MATHEMATICS

Block 3

2nd Level
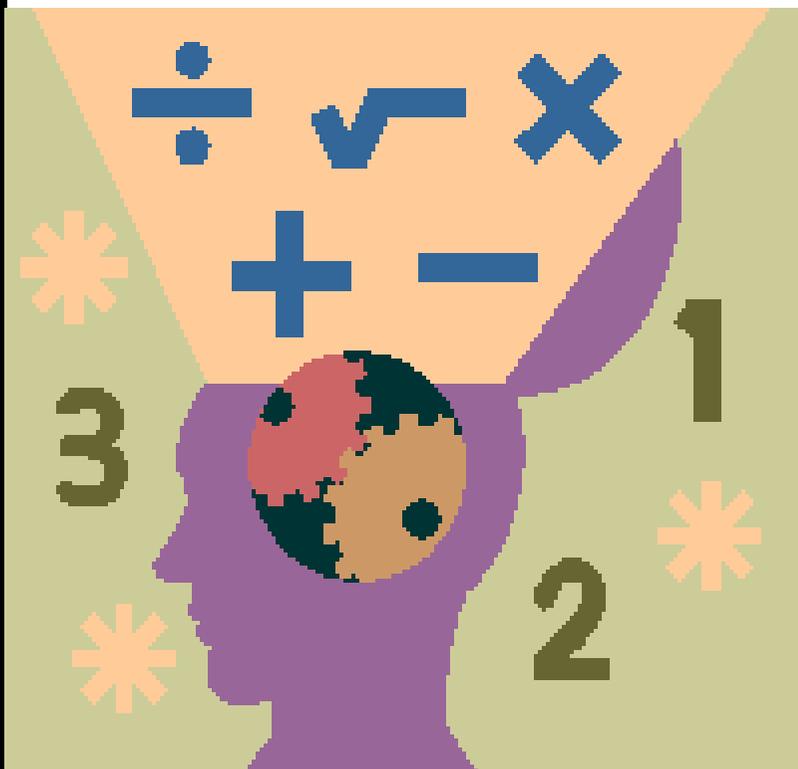
Time

Exercise 1: Telling the Time

1   Write down the time on each of these clocks

a

b

c

d

e

f

2   Write down the time in words from these digital clocks

a

6:20

b

10:10

c

9:30

d

1:25

e

12:45

f

11:35
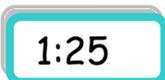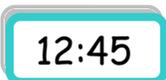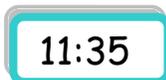
3   Write these times in numbers as on a digital clock

    a Four o'clock   **b** Half past five   **c** Ten past three

    d Seven minutes past two **e** Quarter past one   **f** Twenty to six

    g Quarter to eleven   **h** Ten to midnight   **i** Twenty-five to one

    j One minute to nine   **k** Seven minutes to six **l** Eight minutes past two

Exercise 2: Using a.m or p.m

Using a.m or p.m is how we know if it is morning or night. For example 8 o'clock in the morning is 8:00am; 8 o'clock at night is 8:00p.m.

1 Write down each time using a.m or p.m (as it would appear on a digital clock)

    a Nine o'clock in the morning   **b** Half past ten at night

    c Quarter to ten at night   **d** Quarter to eight in the morning

    d Ten past one in the afternoon   **e** Twenty to four in the morning

2 Write these times in words

    a 3 p.m   **b** 5:25 a.m

    c 1:05 a.m   **d** 3:20 p.m

    d 9:45 p.m   **e** 11:40 p.m

    f 6:15 p.m   **g** 9:35 p.m

3 Write down the time on each clock using a.m or p.m

    a In the evening   **b** Before school   **c** After dinner

    d After school   **e** In the middle of the night   **f** Afternoon

Exercise 3: 12 and 24 Hour Time

24-hour time

| 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 |
| a.m. | p.m. |
| 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 |

12-hour time
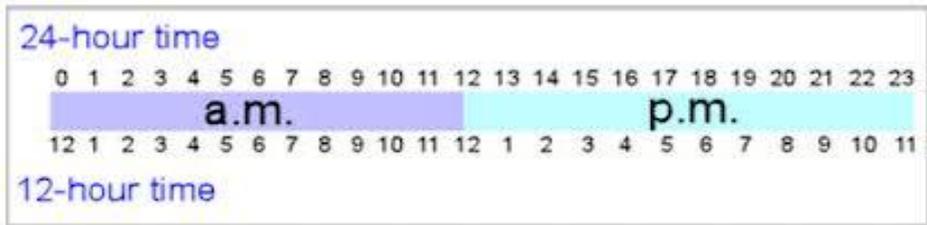
Use this timeline to help you answer the following questions

