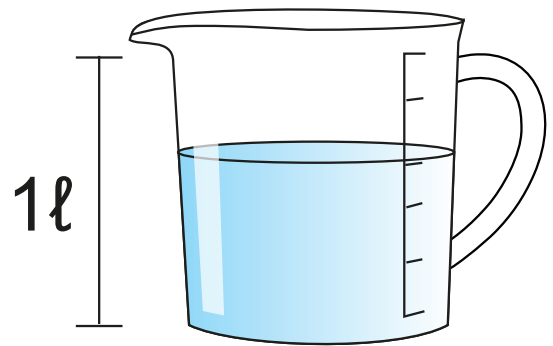
The capacity of the bottle is (the same as/more than) the capacity of the bucket. Explain.

5. Order these containers according to their capacity.
Start from the smallest to the largest container.
Use A, B or C.

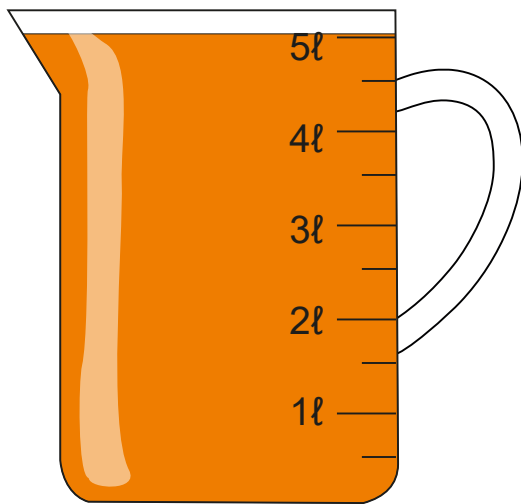
		Number of cans that can be filled	Number of cups that can be filled
A	1ℓ container		
B	3ℓ container		
C	2ℓ container		

A measuring jug

On the right is a measuring jug.
The jug has a capacity of one litre.
The volume of water in the jug is less than 1ℓ.

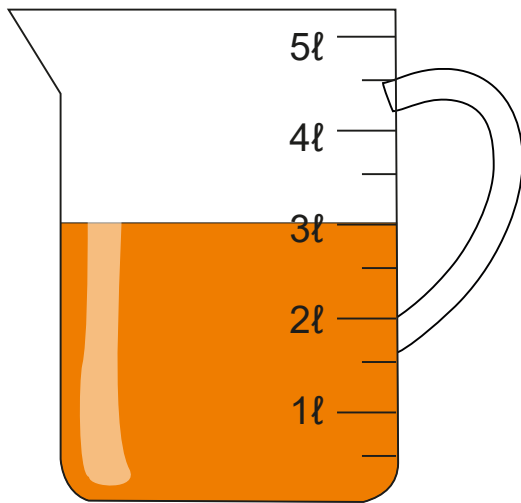


6. Below is a measuring jug. It is marked in litres.



- a) How much juice is in the jug?
- b) What is the capacity of the measuring jug?
- c) What is the volume of the measuring jug?

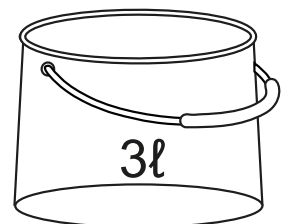
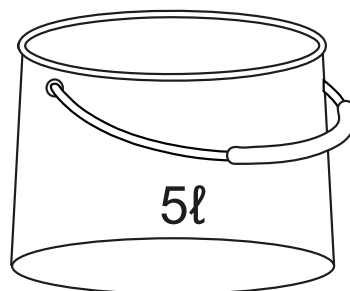
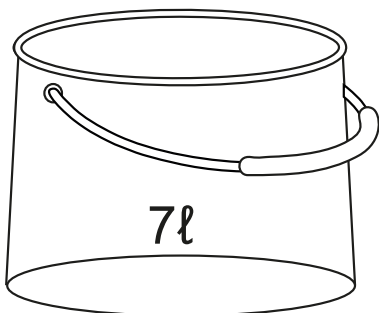
7. Look at the measuring jug below.



- a) How much juice is in the jug?
- b) How much juice must be poured in to fill the jug?
- c) What is the volume of the jug?
- d) What is the capacity of the jug?


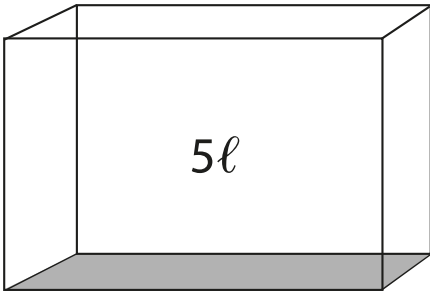
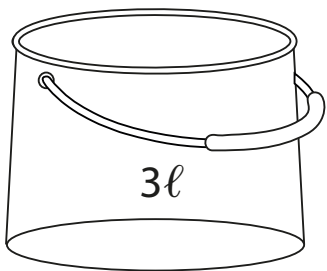
Comparing and ordering objects according to capacity

8. Three containers are shown below.






- a) What is the capacity of the largest container?
- b) What is the capacity of the smallest container?
- c) How are the containers arranged?

9. Arrange the capacities of the containers from the smallest to the largest.

A	B	C
		

10. Arrange the capacities of the following containers from the largest to the smallest.

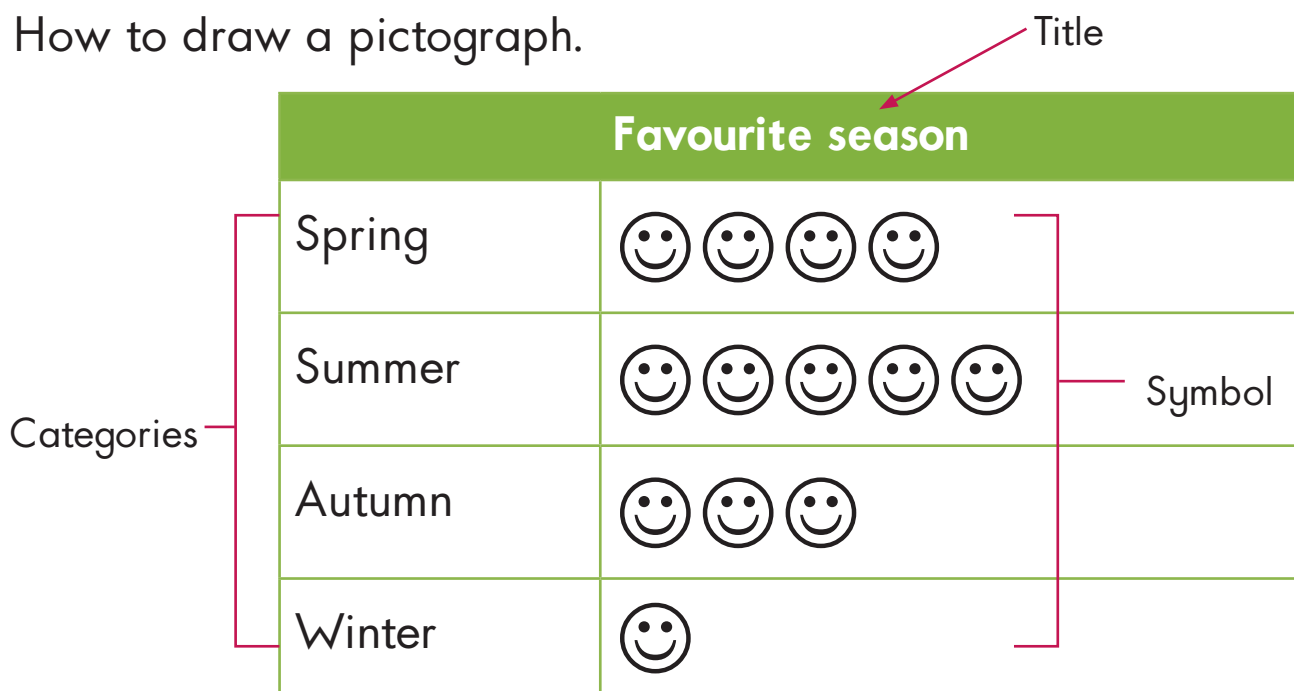
A	B	C
		

Data handling

A pictograph uses pictures to display data. It is a visual way of displaying data and we can easily compare data using pictures or symbols.

Example

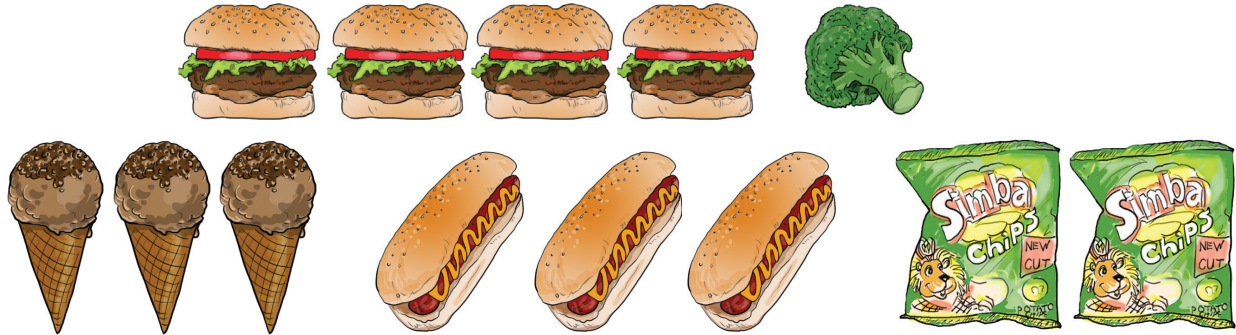
How to draw a pictograph.



Key:  = 1 child

Example


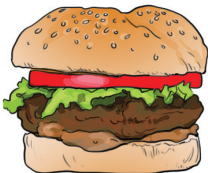
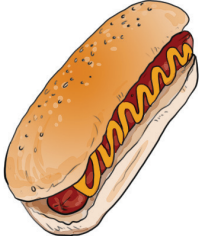


Teacher Mary asked the learners to choose their favourite lunch snack. Use this information to answer the questions.



1. Count the snacks and complete a pictograph to show the data. Use ● for one snack.
2. How many learners were asked about their favourite snack?

Answer

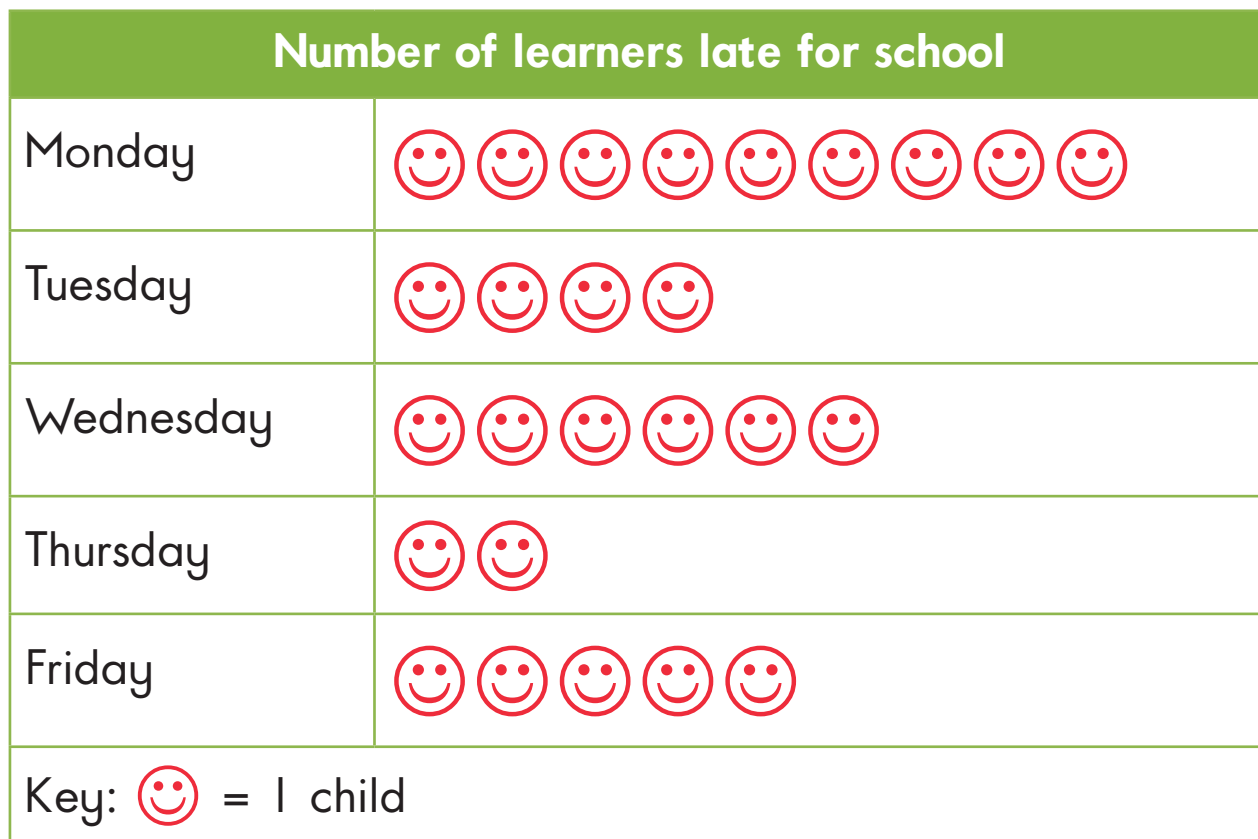
1.

Favourite snack					
	● ● ●	● ● ● ●	● ● ●	● ●	●
Snack					
Key: ● = 1 child					

2. $3 + 4 + 3 + 2 + 1 = 13$

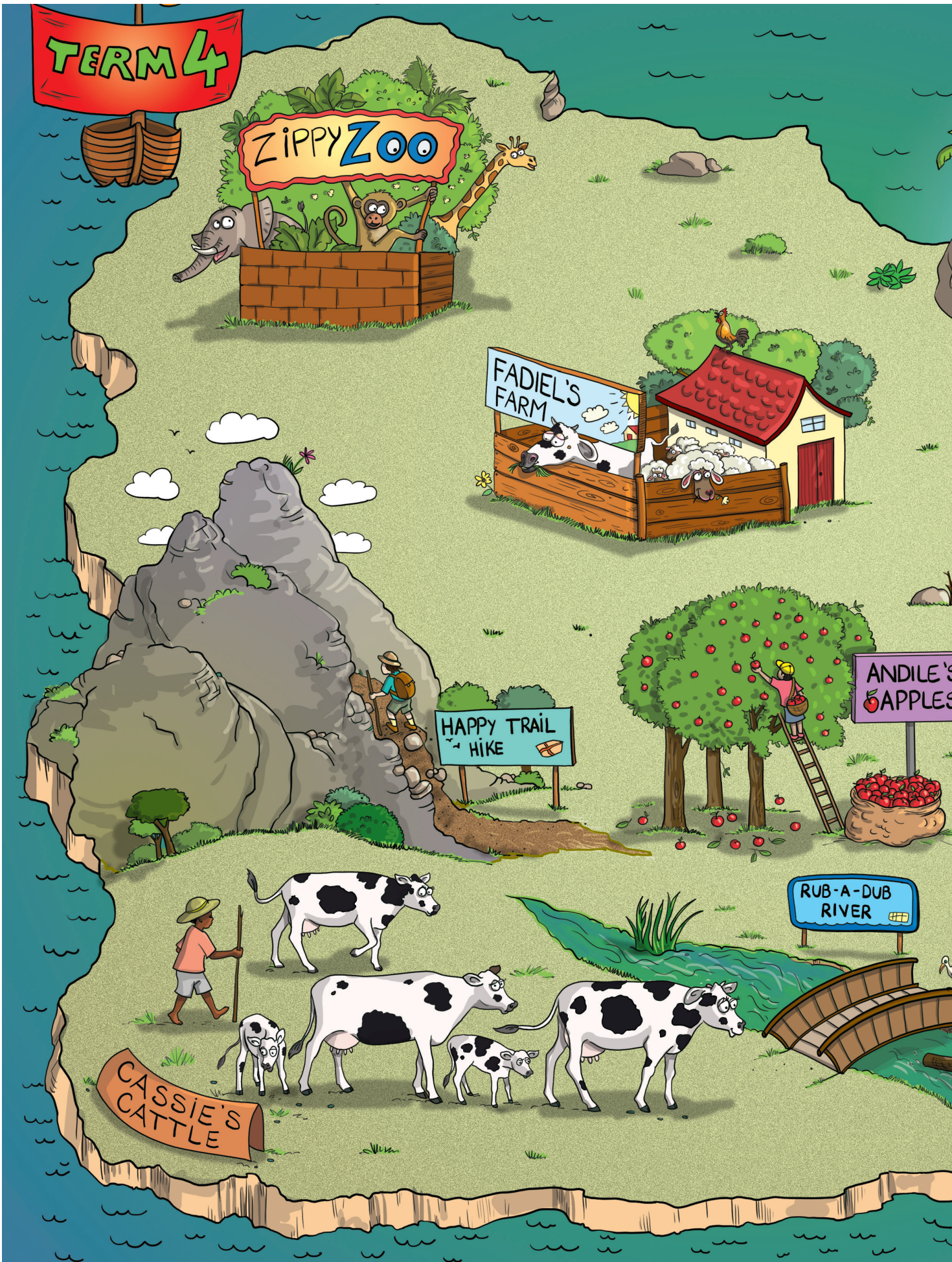
Activity 20

1. Sihle used a pictograph to display the number of learners late for school in her class.

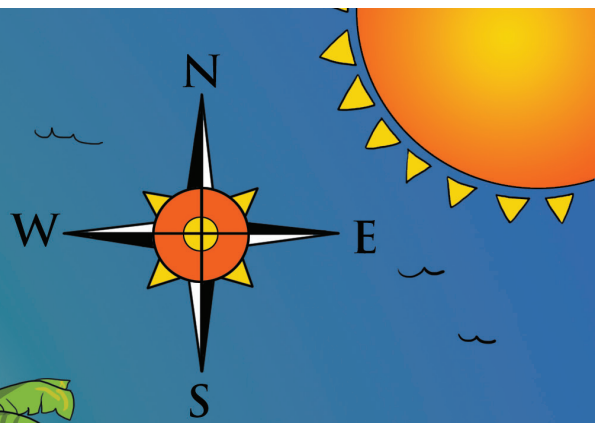


- On what day were the most learners late for school?
- On what day were the least number of learners late for school?
- How many learners were late for school on Wednesday and Thursday?

2. Conduct a survey for a week about the number of learners late for class. Represent the data in a pictograph.
- a) How many learners are late for class on Monday?
 - b) How many learners are late for class on Tuesday?
 - c) Are more learners late for class on Monday or Friday?
 - d) How many learners in total were late for class during the week?



We've had lots of fun and learnt lots and lots, both numbers and many other things... Now we're off to a new Mathematics journey!



Number symbols and number names

When writing number names between 21 and 99, we use a hyphen (-).

Number symbols	Number names
49	forty-nine
74	seventy-four
89	eighty-nine

Example

Write the number name for 73.

Answer

73 = seventy-three

Example

Write the number symbol represented by the place value cards:



Answer







83

Activity I

1. Write the number symbol.

a) fifty-eight	
b) seventy-six	
c) eighty-four	
d) ninety-eight	
e) one hundred	

2. Write the number symbol represented by the place value cards.

a) 	
b) 	
c) 	
d) 	
e) 	
f) 	

3. Complete the table.

	Number symbols	Number names
a)	98	
b)		eighty-seven
c)		forty-nine

4. Write the number name for each number symbol..

a) 36

b) 67


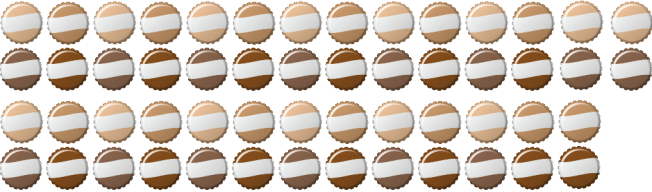

c) 89

d) 74

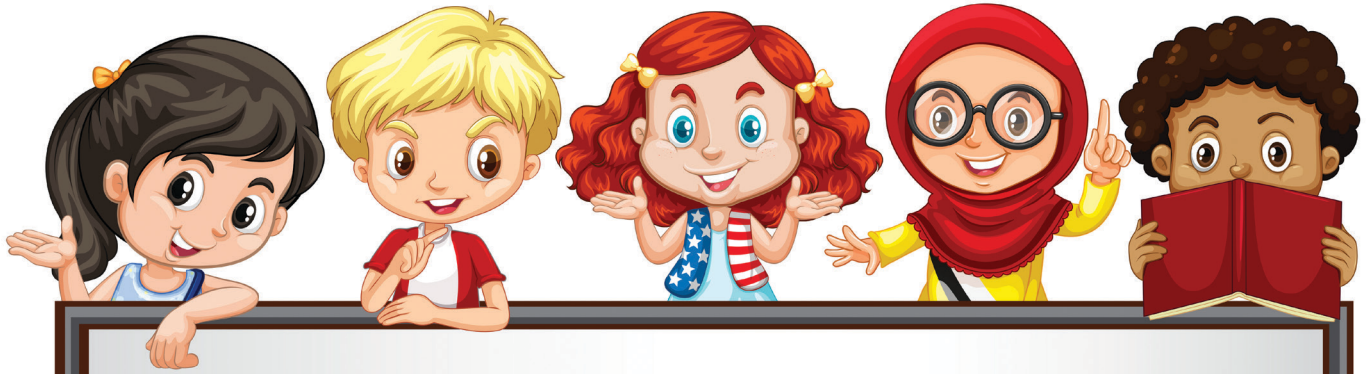
e) 99

f) 63

5. Write down the number symbols and number names represented by each set.

	Number symbol	Number name
a) 		
b) 		
c) 		

Counting objects up to 200

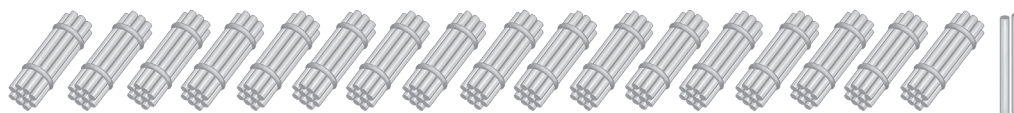


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

If we need to count at least 200 objects, we can use grouping. First estimate how many objects you need to count to find if the answer is reasonable.

Example

Look at the sticks.



- a) How many bundles of ten sticks?
- b) How many sticks in total?
- c) Why is it easier to count the sticks if they are in bundles of 10?

Answer

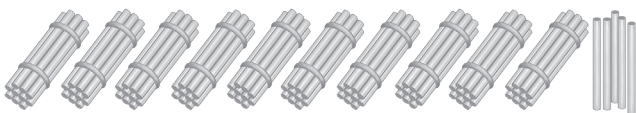
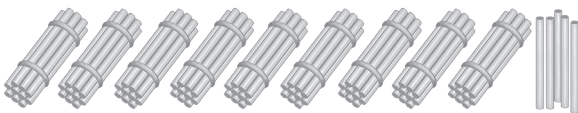
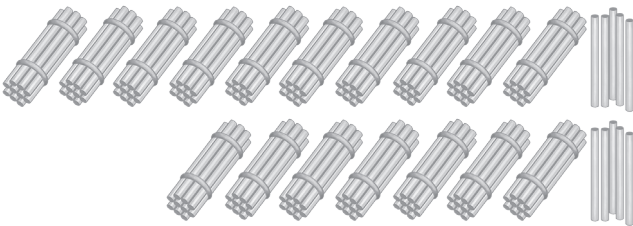
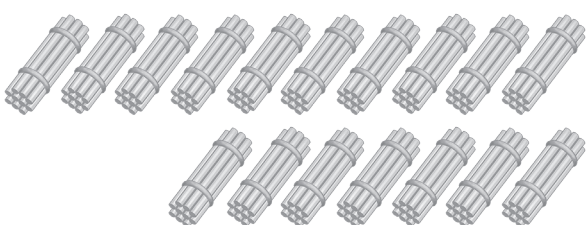
- a) 17 bundles of ten sticks
- b) 172 sticks
- c) It is a more organised way to count and it is easier to check your answer.

Activity 2

Use the number grid to help you.

- 1. Skip count in 5s from 150 to 200. Write the numbers.
- 2. Skip count backwards in 10s from 200 to 10. Write the numbers.
- 3. Skip count in 2s from 168 to 190. Write the numbers.
- 4. Skip count in 3s from 86 to 122. Write the numbers.
- 5. Skip count in 4s from 164 to 200. Write the numbers.

6. Skip count in 5s from 85 to 145. Write the numbers.
7. Complete the table. Do not draw the bundle of sticks.

	How many bundles of 10?	How many sticks in total?
Example 	10	105
a) 		
b) 		
c) 		

8. You need to count 184 counters by grouping them in 2s. Is it quicker to count in twos or in ones? Explain your answer.
9. You need to count 140 counters. How many groups of 10 can you make?
10. What number comes just before 187?
11. What number comes just after 159?

12. What number is between:

- a) 89 and 91
- b) 106 and 108
- c) 147 and 149
- d) 189 and 191
- e) 200 and 198

13. a) What number is 3 less than 69?

b) What number is 4 more than 155?

c) What number is 10 more than 180?

d) What number is 10 less than 197?

14. Look at the cupcakes for Hazel Pillay's birthday party.



- a) Estimate the number of cupcakes without counting them.
- b) To count all the cupcakes would you prefer to count them in groups of 5s or 10s? Why? Discuss the reason with a friend.

- c) Explain to your friend why you would prefer to count the cupcakes by grouping them in 10s than to count them in ones.

15. Maria walks the dogs. Today she has 10 dogs to walk.



Use these ordinal numbers to answer the questions a) – e):

first second third fourth fifth sixth
seventh eighth ninth tenth last

- a) The black dog with the red collar is the _____ .
- b) The brown dog with the floppy ears is the _____ .
- c) The big brown dog with the orange collar is the _____ .
- d) The black and white dog with the green collar is the _____ .
- e) The grey dog with the raised ears is the _____ .
- f) There are _____ dogs altogether.

Count backwards and forwards

Example

Count backwards from 160 to 140 in 4s.

Answer

160; 156; 152; 148; 144; 140

Take note

Note that when you count backwards the numbers get smaller.

Example

Lesego counts forwards in multiples of 4 from 140 to 196 and writes the numbers in the grid. What number pattern do you notice?

140	141	142	143	144
145	146	147	148	149
150	151	152	153	154
155	156	157	158	159
160	161	162	163	164
165	166	167	168	169
170	171	172	173	174
175	176	177	178	179
180	181	182	183	184
185	186	187	188	189
190	191	192	193	194
195	196	197	198	199

Answer

Three numbers are skipped to get to the next number.

Example

Count forwards in 5s. Start with 5 and end at 20.

Answer

5	10	15	20
---	----	----	----

Activity 3

1. a) Complete the table by counting backwards in 5s.

200	195	190	185	180	175
170					
140					115

- b) What number pattern do you notice?

2. Complete the table with the multiples of 3.

90	93	96	99	102
105				
120				
150	153	156	159	162
165				

3. Count forwards in 2s.

a) 176; 178; ; ; ; 186;

b) 40; 42; ; ; ; ;

4. Count backwards in 2s.

a) 200; 198; 196; ; ; ; 188;

b) 110; 108; 106; ; ; ;

5. Copy and complete:

a) 100; 104; 108; ; ; ; ;

b) 51; 54; 57; ; ; ; 69;

c) 78; ; ; ; ; 93; 96; 99

d) 106; ; ; ; 114; 116; 118;

e) 169; 172; 175; ; ; ; ; ; ;

6. Complete the number sequence.

a) ; ; 158; ; ; 164; 166; 168

b) 198; 197; 196; ; ; 193; ; 191

c) ; ; ; ; 185, 190, 195

d) 150, 140; 130; ; ; ; 90, 80

7. Fill in the missing numbers.

a) 142 144

b) 148 149

c) 178 180

d) 198 200

Describe, compare and order numbers

We use **smaller than**, **greater than**, **more than**, **less than** and **is equal to** when we compare numbers.

Example

Use these words to make each comparison true.

more than

equal to

less than

- a) 67 is _____ 95
- b) 99 is _____ 9 tens and 9 units
- c) 85 is _____ 23

Answer

- a) 67 is **smaller than** 95
- b) 99 is **equal to** 9 tens and 9 units
- c) 85 is **more than** 23

Activity 4

1. Use these words to make each comparison true.

more than

equal to

less than

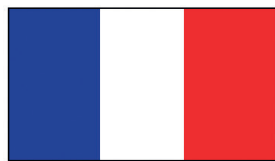
- a) 58 is _____ 87
- b) 94 is _____ 9 tens and 7 units
- c) 99 is _____ 87
- d) 87 is _____ 8 tens and 7 units

2. Put these numbers in order from smallest to greatest:

83 58 94 57 89 93 53

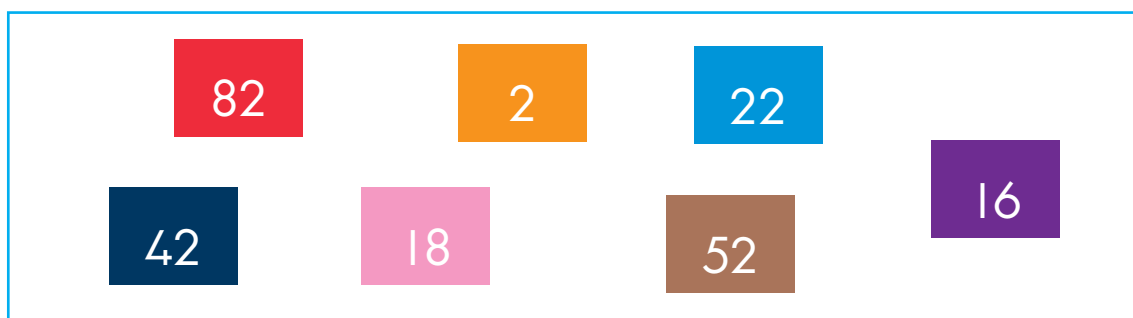
3. Mashadi wants to take her family on holiday. She has to choose between four different countries, so she checks what the weather will be for December. Here is what she finds:

Greece 13 degrees France 7 degrees Brazil 33 degrees Australia 23



- a) Is the temperature in Greece more than or less than the temperature in France? How do you know?
- b) Is the temperature in Australia more than or less than the temperature in Brazil? How do you know?
- c) Which country has the highest temperature?
- d) Which country has the lowest temperature?
- e) What is the difference in temperature between the country with the highest temperature and the country with the lowest temperature?
- f) Arrange the temperature from smallest to greatest.
- g) If Mashadi wants to go to a country that has the warmest temperature, which country should she choose?

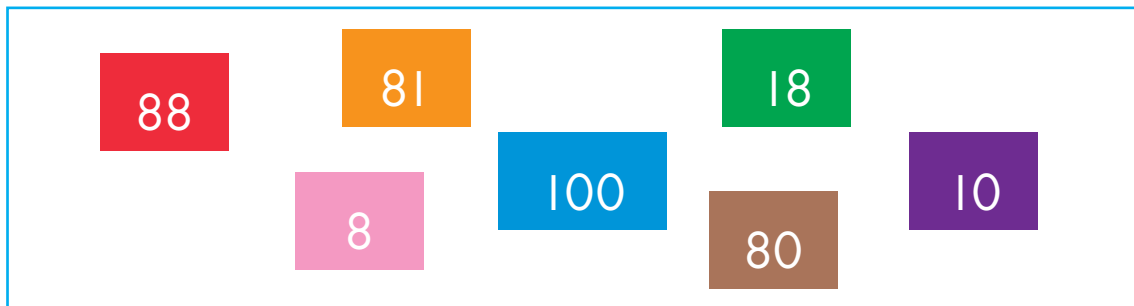
4. Order the numbers from smallest to greatest.



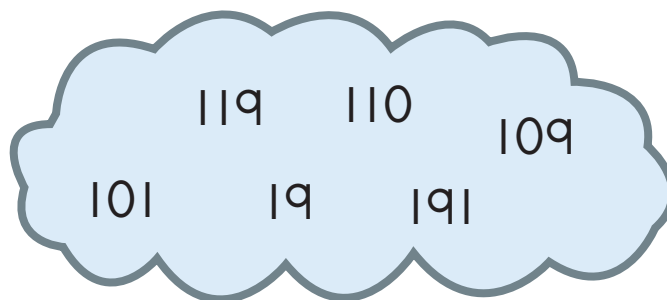
5. Calculate, then write **is greater than**, **is smaller than** or **is equal to** to make these number sentences correct:

Example $13 + 16$ is equal to $17 + 12$	$12 + 14$ <hr/> $14 + 12$	$20 + 6$ <hr/> $70 + 0$	$35 + 6$ <hr/> $45 + 2$
$4 + 66$ <hr/> $5 + 65$	$13 + 6$ <hr/> $17 + 12$	$32 + 6$ <hr/> $27 + 12$	$30 + 60$ <hr/> $7 + 2$
$43 - 12$ <hr/> $47 - 12$	$53 - 6$ <hr/> $45 + 2$	$14 - 4$ <hr/> $19 - 9$	$40 + 40$ <hr/> $70 + 20$

6. Order the numbers from greater to smallest.



7. Look at the numbers in the cloud:



- What is the smallest number in the cloud?
- What is the greatest number in the cloud?