1   Change each time to 24 hour clock time

    a 5:00a.m   **b** 5:00p.m   **c** 2:00p.m

    d 7:30a.m   **e** 9:40p.m   **f** 11:25a.m

    g 2:20p.m   **h** 12:15p.m   **i** 10:10p.m

    j 3:00p.m   **k** 7:30p.m   **l** 11:25p.m

2   Change each time to 12 hour clock time

    a 05:00   **b** 16:00   **c** 02:00

    d 07:30   **e** 13:24   **f** 17:05

    g 15:24   **h** 01:45   **i** 06:55

    j 20:10   **k** 22:15   **l** 23:32

Exercise 4: Time Intervals

1 Work out how many hours have passed from:

  a 9:00a.m to 10:00a.m   **b** 7:00a.m to 11:00a.m

  c 11:30a.m to 1:30p.m   **d** 12:10p.m to 4:10p.m

  e 3:15p.m to 8:15p.m   **f** 4:05p.m to 2:05a.m

2 Work out how many minutes have passed from:

  a 9:00a.m to 9:25a.m   **b** 7:40a.m to 7:55a.m

  c 11:30a.m to 11:45a.m   **d** 12:10p.m to 12:55p.m

  e 3:15p.m to 3:50p.m   **f** 4:05p.m to 4:22p.m

  g 1:10a.m to 1:38a.m   **h** 14:55 to 15:10

  i 20:50 to 21:10   **j** 03:42 to 04:15

  k 22:05 to 23:00   **l** 23:21 to 00:06

3 Work out how many hours and minutes have passed from:

  a 9:00a.m to 10:30a.m   **b** 8:30a.m to 11:00a.m

  c 10:30a.m to 11:45a.m   **d** 12:00p.m to 3:30p.m

  e 3:15p.m to 6:45p.m   **f** 4:15p.m to 8:45p.m

  g 1:10a.m to 6:30a.m   **h** 14:55 to 17:10

  i 20:50 to 22:15   **j** 03:42 to 07:15

  k 21:05 to 23:07   **l** 20:20 to 00:06

4 The following programmes were shown on a TV channel one evening.

6.00 pm   News Report

6.30 pm   Local News

6.45 pm   Scenes from Soaps

7.15 pm   European Football Live

10.00 pm   Film – *The Curse of Pi*

11.30 pm   Evening News

11.45 pm   Wee Brother

a How long does 'Scenes from Soaps' last?

b Brian plans to watch 'Scenes from Soaps', European Football, and also the film. How long does he plan to spend watching television?

c Due to extra time in the football, all programmes are delayed by 30 minutes. When will 'Wee Brother' start now?

Exercise 5: Timetables

1 Here is part of a bus timetable.

Stonehouse	0900
Larkhall	0915
Hamilton	0940

a What time does the bus leave Stonehouse?

b What time does the bus arrive at Larkhall?

c How long is the journey from Stonehouse to Larkhall?

d What time does the bus arrive in Hamilton?

e How long was the journey from Larkhall to Hamilton?

2   Here is part of a train timetable.

a   What time does the train leave Larkhall?

b   What time does the train arrive at Rutherglen?

c   How long is the journey from Larkhall to Rutherglen?

Larkhall	**1010**
Hamilton	**1017**
Rutherglen	**1031**
Glasgow Central	**1050**
SECC	**1105**

d   What time does the Train arrive in Glasgow?

e   How long was the journey from Larkhall to SECC?

3   Here is part of a train timetable.

a   What time does the train 1 leave Hamilton?

b   What time does the train 2 arrive at Partick?

c   How long is the journey from Motherwell to Hamilton?

	Train 1	Train 2
Motherwell	**0832**	**1002**
Hamilton	**0842**	**1012**
Blantyre	**0847**	**???**
Glasgow	**0905**	**1035**
Partick	**0912**	**???**

d   How long is the journey from Hamilton to Blantyre?

e   What time does the train2 arrive in Blantyre?

f   How long is the journey from Glasgow to Partick?

e   What time does the train2 arrive in Partick?

Exercise 6: Time Problems

1   Milly had an appointment at Dr. Smith's office yesterday at 11:30 a.m. The doctor called her into his office right on time. She was out of there 25 minutes later. What time did Milly leave the doctor's office?

2   Hassan stopped at Ella's Soup and Salad for lunch. He stayed there until he had to leave to meet his friend, William, at the library. They were meeting at 1:30 p.m. The library is a 20-minute walk from Ella's. What time did Hassan have to leave the restaurant in order to get to the library right on time?

3   Bethany and Joe are going to march in the big city parade on Saturday. They have to be at the parade an hour before it starts. The parade kicks off at 11 a.m. If it takes 25 minutes to walk to the starting point of the parade, what time will Bethany and Joe have to leave home in order to be there right on time?

4   Rory, the owner of Rory's Cookie Jar, has to bake 12 large pans of chocolate chip cookies before he leaves for the day. He can bake two pans of cookies at a time. Rory knows that for perfect cookies each pan must bake for 15 minutes -- no more, no less. If he starts baking at 5:45 p.m., what is the earliest he can close up shop?

5   James has a busy day planned today. He will meet his friend, Ben, at the skate park. That is a 15-minute walk from home. They will stay at the skate park for an hour. Then they will take a 10-minute walk over to the shops. The first thing they will do there is to grab a hot dog from Brittany's Burger Bar. If James left home at 10:00 a.m., what time did he and Ben get in line for a hot dog?

6   Class 4 were doing a writing assessment and the children were allowed 45 minutes to write a short story. If the test started at 11.10 a.m., what time did it finish?

7   It takes 15 minutes to walk to St Lawrence Church. Father Michael has asked us to be there at 10.20 a.m. At what time must we leave school?

8   On Wednesday, Mark arrived for P.E. at 2.12 p.m. He wants everyone to be changed in 10 minutes. At what time should the children be ready to go outside?

9   It takes Mrs Jones 18 minutes to drive to school. If she leaves home at 7.40 a.m. at what time will she arrive?

10   Last Wednesday, the road was flooded and Mrs Jonest wasdelayed by 10 minutes. If she left home at 7.45 a.m. when did she reach school.

11   Sandra runs the after school club from 3.15p.m. until 6.p.m. how long is the club open each day?

12   It takes 10 minutes to drive to Southam. Mrs Privett left school at 1.15p.m. and drove to Southam. She spent 35 minutes shopping and then drove straight back. At what time did she get back to school?

Perimeter, Area and Volume

Exercise 1

1 Find the perimeter of each shape:

a

7cm

5cm

b

4cm

c

3cm

1cm

d

9cm

4cm

e

7cm   7cm

6cm

f

9cm

g

9cm

6cm

13cm

7cm

15cm

h

2cm

6cm

??cm

5cm

??cm
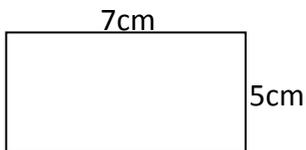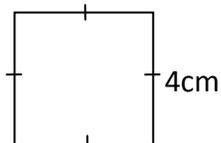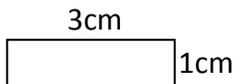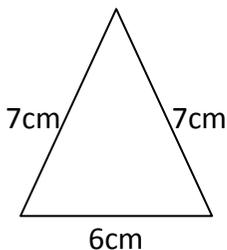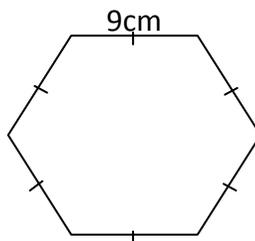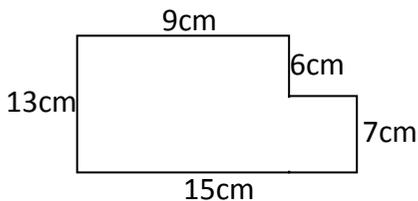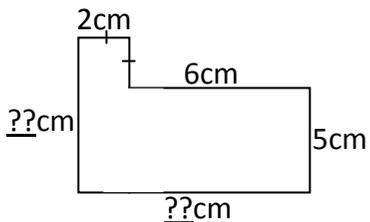
Exercise 2
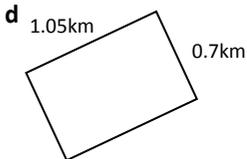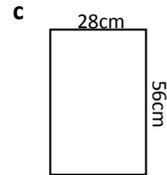
1   Find the area of each rectangle by counting the squares:

a

b

c

d
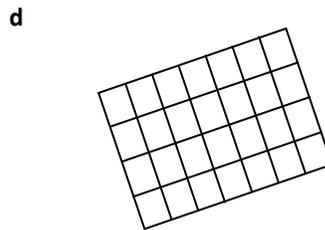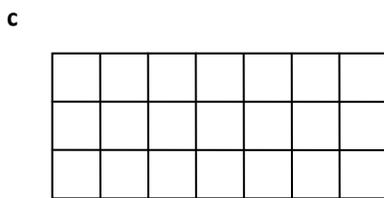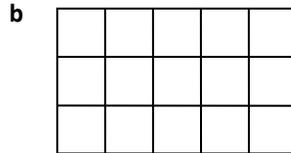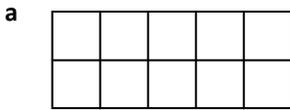
2   Write down a formula for finding the area of a rectangle (your teacher will help you). Using this formula calculate the area of the following rectangles: (Hint: A = __x__)

a   6cm / 4cm

b   5cm / 3cm

c   3cm / 4cm

**d**   10m / 3m

e   2cm / 5cm

f   12cm / 2cm

**g** 2m | 9m

h 10km | 12km

i 9km | 5km
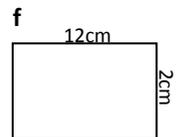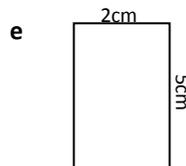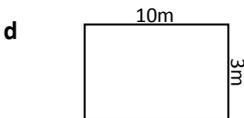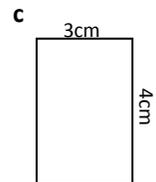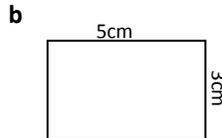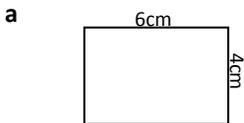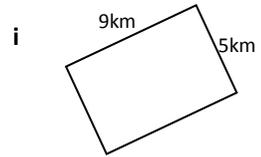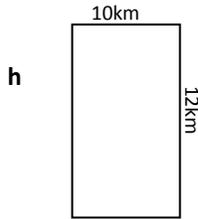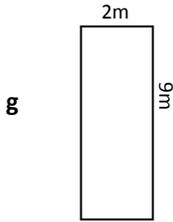
3 Work out the area of these rectangles (you can use a calculator)

a 1.5cm | 2.9cm

b 14.2cm | 10.8cm

c 28cm | 56cm

d 1.05km | 0.7km

e 3.9cm | 4.9cm

f 67cm | 54cm
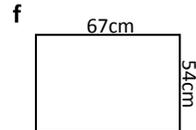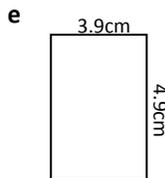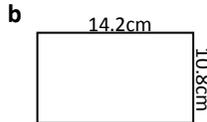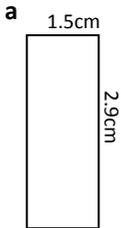
Exercise 3