Place value

Place value helps us to break down numbers and build them up again.

Example

Break down the number 83 into tens and units.

Answer

$$\begin{aligned} 83 &= 80 + 3 \\ &= 8 \text{ tens} + 3 \text{ units} \end{aligned}$$

Example

Explain why 27 is bigger than 25 by breaking down the numbers.

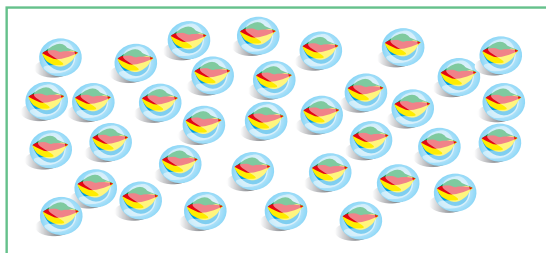
Answer

Twenty-seven can be broken down into 2 groups of 10 and 7 ones, while 25 can be broken down into 2 groups of 10 and only 5 units. So 27 is bigger than 25.

Activity 5

I. What is the value of each group?

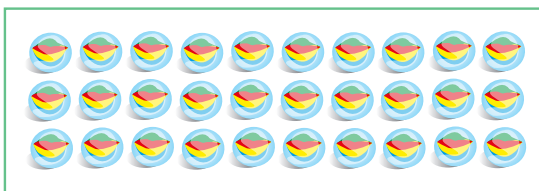
a)



A

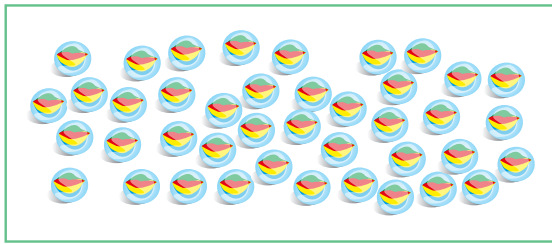


B

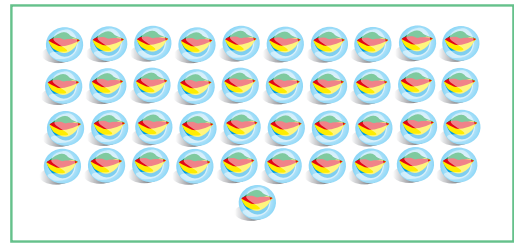


C

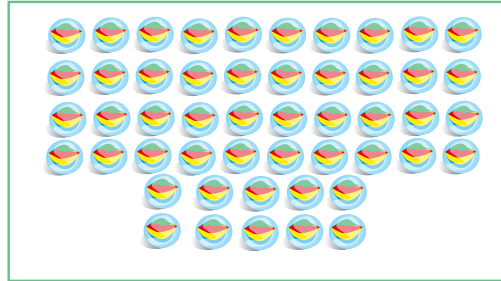
b)



A



B



C

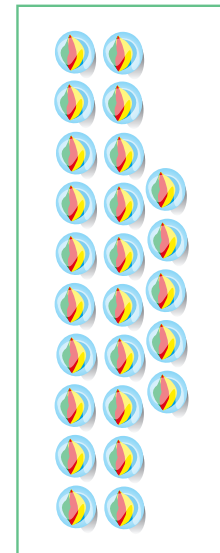
2. Write **greater than**, **smaller than** or **equal to**.

a)



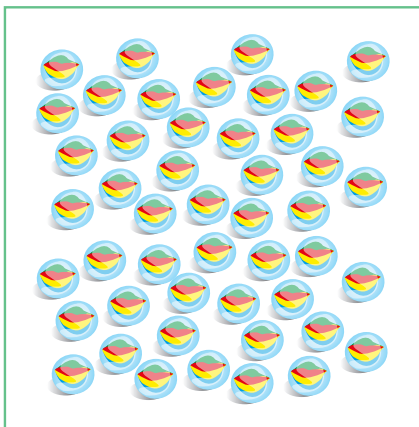
A

is _____



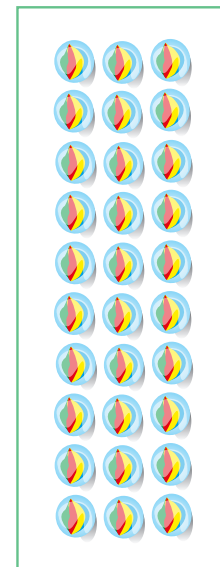
B

b)



A

is _____



B

Place value helps you to recognise **patterns** and the **value** of each number.

Example

- a) What is the value of each digit shown?



- b) Write the number symbol.
c) Write the number name.

Answer

- a) 70 and 8
b) 78
c) seventy-eight

Activity 6

- I. a) What is the value of each digit shown?



- b) Write the number symbol.
c) Write the number name.

2. a) What is the value of each digit shown?



- b) Write the number symbol.
c) Write the number name.

3. a) What is the value of each digit shown?



- b) Write the number symbol.
c) Write the number name.

4. Complete.

Example

$25 = 2$ groups of tens and 5 units.
 $25 = 20$ and 5

- a) $45 = \square$ groups of tens and \square units.
 $45 = \square$ and 5
- b) $63 = \square$ groups of tens and \square units.
 $63 = \square$ and 3
- c) $72 = \square$ groups of tens and $2 \square$ units.
 $72 = 70$ and \square

- d) $88 = \square$ groups of tens and 8 units.
 $88 = \square$ and \square
- e) $96 = \square$ groups of tens and \square units.
 $96 = \square$ and \square
- f) What is the value of 2 in 23?
- g) What is the value of 6 in 36?
- h) What is the value of 8 in 84?
- i) What is the value of 1 in 91?

In this unit you represented 2-digit numbers using place value cards, and wrote the numbers in words, breaking the numbers down and into digits.

Place value cards can also be used to build up numbers.

Example

- a) Write the number 53 in words.
- b) Break down the number 53 using place value.

Answer

- a) $53 = \text{fifty-three}$
- b) 53
 $= 5 \text{ tens} + 3 \text{ units}$
 $= 50 + 3$

Example

- a) Write the number 68 in words.
- b) Break down the number 68 using place value.

Answer

- a) $68 = \text{sixty-eight}$
- b) 68
 $= 6 \text{ tens} + 8 \text{ units}$
 $= 60 + 8$

Example

What is the value of the underlined digit?

65

Answer

The value of the 6 in 65 is 60.

Example

What is the value of the underlined digit?

87

Answer

The value of the 7 in 87 is seven.

Example

What is the value of the underlined digit?

101

Answer

The value of the underlined 1 is 100.

5. Complete the table.

	Number symbol	Breaking down the number
e.g.	162	$100 + 60 + 2$
a)		$100 + 70 + 5$
b)		$30 + 4$
c)	68	
d)	<u>4</u> 7	
e)		$40 + 8$
f)		$60 + 6$
g)		$10 + 2$
h)	10 <u>9</u>	
i)		$100 + 1$

6. Complete the table:

	Number	Place value parts	Breaking it up
e.g.	68	6 tens + 8 ones	60 + 8
a)	43		
b)	57		
c)	61		
d)	44		

7. Complete

a) $65 = \square + 5$

b) $78 = \square + 8$

8. Complete the table:

	Place value parts	Number symbol
e.g.	9 tens + 7 ones	97
a)	1 ten and 4 ones	
b)	4 tens and 6 ones	
c)	9 tens + 5 ones	

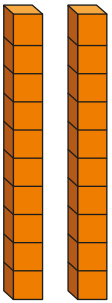

9. Complete:

a) In 53 the value of 5 is _____.

b) In 39 the value of 9 is _____.

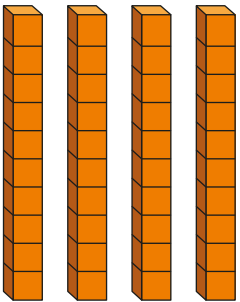
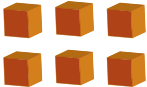
c) In 27 the value of 2 is _____.

10. Look at how we can use counting blocks to show place value of a number.

	
Tens	Units


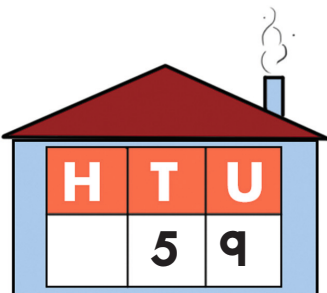
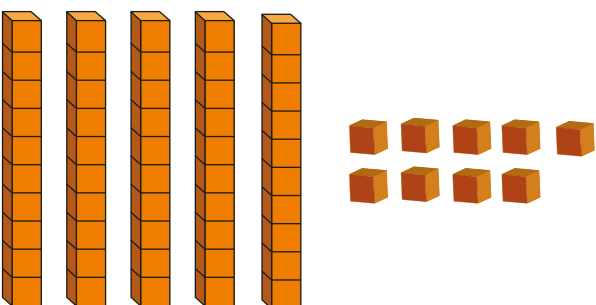
Write the number symbol represented by the counting blocks.

11. Look at how we can use counting blocks to show the place value of a number.

	
Tens	Units

Write the number symbol represented by the counting blocks.

12. Thato's favourite number is 59. Look at how she used her place value knowledge to create a poster about her favourite number.

Thato's favourite number	Broken up	Number house
	59 $= 5 \text{ tens} + 9 \text{ units}$ $= 50 + 9$	
<p>The value of the digit 5 in 59 is 50. The value of the digit 9 in 59 is 9.</p>		
<p>Visual presentation</p> 		
<p>Take note</p> <p>10 more than 59 is 69. 10 less than 59 is 49.</p>		

Create your own example like Thato's poster. Choose your favourite number greater than 60 but smaller than 100.

Addition and subtraction

Study the different methods we can use to add and to subtract.

Example

Calculate $25 + 63 = \square$

Answer

Method 1

Add by breaking down one number.

$$\begin{aligned} 25 + 63 &= \square \\ &= 25 + 60 + 3 \\ &= (25 + 60) + 3 \\ &= 85 + 3 \\ &= 88 \end{aligned}$$

Method 2

Add by breaking down both numbers.

$$\begin{aligned} 25 + 63 &= \square \\ &= (20 + 5) + (60 + 3) \\ &= (20 + 60) + (5 + 3) \\ &= 80 + 8 \\ &= 88 \end{aligned}$$

Example

Take away 27 from 89

Number sentence: $89 - 27 = \square$

Answer

Method 1

Subtract by breaking down one number.

$$\begin{aligned} 89 - 27 &= \square \\ &= 89 - (20 + 7) \\ &= (89 - 20) - 7 \\ &= 69 - 7 \\ &= 62 \end{aligned}$$

Method 2

Subtract by breaking down both numbers.

$$\begin{aligned} 89 - 27 &= \square \\ &= (80 + 9) - (20 + 7) \\ &= (80 - 20) + (9 - 7) \\ &= 60 + 2 \\ &= 62 \end{aligned}$$

Example

Calculate $35 + 36 = \square$

Answer

Method 1

Add by identifying near doubles.

$$\begin{aligned} 35 + 36 &= \square \\ &= \text{Double } 35 + 1 \\ &= 70 + 1 \\ &= 71 \end{aligned}$$

Method 2

Add by breaking down both numbers.

$$\begin{aligned} 35 + 36 &= \square \\ &= 30 + 5 + 30 + 6 \\ &= (30 + 30) + (6 + 5) \\ &= 60 + 11 \\ &= (60 + 10) + 1 \\ &= 70 + 1 \\ &= 71 \end{aligned}$$

Example

Calculate $87 + 11 = \square$

Answer

Method 1

Add by changing a number to a multiple of ten and then add.

$$\begin{aligned} 87 + 11 &= \square \\ &= 87 + 10 + 1 \\ &= (87 + 10) + 1 \\ &= 97 + 1 \\ &= 98 \end{aligned}$$

Method 2

Add by breaking down both numbers.

$$\begin{aligned} 87 + 11 &= \square \\ &= 80 + 7 + 10 + 1 \\ &= (80 + 10) + (7 + 1) \\ &= 90 + 8 \\ &= 98 \end{aligned}$$

Activity 7

1. Complete the number bonds.

a) $16 + \square = 20$

b) $20 = 8 + \square$

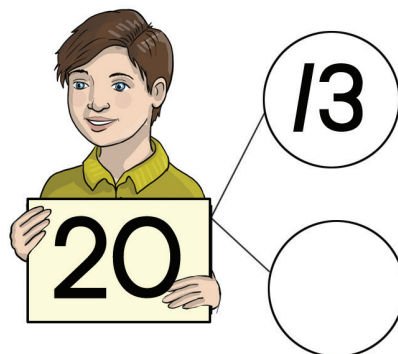
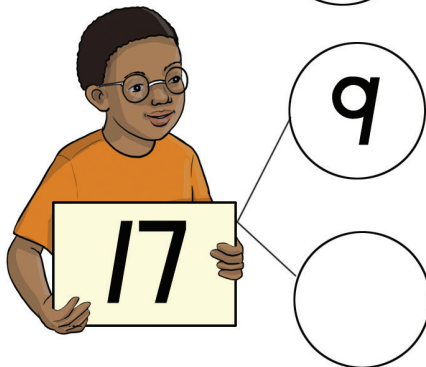
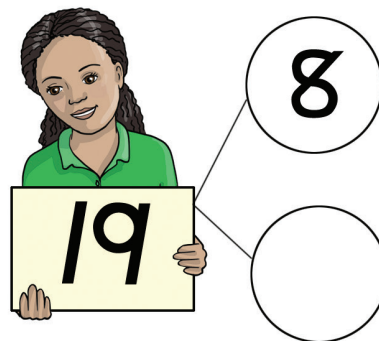
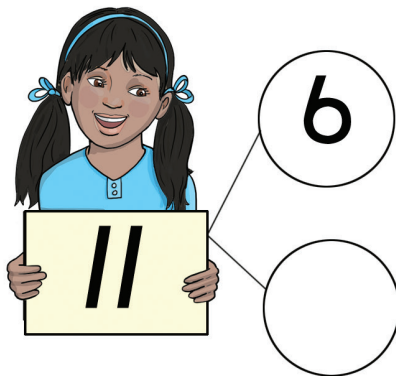
c) $\square + 10 = 20$

d) $17 + \square = 20$

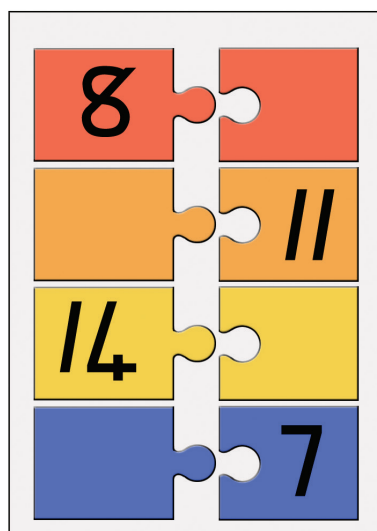
e) $2 + \square = 20$

f) $20 = 12 + \square$

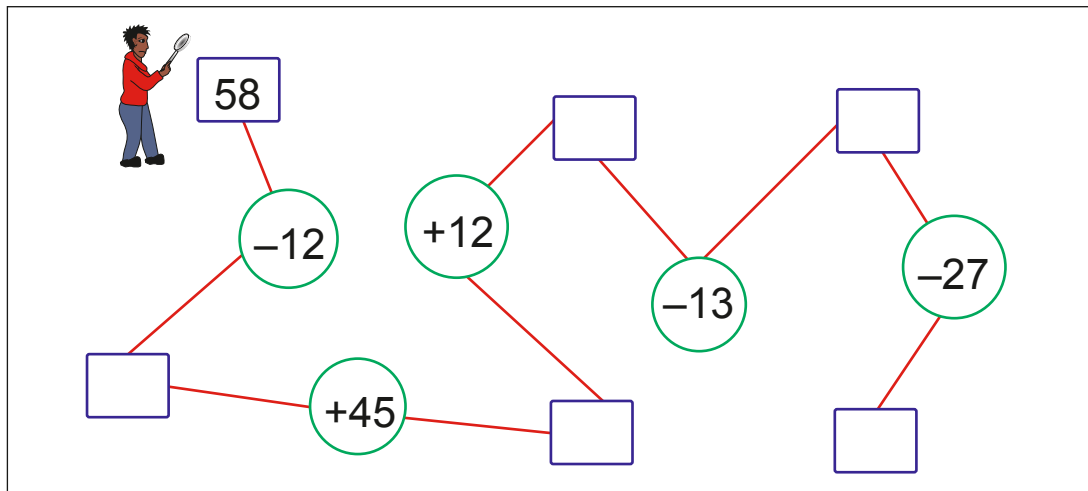
2. Work out which number is missing.