1 Calculate the area of the rectangles below. The shaded areas are ½ of the total area of the rectangles. Calculate the shaded areas. Can you notice a rule for calculating the area of a **right angled triangle?**

a 10 | 8

b 7 | 20

c

10

8

d

3

10

e

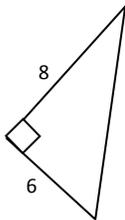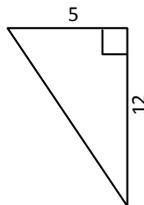

6

3

f

4

6

g

20

4

h

5

10
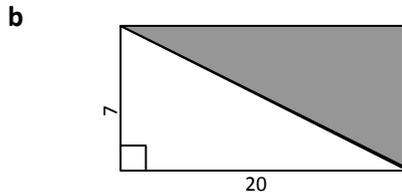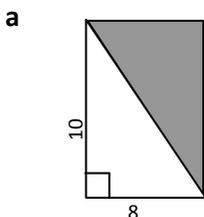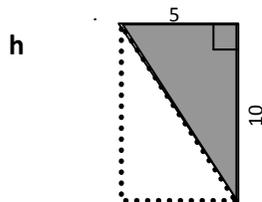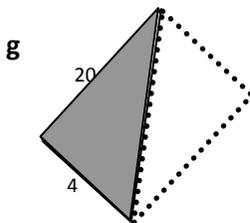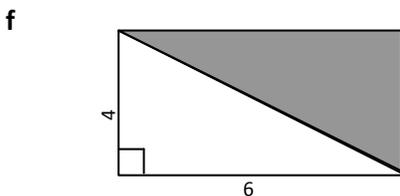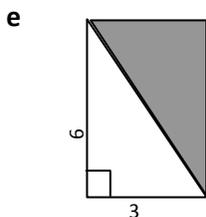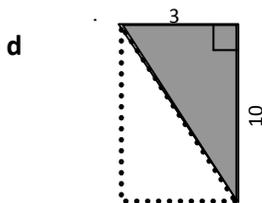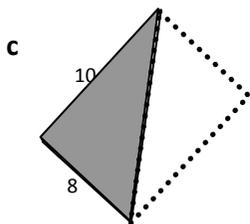
2 Write down a formula for finding the area of a triangle (your teacher will help you). Using this formula calculate the area of the following triangles:
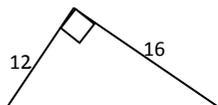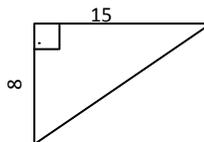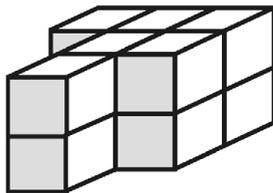
a.

4

3

b.

5

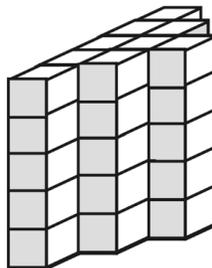6
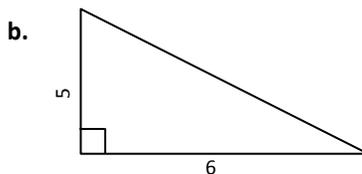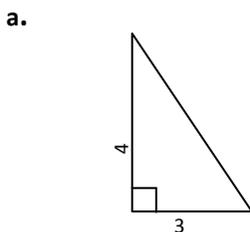
c

d

e

f

Exercise 4

1   Find the volume of these shapes (all lengths are in cm unless otherwise stated)

a

b

c
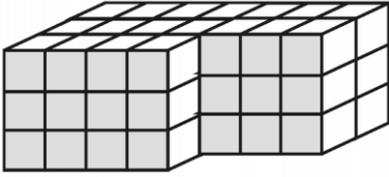
d
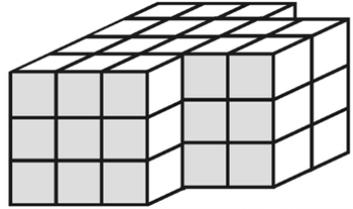
e
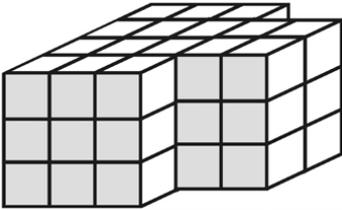
2 By considering how many cubes there are in each layer and how many layers there are can you come up with a formula for finding the volume of a Cuboid given the three dimensions? (your teacher will help you)

(Hint : V = ___ x ___ x ___)

3   Calculate to volume of each shape
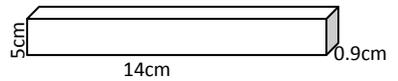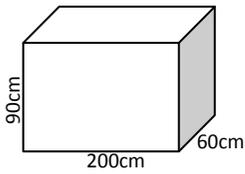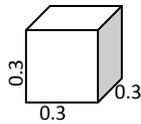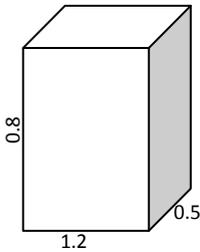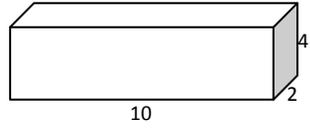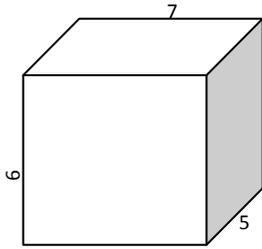
Information Handling

Exercise 1 Tables

1 Fill in the number section in the woodland table.

Creature	Tally	Number
Wood ant	⊥⊥⊥⊥⊥⊥⊥|	
Woodlice	⊥⊥⊥⊥⊥⊥⊥|||	
Small fly	|||	
Caterpillar	||	
Slug	||||	
Snail	|	

Fill in the tally section in the heathland table

Creature	Tally	Number
Wood ant		2
Woodlice		4
Small fly		7
Caterpillar		8
Slug		5
Snail		4

a Which minibeasts are the most common in woodland?

b Which minibeasts are least common in heathland?