3. Complete the puzzle by filling in the missing number that adds up to 20.



4. Complete the number trail. Start at 58.



Example

Complete the following.

$$28 + \boxed{} = 65 \text{ therefore } \boxed{}$$

Answer

$$28 + 37 = 65 \text{ therefore } 65 - 28 = 37$$

5. Complete the following:

a) $\boxed{} + 25 = 69$ therefore $\boxed{}$.

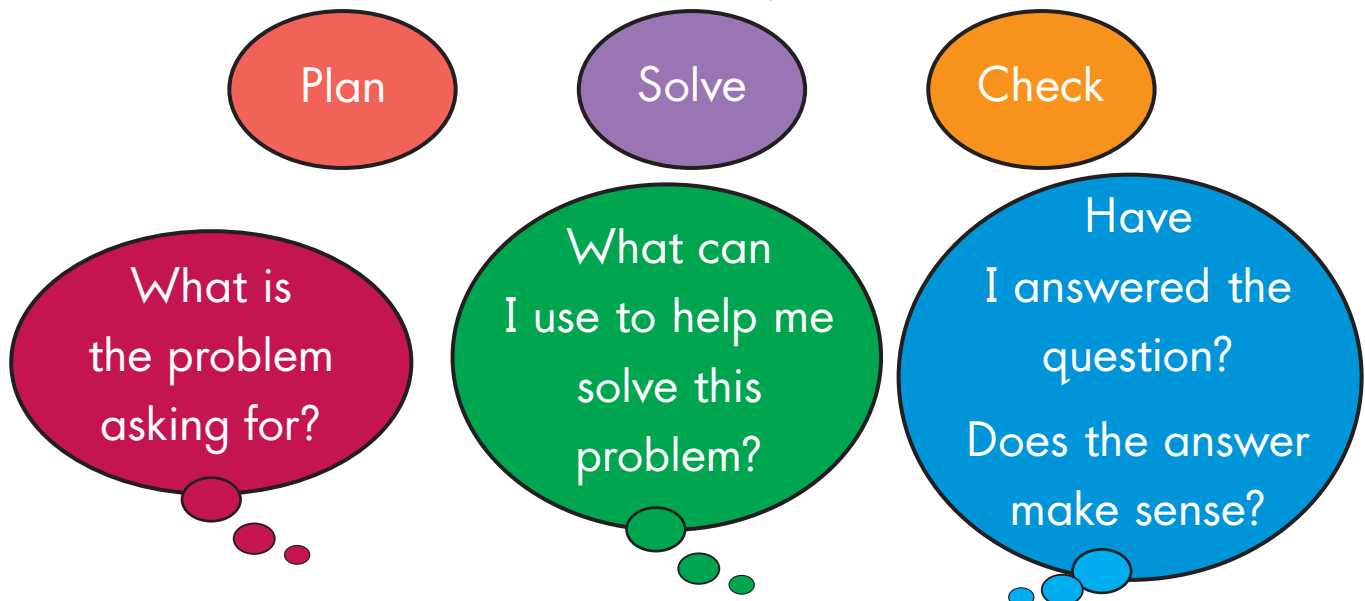
b) $38 + \boxed{} = 72$ therefore $\boxed{}$.

c) $\boxed{} + 18 = 79$ therefore $\boxed{}$.

d) $32 + \boxed{} = 99$ therefore $\boxed{}$.

e) $\boxed{} + 58 = 92$ therefore $\boxed{}$.

Problem solving techniques



We can use different techniques when solving problems in Mathematics:

- building up and breaking down numbers
- doubling and halving
- number lines.

Example

At the end of each month, Nathi gets R20 pocket money. He wants to buy a toy that costs R 100. How many R20 notes will he need to buy the toy?

Answer

$$20 + 20 + 20 + 20 + 20 \rightarrow 100$$

$$R20 + R20 + R20 + R20 + R20 = R100$$



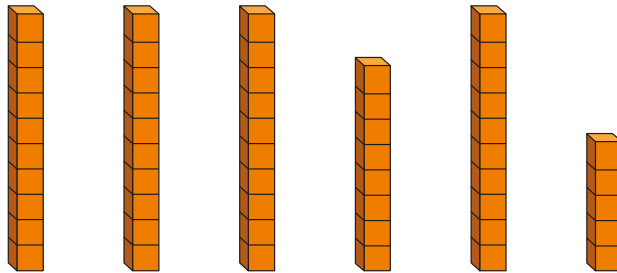
Nathi will need five R20 notes.

Example

Elroy has collected 38 coins. If he adds 15 more coins to his collection, how many will he have?

Answer

$$38 + 15 = \square$$



$$10 + 10 + 10 + 8 + 10 + 5 = \square$$

Rearrange:

$$10 + 10 + 10 + 10 + 8 + 5 \rightarrow 40 + 8 + 5 \rightarrow 40 + 8 + 2 + 3 \rightarrow 50 + 3 = 53$$

Example

Mokgadi wants to buy a book for R63 and a pen for R29. She has R100. Will Mokgadi have enough money to buy both the items? Decide on a method you can use to work out the answer.

Answer

Number sentence: $R63 + R29 = \square$

Decide on the method. Study the different methods to solve the problem.

Method 1

Adding by breaking down one number.

Answer

$$\begin{aligned} 63 + 29 &= \square \\ &= 63 + 20 + 9 \\ &= (63 + 20) + 9 \\ &= 83 + 9 \\ &= 92 \end{aligned}$$

Method 2

Adding by breaking down both numbers.

Answer

$$\begin{aligned}
 63 + 29 &= \boxed{} \\
 &= (60 + 3) + (20 + 9) \\
 &= (60 + 20) + (3 + 9) \\
 &= 80 + 12 \\
 &= 80 + (10 + 2) \\
 &= (80 + 10) + 2 \\
 &= 90 + 2 \\
 &= 92
 \end{aligned}$$

Answer the question using a sentence.

Yes, Mokgadi will have enough money to buy both items.

Example

Every weekend Kevin picks up litter for recycling. On Saturday he picked up 46 bags of litter and on Sunday 45 bags of litter. How many bags of litter did Kevin pick up altogether during the weekend?

**Answer**

Number sentence: $46 + 45 = \boxed{}$

The quickest way to solve the problem is to use the doubling technique.

Method 1

$$\begin{aligned} &\text{Double 45 plus 1} \\ &= 90 + 1 \\ &= 91 \end{aligned}$$

Method 2

$$\begin{aligned} &\text{Double 46 minus 1} \\ &= 92 - 1 \\ &= 91 \end{aligned}$$

Answer the question using a sentence

Kevin picked up 91 bags of litter altogether during the weekend.

Check

Break down and build up the numbers:

$$\begin{aligned} &(40 + 6) + (40 + 5) \\ &= (40 + 40) + (6 + 5) \\ &= 80 + 11 \\ &= 80 + 10 + 1 \\ &= 91 \end{aligned}$$

Activity 8

- I. Shameega collects stickers. So far she has 5 books filled with stickers. Each book contains 50 stickers.
 - a) How many stickers are there in 3 books?



- b)** Shameega started filling up her sixth book. So far she has collected 18 stickers. How many stickers does she still need to fill up this book?
 - c)** Her little sister spills a glass of water on one of her filled books. 23 of the stickers are spoilt. How many stickers was she able to save?
- 2.** A florist is busy preparing his flowers for his new shop.
 - a)** He has arranged 30 red roses, 24 sunflowers and 45 daffodils. How many flowers has he arranged so far?
 - b)** He fetches different colour roses from the warehouse. 15 roses are white, 18 roses are pink and 17 roses are yellow. How many roses altogether?
 - c)** Sam comes to buy roses for his wife. He asks the florist to make up a bunch with 5 of each colour. How many roses will be used altogether? How many roses will be left over in each colour?
- 3.** On one day at a clinic, 50 patients were treated. The following day, 48 patients were treated. How many patients were treated altogether?

You can also break numbers down into parts that are easier to work with, then build them up again to find the answer.

Example

Madeline is given this problem to solve:

$$58 + 13 = \square$$

Answer

$$58 + 13 =$$

$$= (50 + 8) + (10 + 3)$$

$$= (50 + 10) + (8 + 3)$$

$$= 60 + 11$$

$$= 71$$

$$\text{Therefore, } 58 + 13 = 71$$

4. Solve the following problems:

- a) Daisy wants to buy her daughter two Christmas gifts. She found a paint brush set for R49 and a teddy bear for R13. How much would these gifts cost altogether?



- b) Daisy has a R90 for the gifts. If she buys both gifts, how much change will she have left?
If she finds another gift that costs R23, will she still be able to buy it?

Check if you can solve a given problem using doubling or halving. Try to find near doubles and work from there.

Example

Luvuyo is given this problem to solve:

$$22 + 23 = \square$$

Answer

This is how he solved it.

$$22 + 23 = \square .$$

Double 22 + 1

$$= 44 + 1$$

$$= 45$$

or Double 23 – 1

$$= 46 - 1$$

$$= 45$$

Therefore, $22 + 23 = 45$

5. Solve the following problems:

- a) Sally has 25 marbles. Mpho has 26 marbles. How many marbles do they have altogether? How many more marbles does Mpho have than Sally?



- b) Rayana made 35 pancakes, then 36 pancakes. How many has she made so far? If she needs to have 90, how many more pancakes does she need to make?

Using number lines can help you solve number problems.

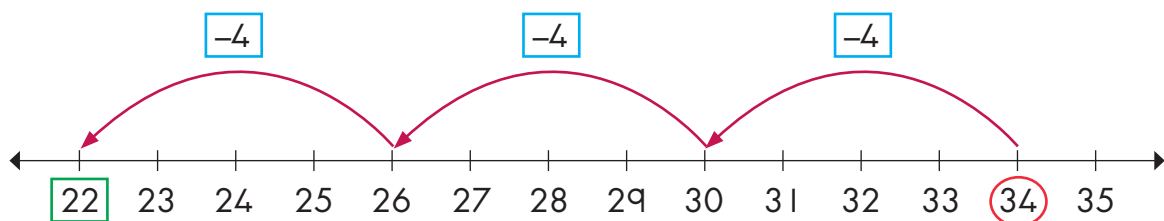
Example

Dimakatso is given this problem to solve:

$$34 - 12 = \square$$

Answer

This is how she solved it.



$$34 - 4 \rightarrow 30 - 4 \rightarrow 26 - 4 = 22$$

6. Themba read 55 books in November and 56 books in December. How many books did Themba read altogether?

Think about it: What is the key word in the problem?

- a) Write the number sentence to solve this problem.
 - b) Discuss two other different techniques to solve the problem.
 - c) Choose any other technique and solve the problem. Explain to your friend why you choose that technique.
 - d) How will you check the answer to the problem? Explain to your friend why you will check the solution, and why you chose that technique to check the solution.
7. Solve the following problems:
- a) Delmarie is playing a video game. She initially scores 52 points, but then loses 14 points. How many points does she have now?
 - b) Delmarie has 38 points. She scores 18 more points and then loses 12 points. What is her final score?
8. Azzie did 46 problems to prepare for a Maths test on Friday. He then read 33 pages from his favourite book, and after that did another 45 problems. How many problems did Azzie do in total to prepare for his Maths test?
- a) Write a number sentence to solve the problem.
 - b) Choose any technique to solve the problem.
 - c) Explain your solution to your friend.

9. Create three of your own word problems.
Use three problem-solving techniques to solve the problems.
10. Aidan washes the dishes at a restaurant. There are 38 plates, 43 glasses and 36 pudding bowls that need to be washed.



- a) How many dishes altogether?
- b) Aidan breaks 9 plates.
How many plates are left?
- c) Aidan has cleaned 12 glasses so far, how many still needs to be cleaned?
- d) 16 more pudding bowls are brought to be washed.
How many altogether?
11. Use any two methods to do the following calculations:
- a) $31 + 32 = \square$ b) $86 - 31 = \square$
- c) $42 + 44 = \square$ d) $99 - 44 = \square$
12. Create your own problems where you add and subtract two-digit numbers. Ask your partner to use two different methods to solve the problems.

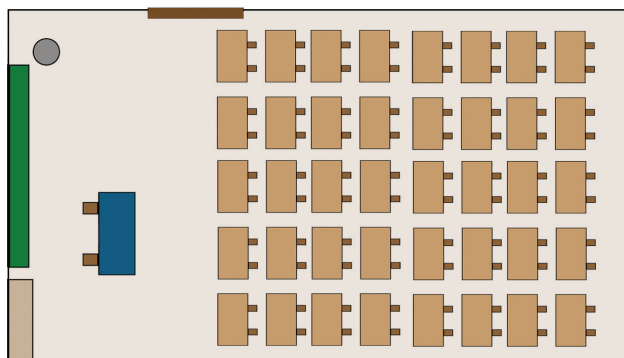
Repeated addition leading to multiplication

There is a relationship between multiplication and addition.

Example

Mr Makae is setting up the desks in his class. There are 5 rows with 8 desks in each row.

- Use repeated addition to calculate how many desks are in the class.
- Use multiplication to calculate how many desks are in the class.



Answer

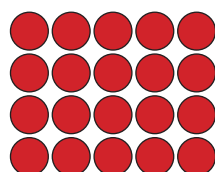
a) $8 + 8 + 8 + 8 + 8 = 40$

b) $5 \times 8 = 40$

Example

You planted 4 rows of cabbages and there are 5 cabbages in each row. How many cabbages are there altogether?

Write addition and multiplication number sentences for the array.



Answer

Addition number sentences	Multiplication number sentences
$5 + 5 + 5 + 5 = 20$	$4 \times 5 = 20$

Example

Each cake has eight candles. How many candles on five cakes?

Solve the problem using repeated addition and multiplication.

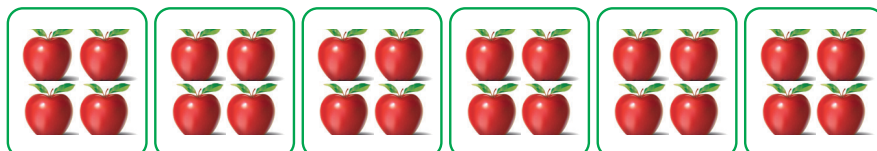


Answer

Repeated addition	Multiplication
$8 + 8 + 8 + 8 + 8 = 40$	$5 \times 8 = 40$

Example

Copy and complete.



$$6 \times 4 = \underline{\hspace{2cm}}$$

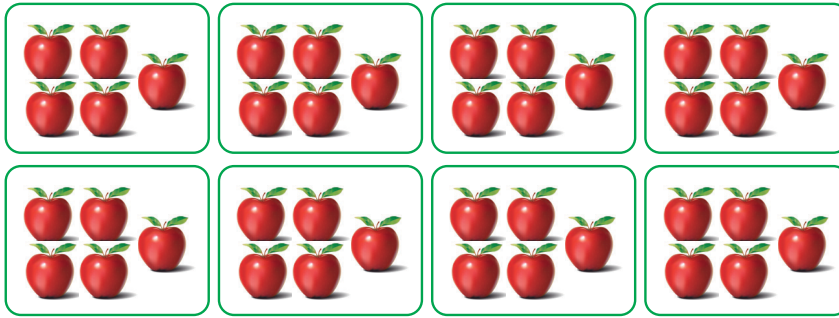
Answer

$$6 \times 4 = 24$$

Activity 9

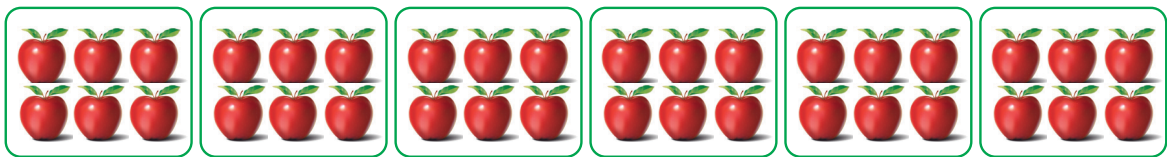
1. Complete the multiplication number sentence.

a)



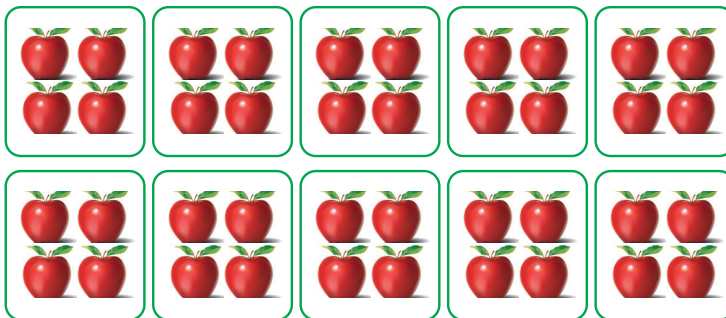
$$8 \times 5 = \underline{\quad}$$

b)



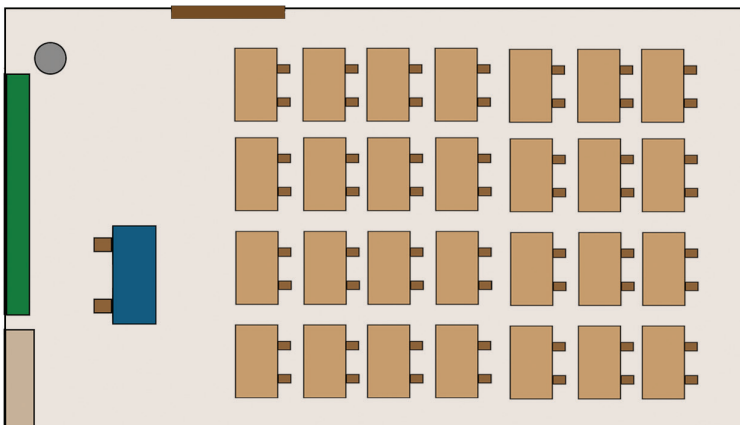
$$6 \times 6 = \underline{\quad}$$

c)



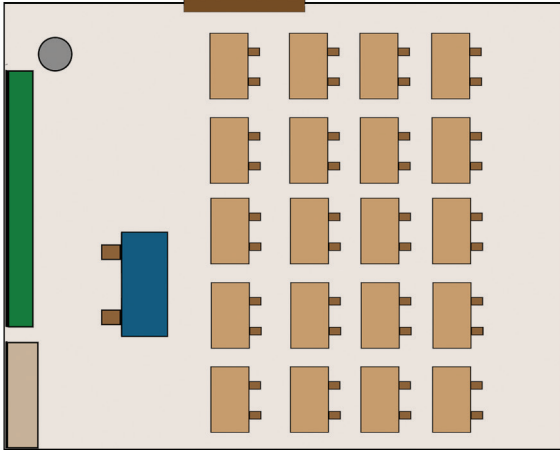
$$10 \times 4 = \underline{\quad}$$

2. How many desks in the class?



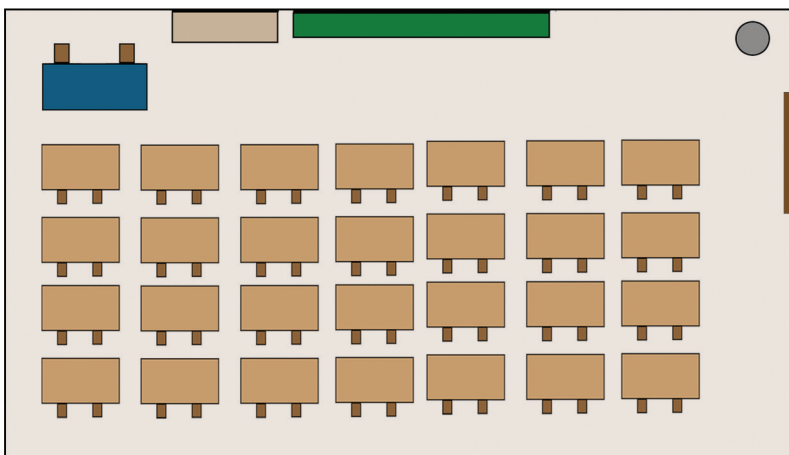
- a) Use repeated addition to calculate the number of desks.
- b) Use a multiplication number sentence to calculate the number of desks.

3. How many desks in the class?



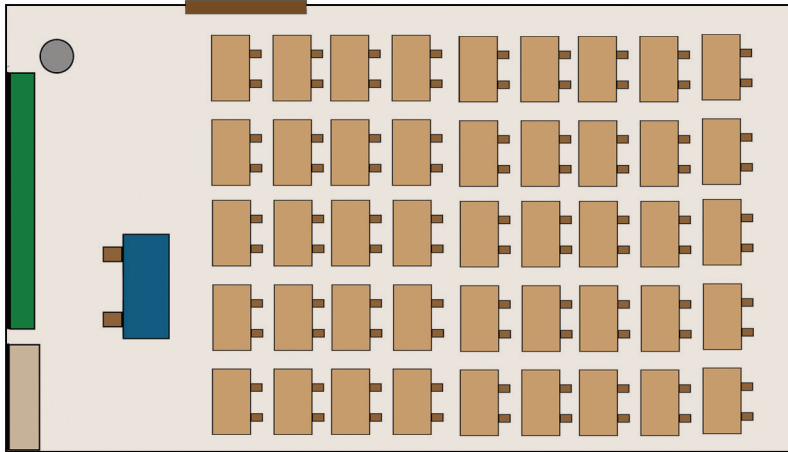
- a) Use repeated addition to calculate the number of desks.
- b) Use a multiplication number sentence to calculate the number of desks.

4. How many desks in the class?



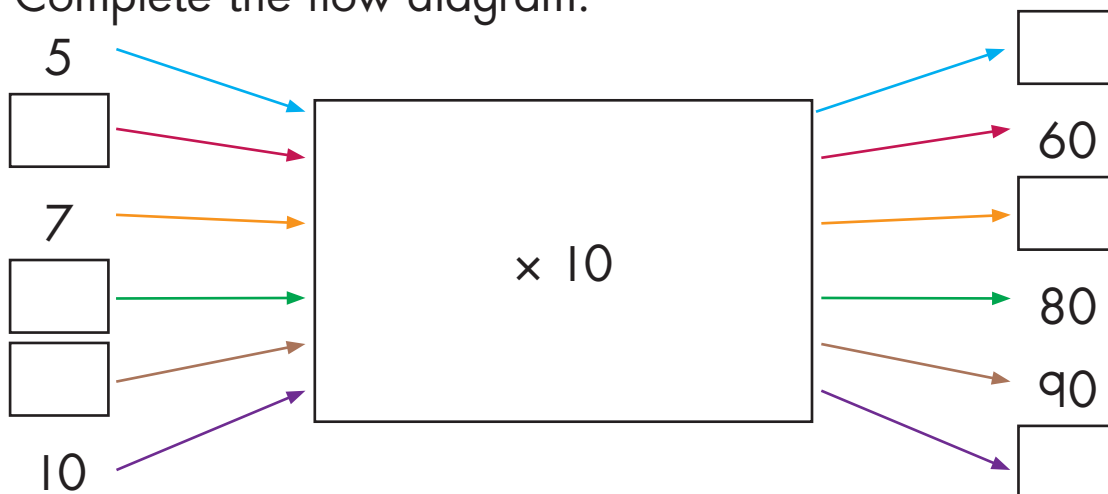
- a) Use repeated addition to calculate the number of desks.
- b) Use a multiplication number sentence to calculate the number of desks.

5. How many desks in the class?

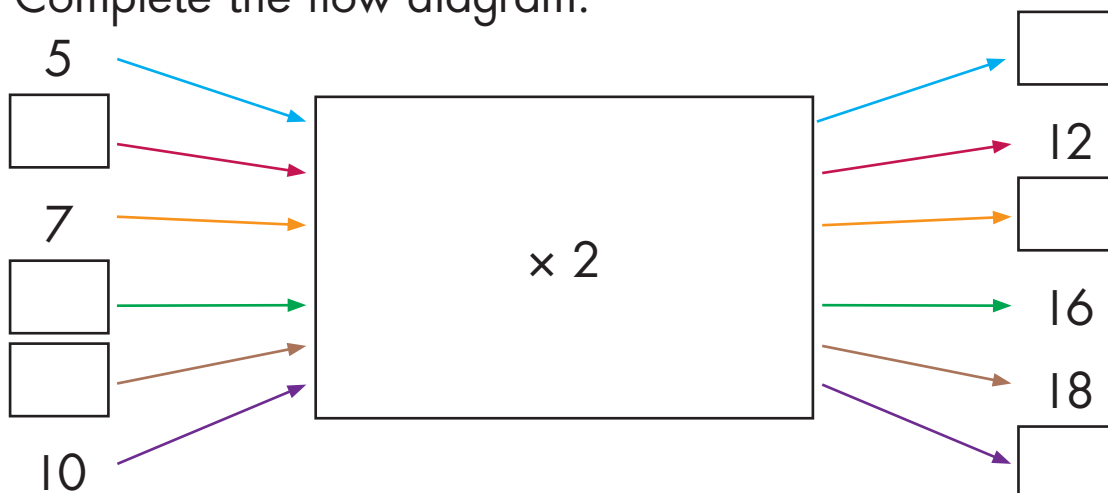


- Use repeated addition to calculate the number of desks.
- Use a multiplication number sentence to calculate the number of desks.

6. Complete the flow diagram.



7. Complete the flow diagram.

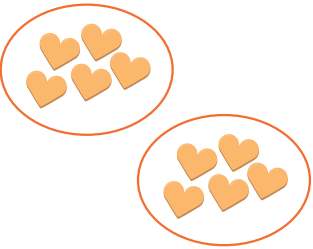
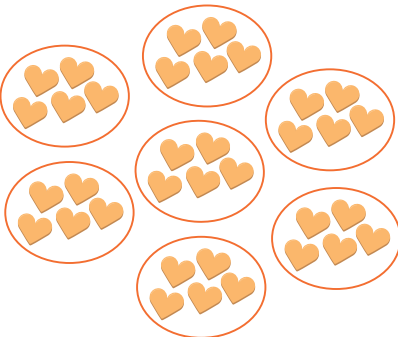
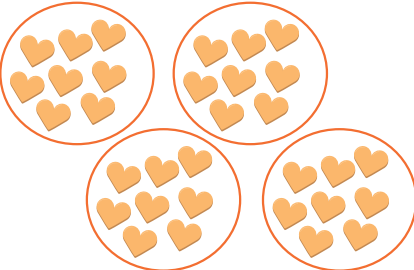
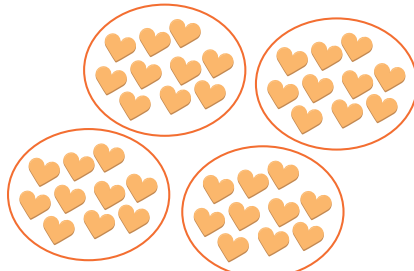
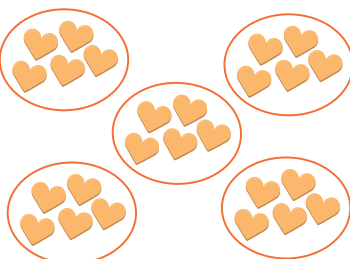


8. Given: $3 \times 4 = 12$

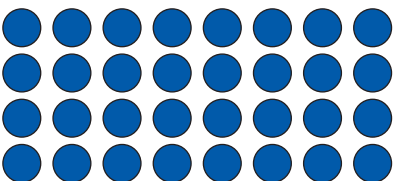
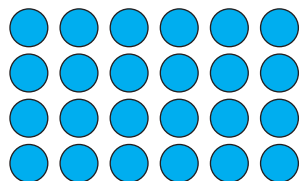
Complete: $\square \times 3 = 12$

9. Simplify 5×3 by using repeated addition.

10. Complete. The first one has been done for you.

E.g.	There are 2 groups. There are 5 in each group.		You can add: $5 + 5 = 10$ You can multiply: $2 \times 5 = 10$
a)	There are 7 groups. There are 5 in each group.		
b)	There are 4 groups. There are 8 in each group.		
c)	There are 4 groups. There are 10 in each group.		
d)	There are 5 groups. There are 5 in each group.		

11. Joshua must order tyres for five cars. If each car has four tyres and a spare wheel, how many tyres must Joshua order?
12. Mpho is a fruit and vegetable vendor.
- He sells 6 packs of 6 bananas each. How many bananas did he sell?
 - He sells 3 packs of 4 avocados each. How many avocados did he sell?
 - He sells 10 packs of 6 potatoes. How many potatoes did he sell?
 - How many fruit and vegetables did he sell altogether?
13. Write an addition and a multiplication number sentences for each array.

<p>a)</p> 	<p>b)</p> 
---	--

14. There are six cans of cooldrink in a pack.
- How many cans are there in three packs?
 - Solve the problem using repeated addition and multiplication.



15. A vegetable garden has 54 plants. There are six plants in each row. How many rows are there?

Grouping and sharing

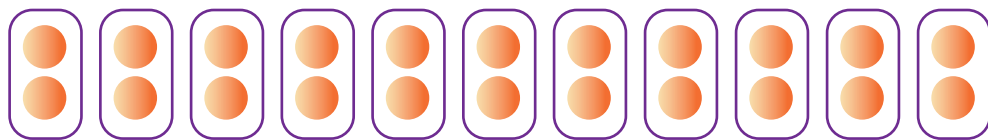
Problems that involve grouping and **sharing** can be solved using counters and by expressing the problem using **number sentences**.

Example

After the soccer match, Kito shared 22 oranges equally amongst 11 players. How many oranges did each player get?

Answer

Each player got 2 oranges.

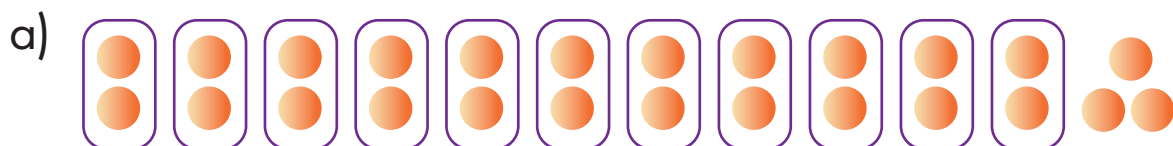


Example

After their hockey match, Aidan shared 25 oranges equally amongst 11 players.

- a) How many oranges did each player get?
- b) How many left?

Answer



Each player got 2 oranges.

- b) There are 3 oranges left.

Now solve these problems.

Activity 10

1. At Mia's birthday party there are 9 girls.
 - a) Mother shares 40 marshmallows amongst the 9 girls. How many marshmallows does each girl get?
 - b) Mother shares 35 cupcakes amongst the 9 girls. How many are left? Mia is too excited to eat, so she gives her 4 cupcakes back to her mother. How many are left now?
 - c) If there are 3 cakes cut into 6 slices each, how many slices can each girl get if the cake is shared equally amongst them?



2. The stationery shop is packing their display for back-to-school items.
 - a) If the display table can hold 5 rows of items with 7 items in each row, how many items can the table hold?

- b) Mr Bloggs has 65 items. How many tables can he fill?
- c) How many are left?
3. Likanyo works at the spaza shop. He needs to make up bags of 6 potatoes each. Likanyo has 70 potatoes. How many bags with 6 potatoes can he make?

Take note

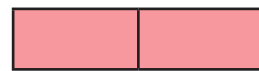
We can also use drawings to help us when working with problems involving sharing.

4. Stan shares 45 apples amongst 3 groups of 12 learners. How many apples will each learner get?
5. Share 56 pencil crayons amongst 8 learners so that they all get the same number of pencil crayons.
6. Lesego and Tebogo are selling lemonade to raise funds to buy new stationery. They take turns to work. Lesego works 2 hours per day. Tebogo works 3 hours per day. They make R80 in one day. How must they share the money?
7. A box can hold six cans of coke. If there are 64 cans of coke, how many boxes are needed to hold all the cokes?



Fractions

- If a whole is split into 2 equal parts, each part is called one half.



- If a whole is split into 3 equal parts, each part is called one third.



- If a whole is split into 4 equal parts, each part is called one quarter.



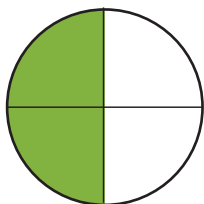
- If a whole is split into 5 equal parts, each part is called one fifth.



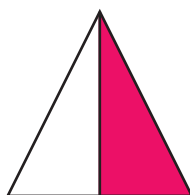
Activity II

- Which fractions is shaded?

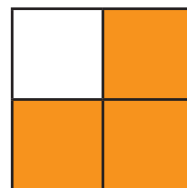
a)



b)



c)



d)



- Complete. (Where possible, use counters to help you calculate the answers.)

a) Two halves are the same as whole

b) Three thirds are the same as whole.

c) Four quarters are the same as whole.

3. a) What is a half of 8 counters?
b) What is a half of 12 counters?
c) What is a quarter of 16 counters?
d) What is a third of 24 counters?
e) What is a fifth of 35 counters?

Remember that a **fraction** is a part of a whole.

4. Solve the following problems. Use drawings to help you.
a) Tshepo and 8 other learners must share 32 books equally. How many books will each learner get?