2 Shoppers in the supermarket were asked in a survey which was their favourite fruit. Here is a list of their responses.

Banana	Apple	Banana	Banana	Grape
Orange	Apple	Apple	Strawberry	Orange
Apple	Banana	Orange	Orange	Strawberry
Banana	Banana	Grape	Apple	Apple
Apple	Orange	Strawberry	Strawberry	Apple

Copy this Tally Chart into your jotter and use the list above to complete it.

FRUIT	TALLY	TOTAL
Apple		
Banana		
Grape		
Orange		
Strawberry		

Then use the information in the tally chart to answer the questions below in your jotters.

Which fruit was the most popular?

a   Which fruit was the least popular?

b   Which two fruits were preferred by the same number of people?

c   How many more people preferred Apples to Grapes?

d   How many fewer people preferred Strawberries to Bananas?

e   How many people were surveyed all together?

f   Order the fruits from most popular to least popular?

3 A children's shoe shop took a survey of their customers shoe size over one day. Here is a list of their responses.

4	2	2	2	1	3	1	2	2
3	4	1	2	3	2	2	1	1
3	1	3	5	1	2	3	4	2
1								

Copy this Tally Chart into your jotter and use the list above to complete it.

| Shoe Size	TALLY	TOTAL
Size 1		
Size 2		
Size 3		
Size 4		
Size 5		

Then use the information in the tally chart to answer the questions below in your jotters.

a Which shoe size was most popular?

b Which shoe size was the least popular?

c What was the largest shoe size?

d What was the smallest shoe size?

e How many more children had size 2 shoes than had size 4 shoes?

f How many fewer children had size 5 shoes than size 1 shoes?

g How many customers did the shop have on the day of the survey?

h Order the shoe sizes from most popular to least popular?

Exercise 2 Bar Graphs

1 This graph shows the number of hours the sun shone on different days in a week.

a On which day did the sun shine longest?

b On which day did the sun shine for 3 hours?

c For how long did the sun shine on Sunday?
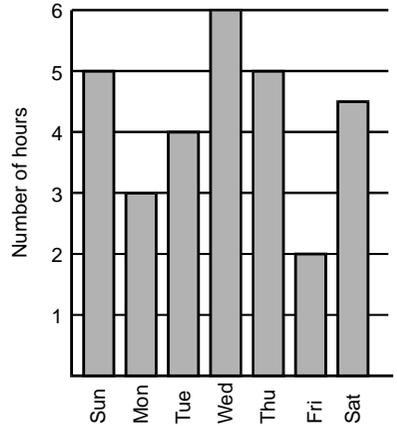
2 This graph shows the amount of pocket money given to various pupils.

a How much money was Ian given?

b How much money was Mary given?

c Which BOY received least money?

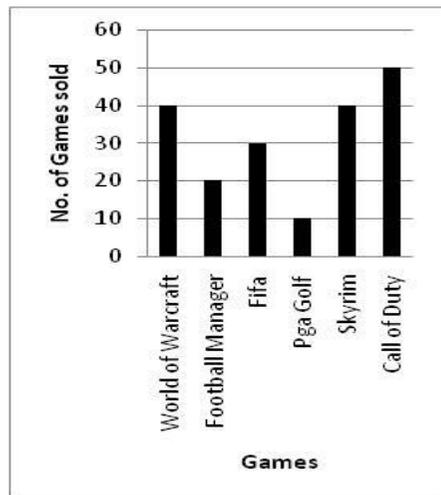**d** How many pupils are shown on the graph?
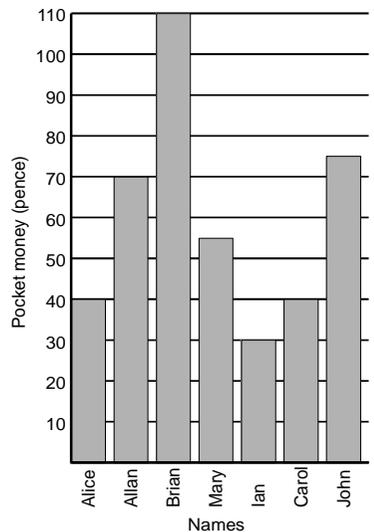
3 This graph shows which sandwiches were sold in Subway during Friday lunchtime.

   a   Which flavour sold 2 sandwiches?

   b   How many steak and cheese sandwiches were sold?

   c   Which sandwich was the most popular?

   **d**   How many sandwiches in total were sold?
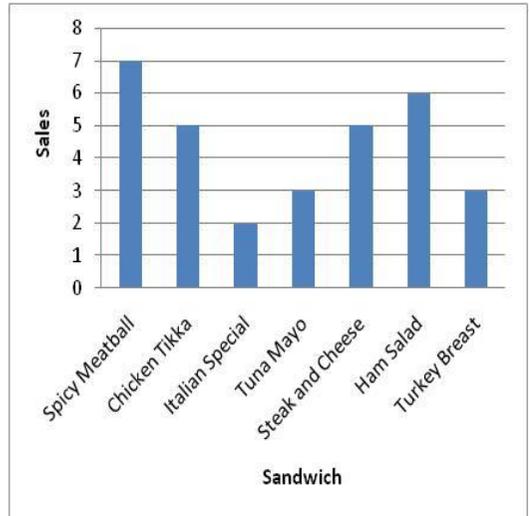
4 This graph shows the different X Box 360 games bought one week in HMV.

   a How many Fifa games were bought?

   b Which 2 games sold exactly 40 copies?

   c Which game sold the least?

   **d** What was the total sale of all these games?

5 In a survey the number of pupils coming to Larkhall Academy by school bus was recorded. The information is shown on the graph below.

a How many pupils were on the bus from Ashgill?

b Which bus had the most pupils?

c How many pupils in total used the buses that day?

d The buses from Crosshouse and Netherburn were held up in traffic. How many pupils arrived late because of this?
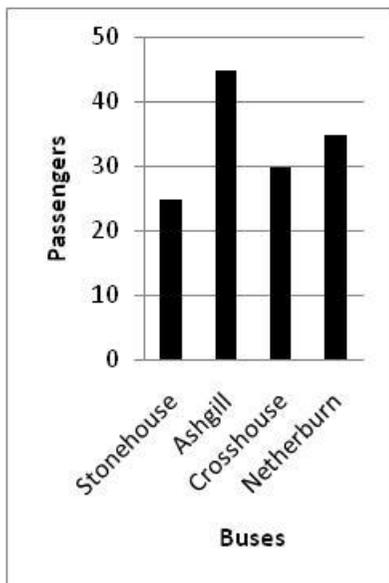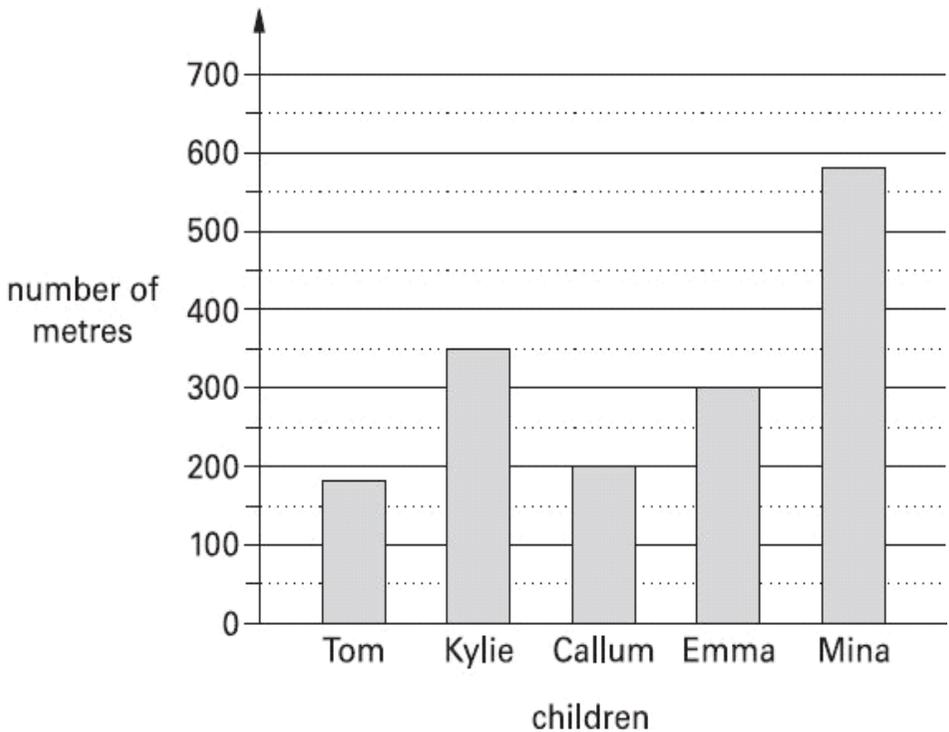

6 Some children collect cans for recycling.
Here is a chart of how many cans they collect in the first week.
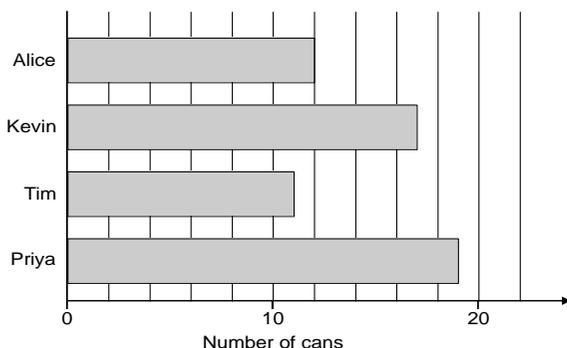
a How many cans has Kevin collected?