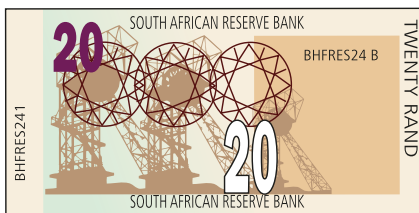
- b) After school, 28 learners travel in a school bus to their extra-mural activity. There are 65 bottles of water for the teams. How many bottles of water will each learner get for the day?

Working with money

The coins we use in South Africa are:



The bank notes we use in South Africa are:



Example

Complete the table.

Coins	Total
   	

Answer

Coins	Total
   	R6,60

Example


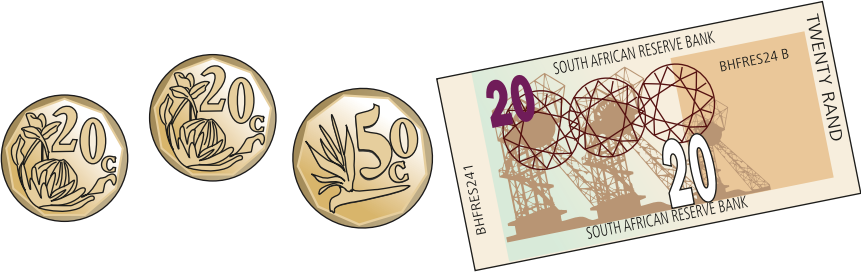


You spent R13 at a shop and paid with a R20 note.
How much change did you get?

Answer

$$R20 - R13 = R7$$

Activity 12

1. Complete the table.

Coins	Total
<p>a)</p> 	
<p>b)</p> 	
<p>c)</p> 	
<p>d)</p> 	

2. Maurice spends R8 and R14 at the shop.

- If he pays with a R50 note, how much change will he get?
- Will he be able to pay for a sandwich that costs R22 with the change he got?

3. a) Meeka has two R10 notes, a R5 coin and three R2 coins. How much money does she have altogether?
- b) Meeka wants to buy a tub of ice-cream for R15, a bag of bananas for R7 and some sweets. How much money will she have left to buy the sweets?
4. Thabo takes the train 6 days a week to get to work. He pays R8 per trip to and from work. How much does he spend for 6 days?



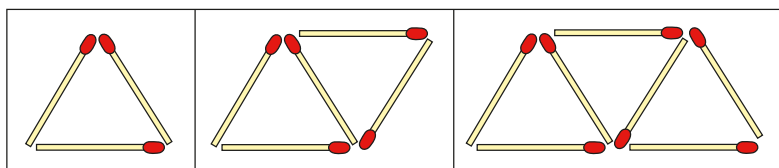
5. Miriam and 10 of her classmates have a hockey match. Each learner must pay R5,50 for the bus to get to the match. What amount must their teacher pay for all the learners?

Learn about patterns

Patterns with objects, shapes and lines

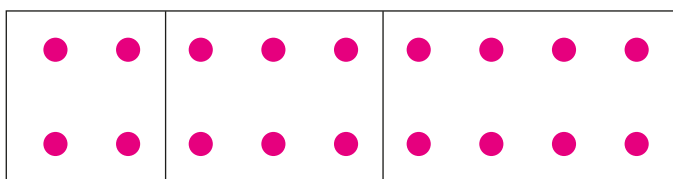
Activity 13

1. a) Use the match sticks or tooth picks to copy and extend the pattern twice.



- b) Describe the pattern.

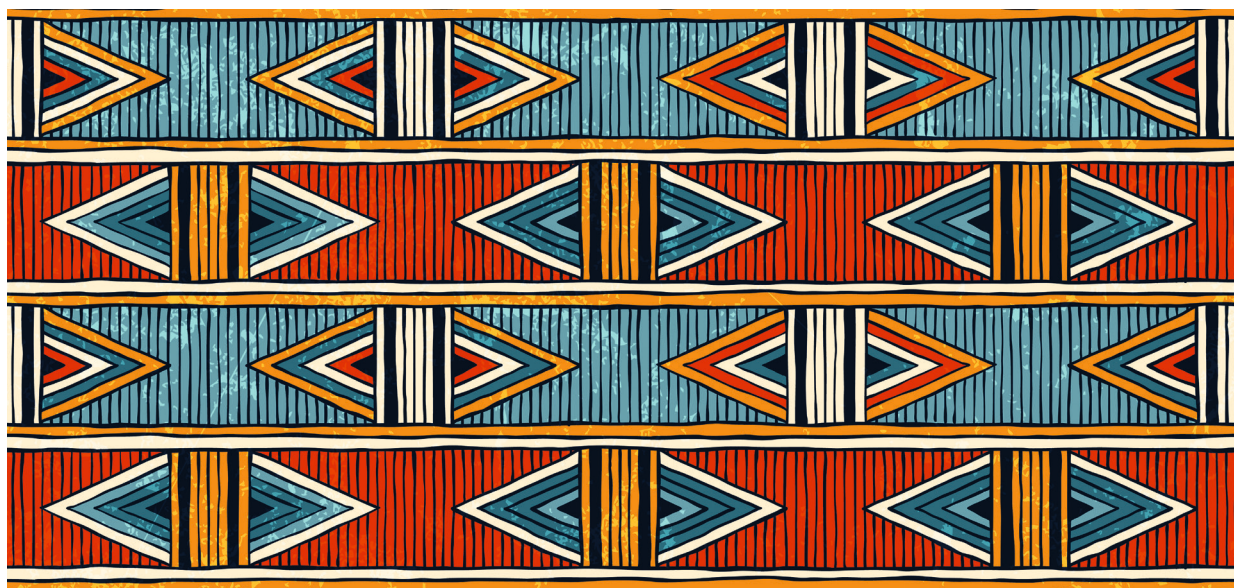
2. a) Copy and extend the pattern twice.



- b) Describe the pattern.

3. The picture below is a cloth of a traditional Sotho dress.

- a) Describe the pattern that you notice.



- b) Draw the pattern you observed in your classwork book.

Number patterns

Example

Look at the number pattern.

200	195	190	185	180	
-----	-----	-----	-----	-----	--

- What is the next number in the pattern.
- Describe the rule for the pattern.

Answer

- 175
- Subtract 5

Example

Number pattern	Rule	Proof
22; 24; 26; 28; 30	Add 2 or + 2	$22 + 2 = 24 + 2$ $= 26 + 2 = 28 + 2 = 30$
90; 80; 70; 60; 50	Subtract 10 or - 10	$90 - 10 = 80 - 10 = 70$ $- 10 = 60 - 10 = 50$

Activity 14

- Write the next number in each number pattern.
Then write the rule and the proof for the pattern.

a) 5; 10; 15; 20; 25;

Rule: _____ Proof: _____

b) 23; 33; 43; 53; 63;

Rule: _____ Proof: _____

c) 68; 70; 72; 74; 76;

Rule: _____ Proof: _____

Challenge

d) 17; 18; 20; 23; 27;

Rule: _____ Proof: _____

2. Continue each pattern according to its rule.

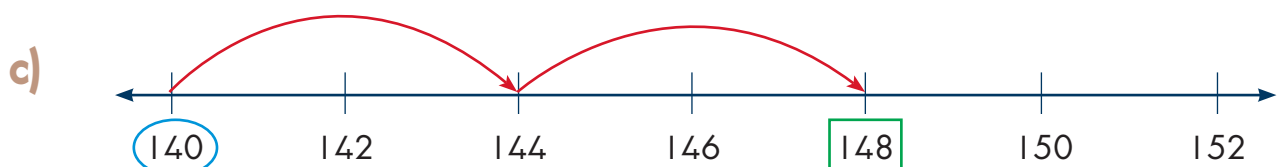
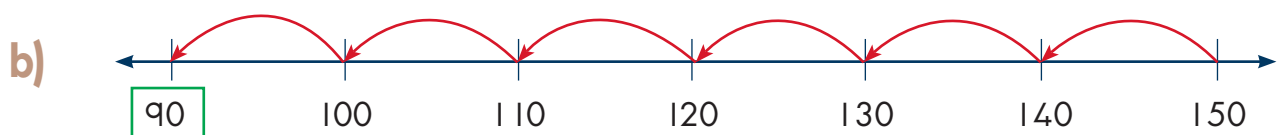
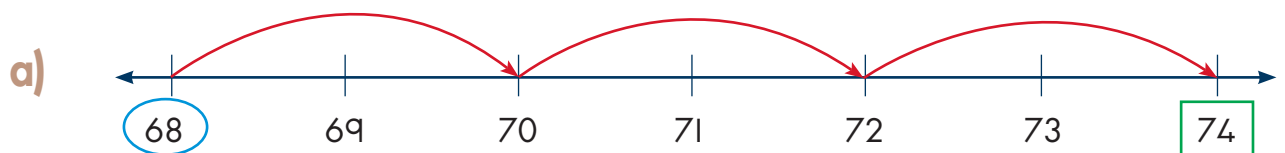
a) **Rule:** Add 9 28; ; ; ; ; ;
; ; ; ;

b) **Rule:** Subtract 3 35; ; ; ; ; ;
; ; ; ;

c) **Rule:** Add 7 42; ; ; ; ; ;
; ; ; ;

d) **Rule:** Subtract 5 53; ; ; ; ; ;
; ; ; ;

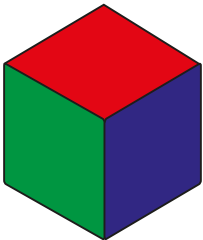
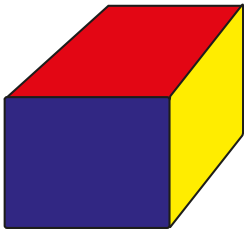


3. Describe the pattern followed by the hops on the number line.



Three-dimensional objects (3D objects)

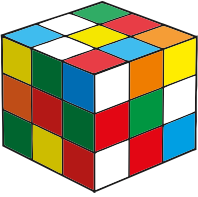
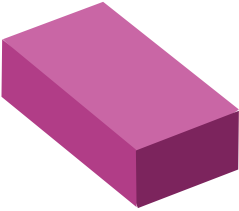


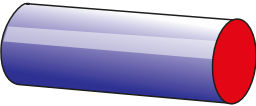
A three-dimensional object is solid and not flat.

A three-dimensional object has height, length and width.

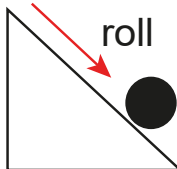

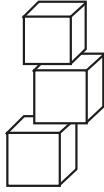
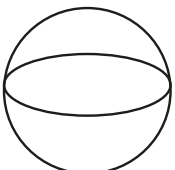
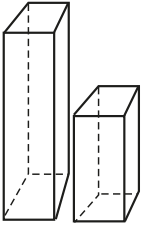
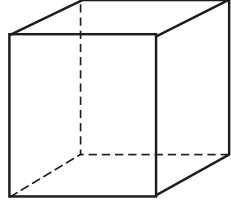

Cube	Rectangular prism
	
<ul style="list-style-type: none">• Is shaped like a box.• Can slide.	<ul style="list-style-type: none">• Is shaped like a box.• Can slide.
Sphere	Cylinder
	
<ul style="list-style-type: none">• Looks like a ball.• Can roll.	<ul style="list-style-type: none">• Looks like a can.• The base looks like circles.• Can roll and slide

Activity 15

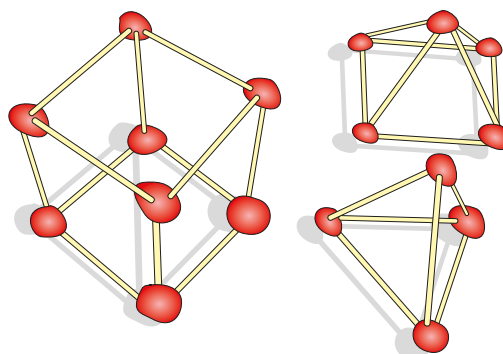
I. Complete the table. Do not draw the objects.

	Name the object	Can you stack the objects?	Will the object roll?
	Ball/Box/Cylinder	Write Yes or No	
a)			
b)			
c)			
d)			
e)			

2. Do the following experiment and write the name of the object. Write Yes or No. Do not draw the object.

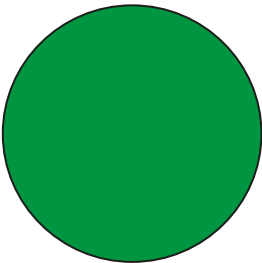
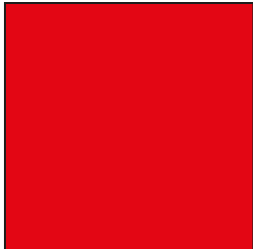
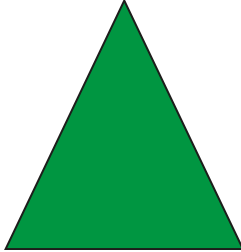
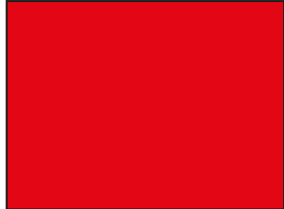
		Roll 	Slide 	Stack 
a)				
b)				
c)				
d)				

3. Use clay, sticks, cardboard or any other available material to create a model of your favourite three-dimensional object.



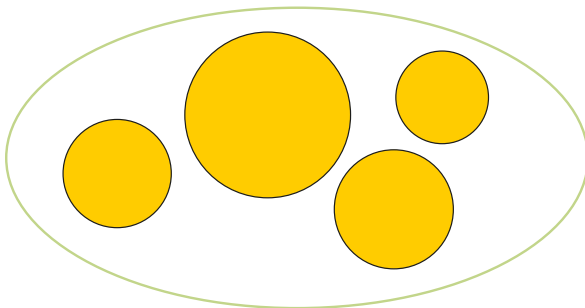
Two-dimensional shapes (2D shapes)

A two-dimensional shape can be laid *flat* on a piece of paper.

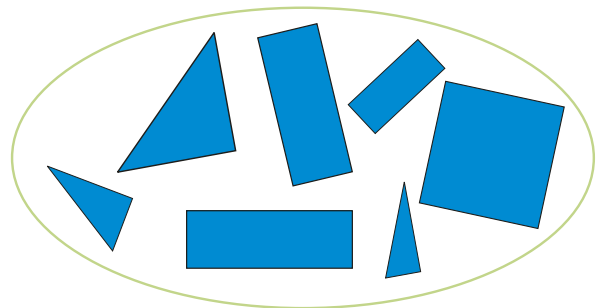
Circle	Square	Triangle	Rectangle
			
A circle is a shape that is round.	A square has 4 straight sides with equal lengths.	A triangle has 3 straight sides.	A rectangle has 4 straight sides and the opposite sides are equal in length.

Example

Look at the two groups. How were they sorted?



Group A



Group B

Answer

The shapes in Group A are all yellow and are round.
The shapes in Group B are all blue and have straight sides.


TERM 4

-
- A collection of 15 geometric shapes arranged on a white background. The shapes are colored either red or green. There are 8 red shapes and 7 green shapes. The shapes include: a horizontal rectangle, a square, a circle, a pentagon, a triangle, a large circle, a small circle, a hexagon, a tilted square, a horizontal rectangle, a triangle, a square, a vertical rectangle, a horizontal rectangle, and a circle.

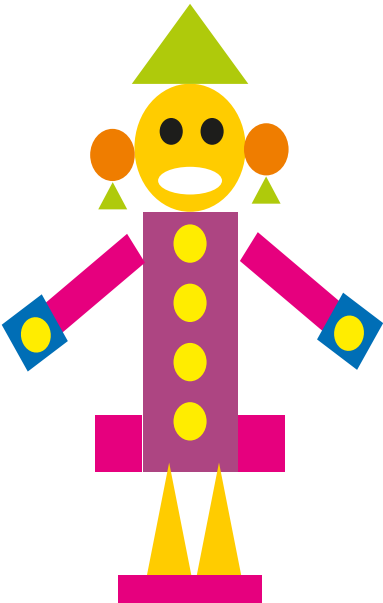
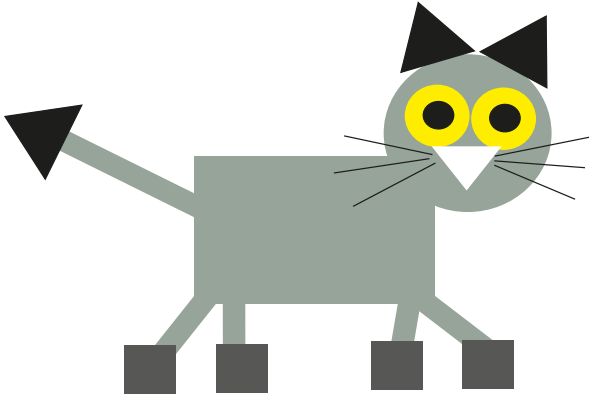
- Do not draw the shapes.