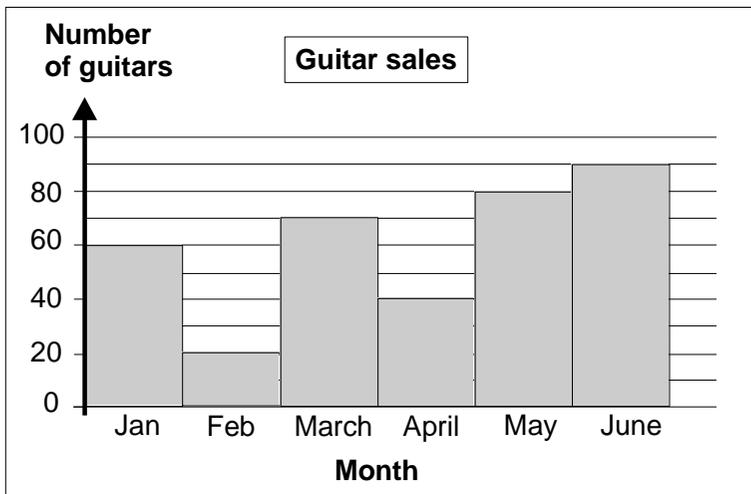**b** Alice's **target** is to collect **30** cans. How many **more** cans does Alice need to reach her target?

7   This graph shows the distance some children walk to school.

a Who walks **between** 300 and 400 metres to school?

b **Estimate** how many metres Tom walks to school.
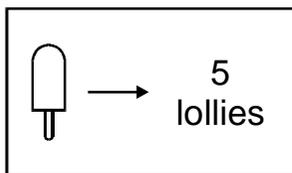
8   Here is a graph of guitar sales.
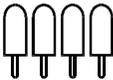

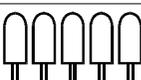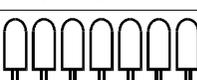The table below shows the **change in sales** from month to month.

Use the graph to complete the table.

Change in Guitar sales	
January to February	Down 40
February to March	Up 50
March to April	
April to May	Up 40
May to June	

Exercise 3 Pictographs

1

	5 lollies

Number of lollies sold	
Monday	🍭🍭🍭
Tuesday	🍭🍭🍭🍭
Wednesday	🍭🍭
Thursday	🍭🍭🍭
Friday	🍭🍭🍭🍭🍭
Saturday	🍭🍭🍭🍭
Sunday	🍭🍭🍭🍭🍭🍭🍭
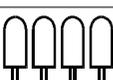
a How many lollies were sold on Monday?

b How many more lollies were sold on Tuesday than on Wednesday?

2   A shop sells different kinds of greeting cards.

This pictogram shows how many they sold in a week.
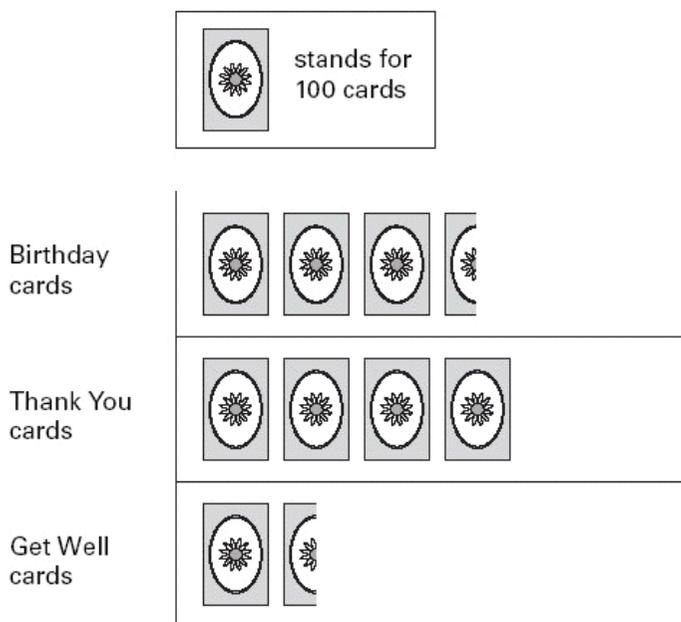
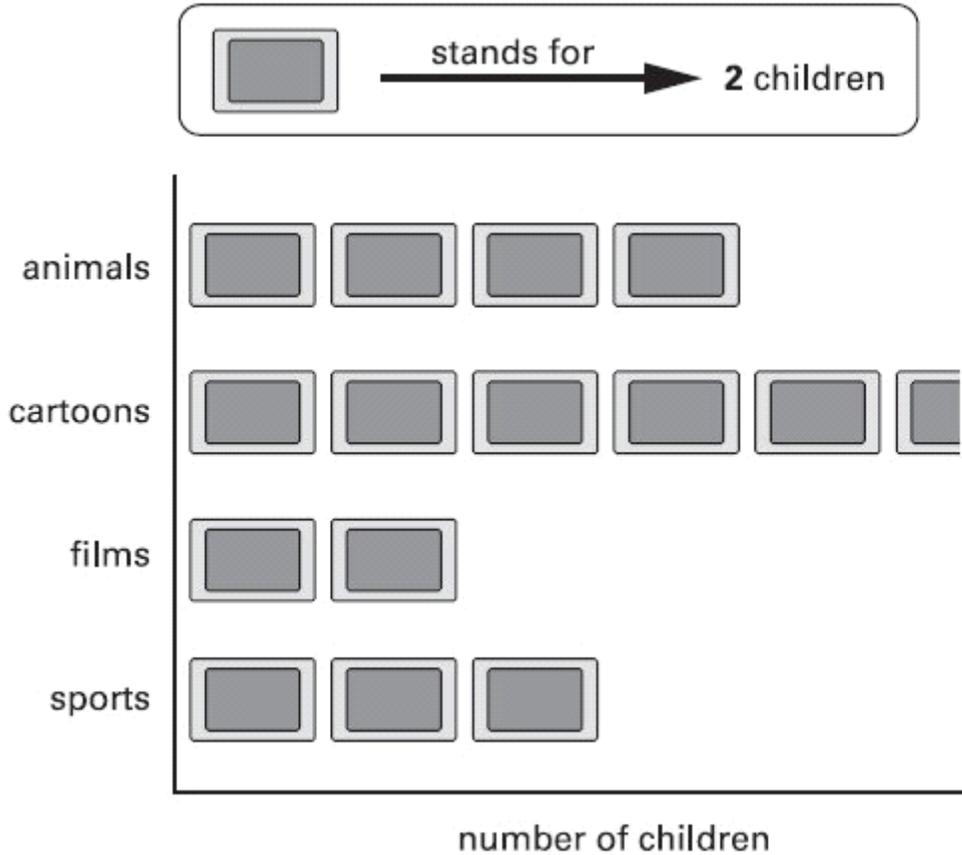**a** Estimate how many Birthday cards were sold.