Term 4: Space and Shape


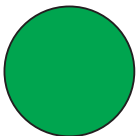

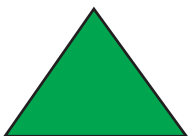
c)

Shape		Straight sides
Square		

3. Look at the picture and count the number of shapes.

	
Picture A	Picture B

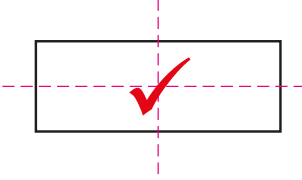
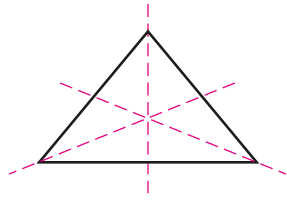
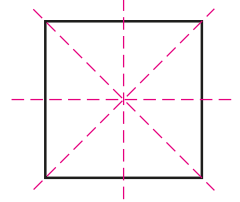
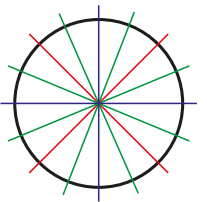
Copy and complete the table.

Number of shapes				
	Rectangles 	Circles 	Squares 	Triangles 
Picture A				
Picture B				

Symmetry

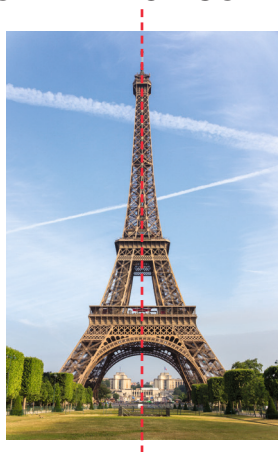
A shape has symmetry if a line can be drawn on the shape and it divides the shape into two halves that match exactly.

Take note

			
A rectangle has two lines of symmetry.	Some triangles have three lines of symmetry.	A square has four lines of symmetry.	A circle has many lines of symmetry.

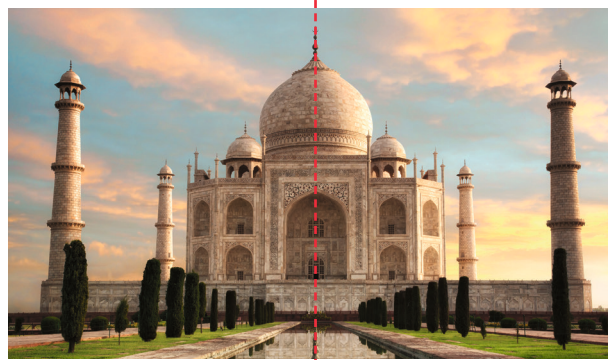
Example

The Eiffel tower in France has a vertical line of symmetry.



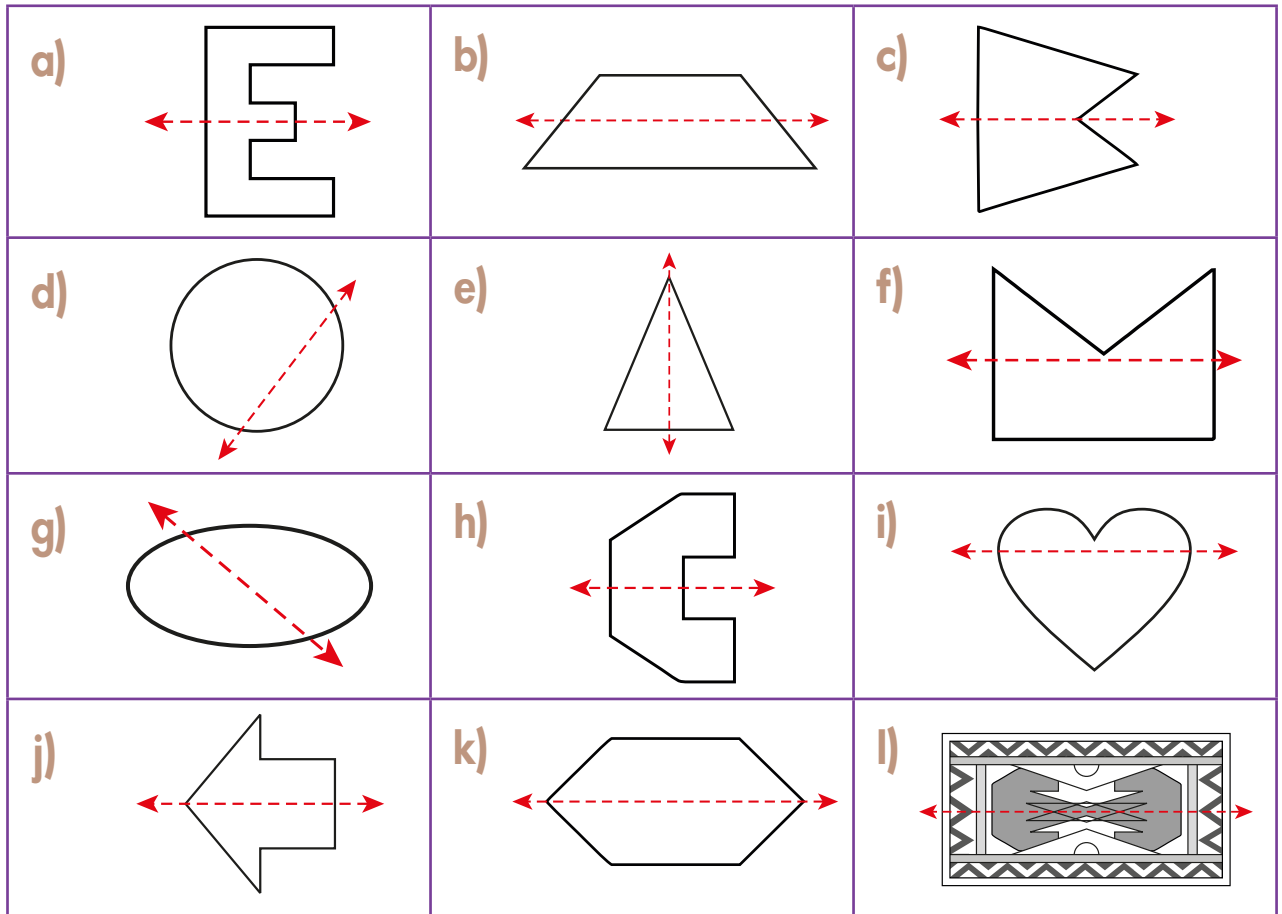
Example

The Taj Mahal in India has a vertical line of symmetry.



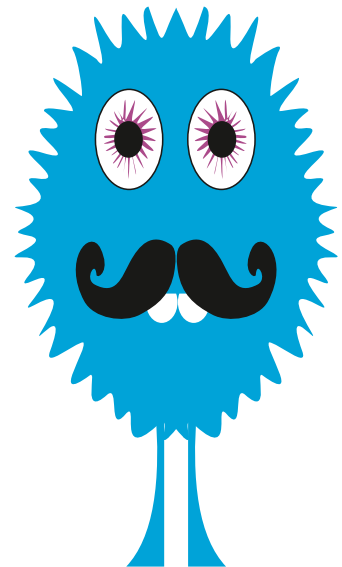
Activity 17

1. State if the dotted line on each shape is a line of symmetry or not. Say why you say so.



2. Draw a friendly monster using circles, squares, rectangles and triangles.

Draw a line of symmetry on your monster.



Calculating the length and passing of time

Example

Thato starts doing homework at quarter to 7 in the evening. She finishes doing homework at quarter past 7.

How long did it take Thato to do her homework?

Answer

Thato starts doing homework



She finishes doing homework



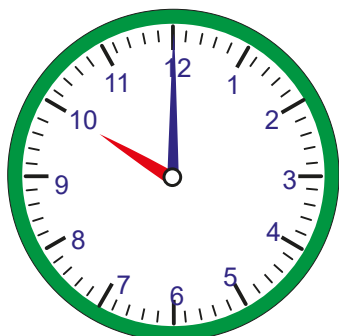
It took Thato 30 minutes to do the homework.

Example

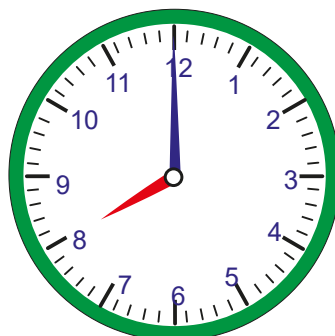
The time now is 10 o'clock. School started 2 hours ago. What time did school start?

Answer

The time now



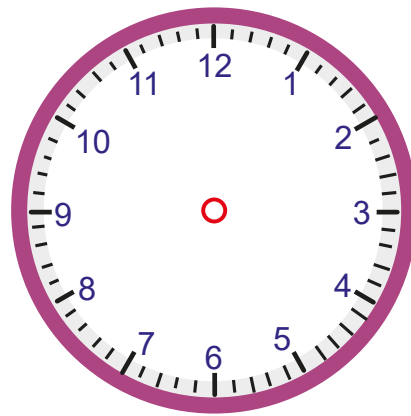
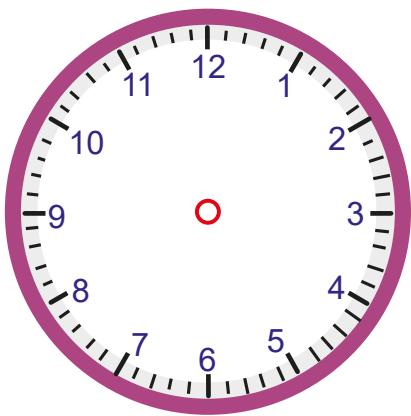
The time 2 hours ago



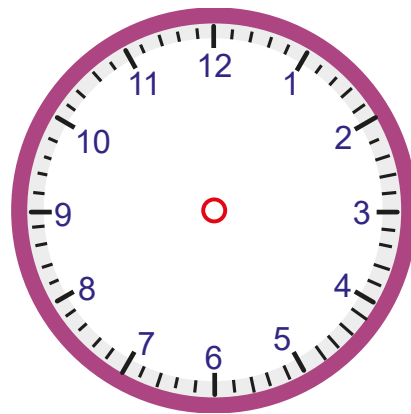
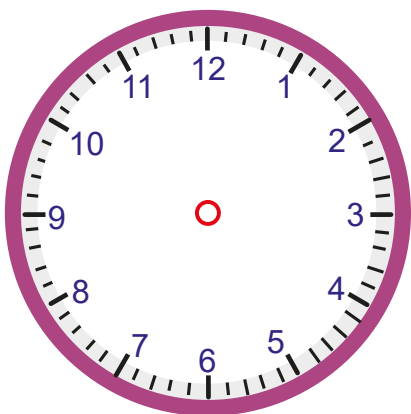
The school started at 8 o'clock.

Activity 18

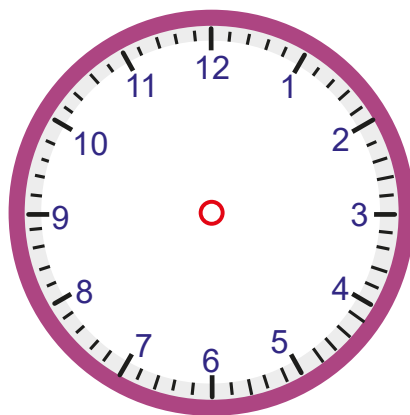
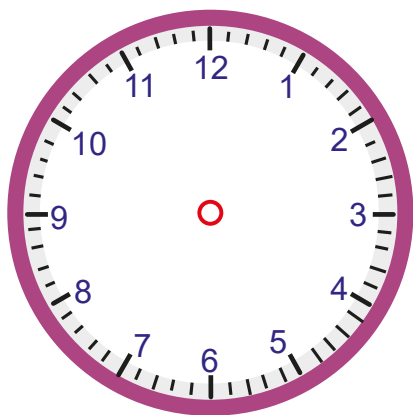
1. Bongani and Nthabiseng play every afternoon. Yesterday they started playing at quarter past 3 and finished at quarter past 4.
- a) How long did they play?
 - b) Draw the hands on the clocks for when they started and when they finished.



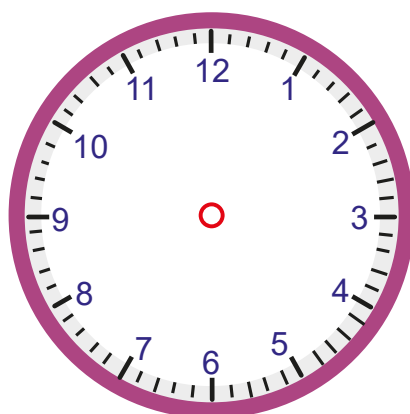
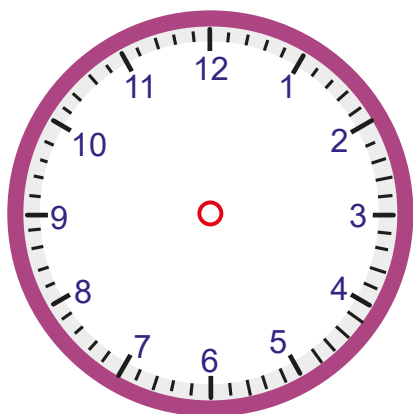
2. Takalani walked to Anika's house at 9 o'clock in the morning. She arrived at quarter past 9 the very same morning.
- a) How long was Takalani's journey?
 - b) Draw the hands on the clocks for when they started and when they finished.



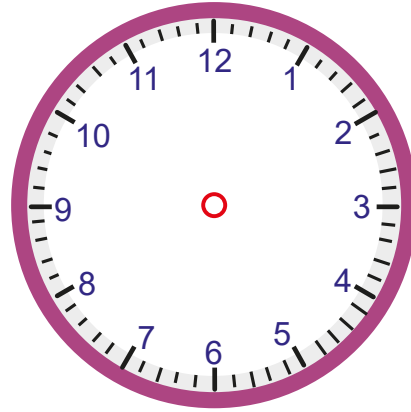
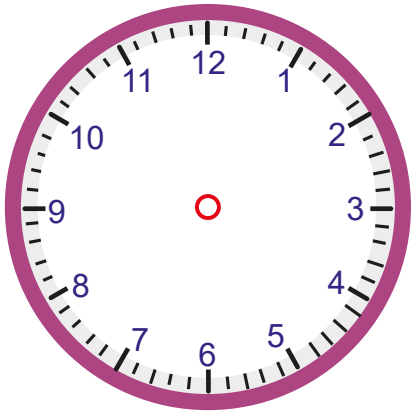
3. Azile goes to bed at quarter to 8 in the evening. Her older brother Asinya usually goes to bed 15 minutes later.
- What time does Asinya go to bed?
 - Draw the hands on the clocks for when they started and when they finished.



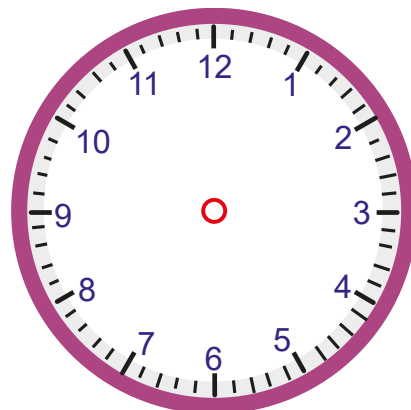
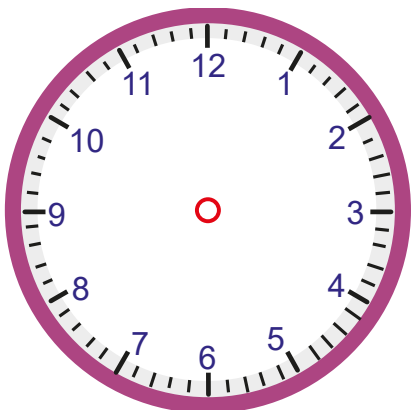
4. It is now 6 o'clock in the evening. When you started reading a book it was half past 5.
- How long have you been reading?
 - Draw the hands on the clocks for when you started and when you finished.



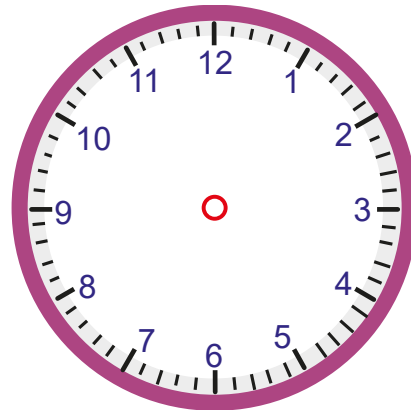
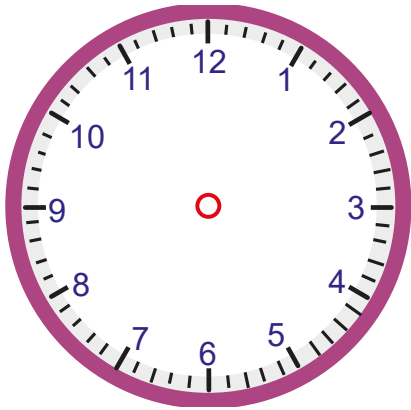
5. The first break is at 10 o'clock. It is 15 minutes long.
- a) At what time do learners go back to class?
 - b) Draw the hands on the clocks for when they started and when they finished.



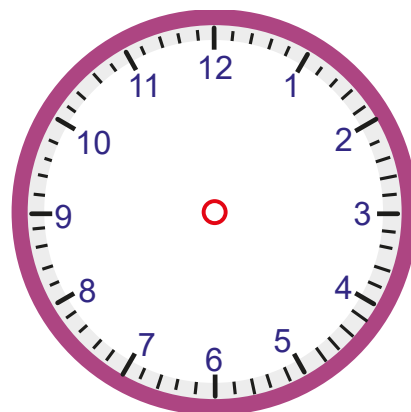
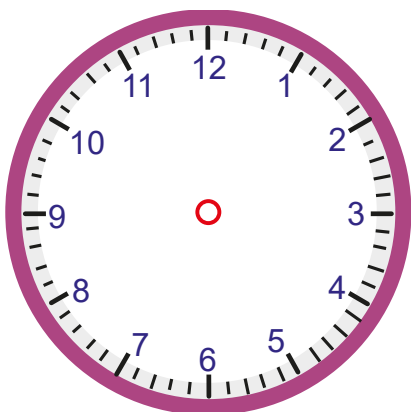
6. You have been watching television since 6 o'clock. The time now is 7 o'clock.
- a) How long have you been watching television?
 - b) Draw the hands on the clocks for when you started and when you finished.



7. It takes Elphas 30 minutes to walk from home to school. He wants to arrive at school by quarter to 8.
- a) What time must Elphas leave home?
 - b) Draw the hands on the clocks for when he started and when he arrived.



8. Gwen wakes up at quarter past 6 in the morning. She leaves for school at quarter past 7.
- a) How long does she take to get ready for school?
 - b) Draw the hands on the clocks for when she started and when she finished.



Estimate length

Activity 19

- I. First estimate the following, then copy and complete the table below:
 - a) The length of the classroom.
 - b) The length of the teacher's desk in your classroom.
 - c) The distance from the classroom door to the window opposite it.
 - d) The length of the chalkboard/whiteboard.
 - e) The length of the classroom door.

Measure a piece of string against a metre ruler and cut it. Use your piece of string to check your estimates and complete the last column of the table.

		Estimate	Actual
a)	The length of the classroom.		
b)	The length of the teacher's desk in your classroom.		
c)	The distance from the classroom door to the window opposite it.		
d)	The length of the chalkboard/whiteboard.		
e)	The length of the classroom door.		

2. Imagine that each square below represents a metre.
Your answers should be in metres.

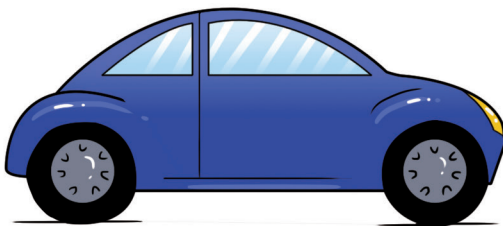
a) How long is the house?

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



b) How long is the car?

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



c) How long is the bookshelf?

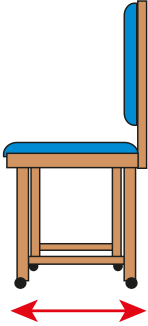
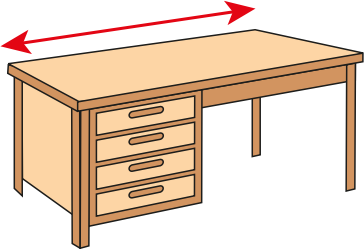
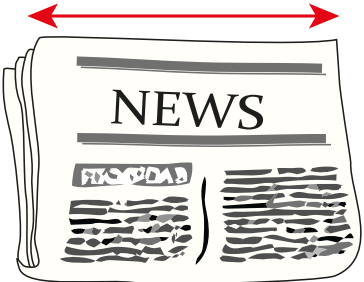
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3. Which object is longer?

- a) The house or the car? Explain.
- b) The car or the bookshelf? Explain.
- c) The house or the bookshelf? Explain.

4. a) Use your metre string to measure the following and record your findings in the table.

	What are we measuring?	Measurement
(i) 	The length of a chair	
(ii) 	The length of the teacher's desk	
(iii) 	The length of a newspaper	

- b) Did you find some lengths which are less than or more than a metre? How did you record those?
- c) Arrange the length of the chair, teacher's desk and newspaper from the biggest to smallest.

Learning about mass

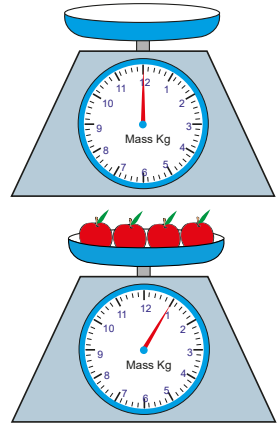
Example

The reading on the scale is 0 kg.

There is nothing on the scale.

The reading on the scale is 1 kg.

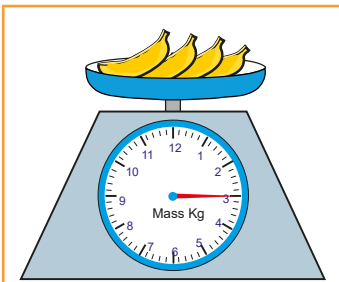
This is the mass of the 4 apples on the scale.



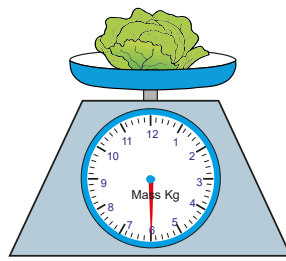
Activity 20

1. Look at the scales. What is the mass of each object?

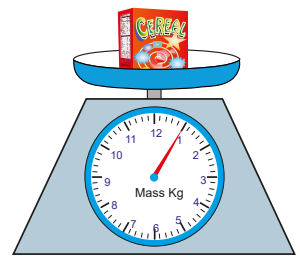
A



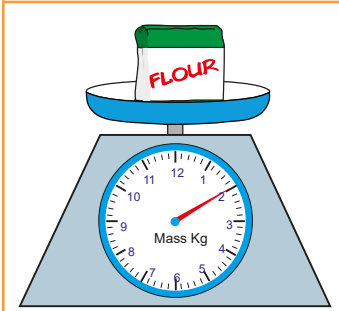
B



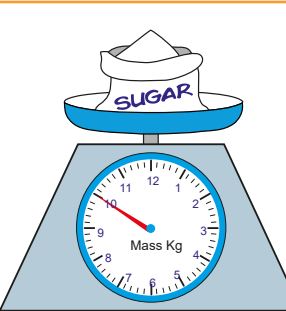
C



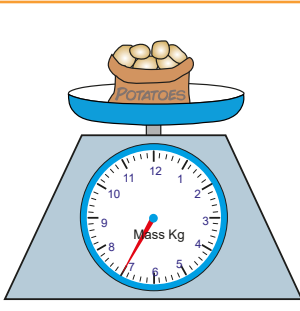
D



E



F



- a) The mass of the bunch of bananas is _____ kg.
- b) The mass of the cabbage is _____ kg.
- c) The mass of the box of cereals is _____ kg.
- d) The mass of the packet of flour is _____ kg.
- e) The mass of the bag of sugar is _____ kg.
- f) The mass of the bag of potatoes is _____ kg.

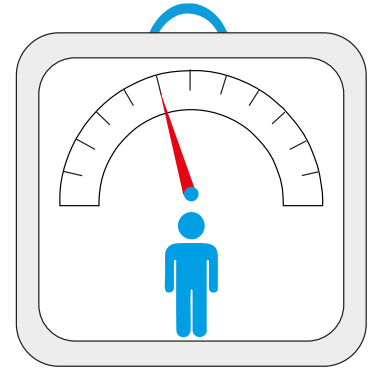
Example

This is a bathroom scale.

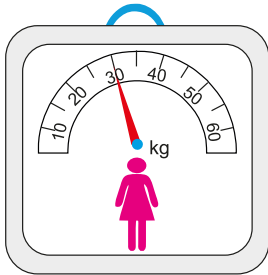
We can use the bathroom scale to measure mass.

A person stands on the scale and a needle points to a number.

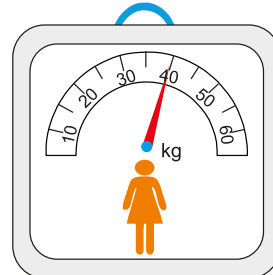
The number the needle points to indicates the mass of the person standing on the scale.



2. a) What is Mpilo's mass?



b) What is Kamu's mass?



c) Who is heavier? Kamu or Mpilo? Explain your answer.

Reading mass from the labels on the products

We can read the mass of the product from the label.



The mass of the contents in the box is 20 kg.

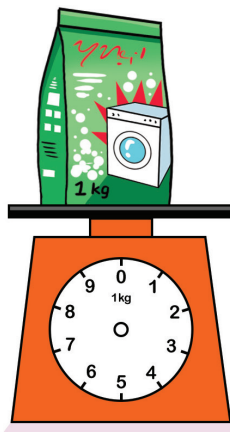
3. What is the mass of each of these items?

A	B	C
		
D	E	F
		
G	H	I
		

Example: A = 80 kg

4. Copy only the scale in your exercise book. Draw the arm on the scale to show the mass of the product.

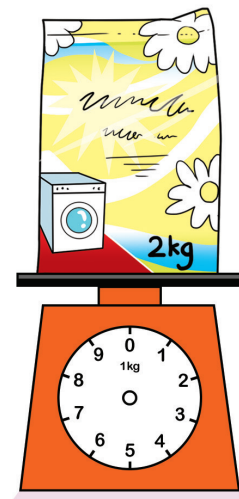
a)



b)



c)



Capacity and volume

We can estimate, measure and compare the amount a container can hold.

Example

- a) Order the products from the one that holds the most to the one that holds the least.
- b) What container holds the most?
- c) What container holds the least?



A



B



C

Answer

- a) C A B
- b) Container C holds the most – 5 litre
- c) Container B holds the least – 2 litre

Activity 21

1. Use these words to describe each container's capacity.

exactly

a bit
more than

almost/nearly/
close to

less than

more than

a)



The container is _____ 1 litre.

b)



The container is _____ 1 litre.

c)



The container is _____ 2 litres.

d)



The container is _____ 2 litres.



e)

The container is _____ 2 litres.

2. Order the following from the one that holds the least to the one that holds the most.



A



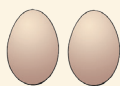
B



C

3. Emily is having visitors for dinner. She wants to make a pot of custard for 6 people. Here is the recipe she normally uses for 3 people.

2 whole eggs



3 tablespoons of custard



4 cups of milk



5 tablespoons of sugar



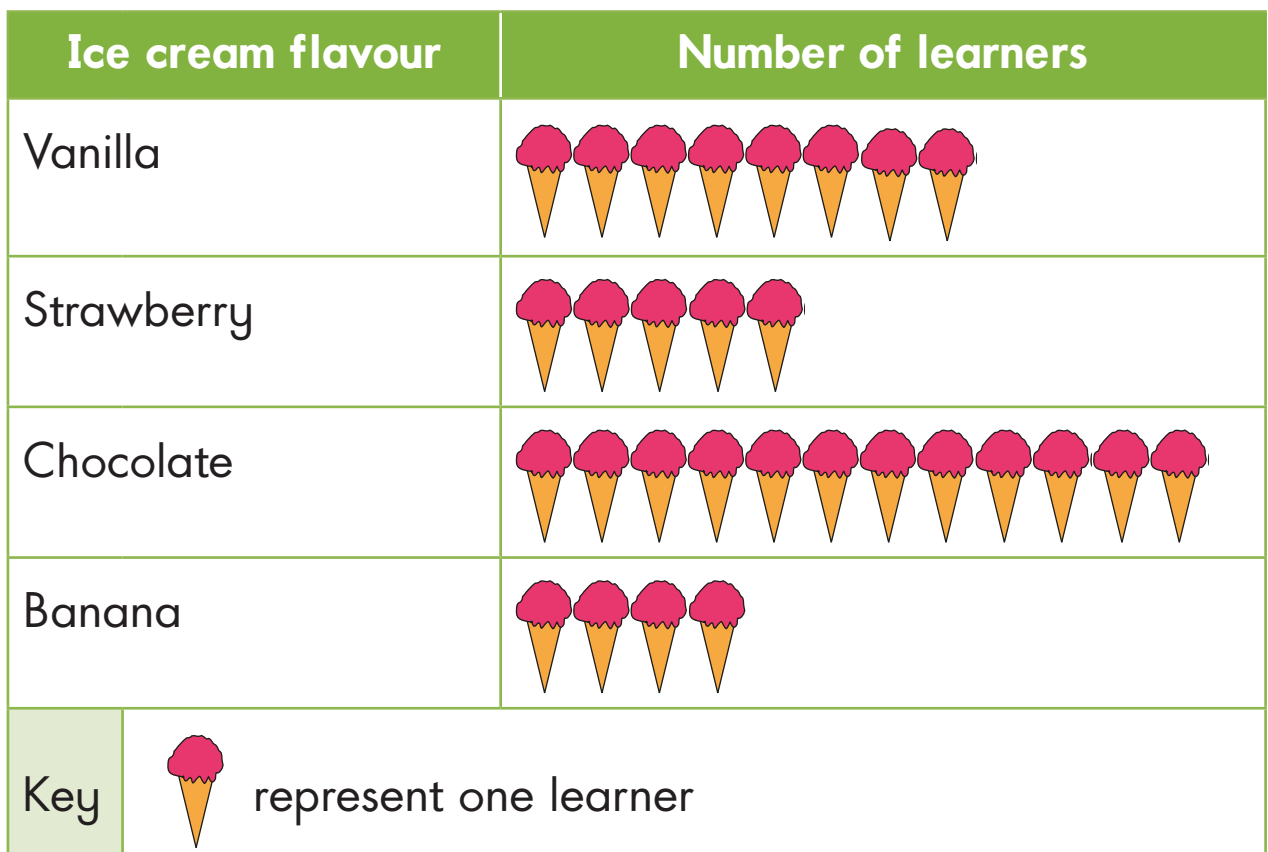
How would she need to change the recipe so that she has enough custard for 6 people?

Data handling

After you collected data you can use a pictograph to visually display the data. You can then analyse the data to draw conclusions.

Activity 22

1. The pictograph shows the favourite ice cream flavours of different learners.



- a) How many ice cream flavours are there?
- b) What is the most popular ice-cream flavour according to the survey?
- c) How many learners prefer strawberry as an ice cream flavour?

d) Lerato looked at the pictograph and says: 'Four more learners prefer vanilla ice-cream to banana ice-cream.' Do you agree with Lerato or not? Explain.

e) How many learners took part in the survey?

2. Collect data in your class about the learner's favourite ice cream flavours. Represent your data in a pictograph.



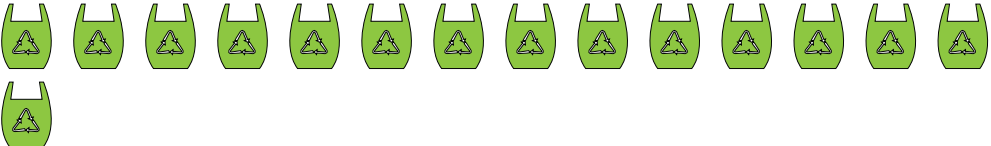



3. Choose one of the following topics and follow the instructions.

A	Choose five colours and ask each learner to name his or her favourite colour.
B	Choose five different types of cooldrinks and ask each learner to name his or her favourite one.
C	Choose five types of food and ask each learner to name his or her least favourite one.

a) Choose a question to ask about the topic you have chosen. For example, which of these five fruits is your favourite?

b) Collect the information, organise and summarise the data in a pictograph.

4. Five learners recycle bags. Study the pictograph and answer the questions.

Santo	
Vuyo	
Ronaldo	
Dinato	
Andrew	
Key	 1 bag

- How many bags did Santo recycle?
- How many bags did Dinato recycle?
- How many more bags did Ronaldo collect than Vuyo?
- How many bags did Ronaldo and Andrew collect together?
- How many plastic bags were recycled by the five learners altogether?