b Estimate how many more Thank You cards than Get Well cards were sold.

3   Kiz asked each child in his class,

'What kind of television programme do you prefer to watch?'
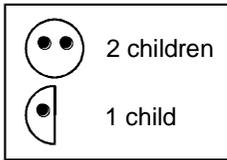
Here are his results.

a How many **more** children prefer to watch cartoons than films?

b How many children were in the class?

4 **Class survey of favourite fruit drinks**

flavour	number of children
pineapple	2
orange	10
blackcurrant	8
grapefruit	6
apple	9

a Complete the pictogram for the class.

**b** How many children altogether chose the three most popular flavours?

Exercise 4   Line Graphs

1 The graph shows the temperature measured over a 24 hour period.

    a   What was the highest temperature recorded?

    b   What was the lowest temperature recorded?

    c   What was the temperature at 12 noon?

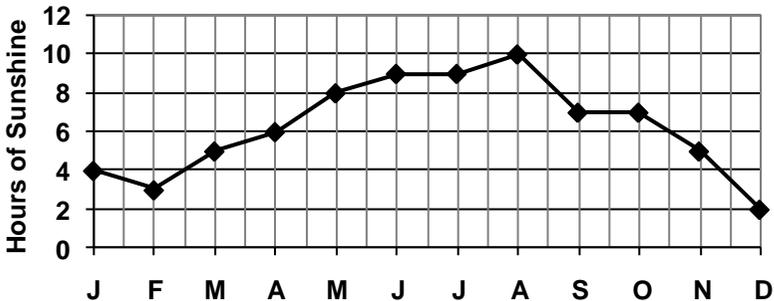   **d**   How much did the temperature drop between 1pm and 8pm?
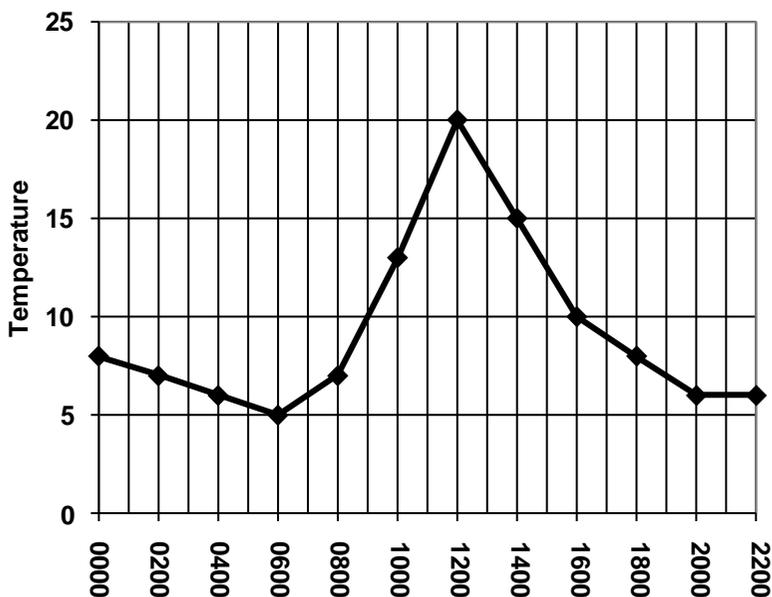
2 The graph shows the average monthly rainfall in
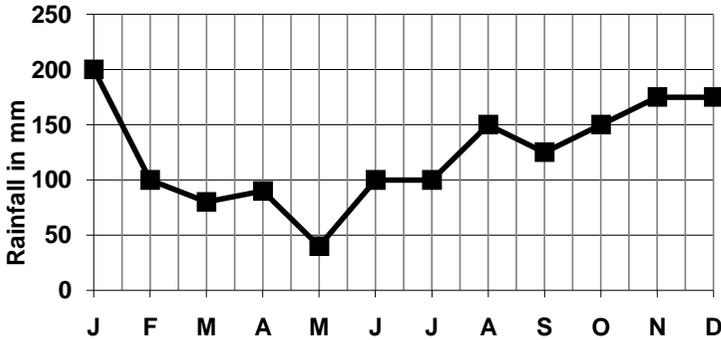
a Which month was the driest month of the year?

b Which month was the wettest month of the year?

c What was the rainfall in July?

d What was the total rainfall from January to March?

**3** The graph shows the hours of sunshine during the summer in Glasgow.

a Which month was the sunniest?

b In which month was there 8 hours of sunshine?

c Between which two months was the biggest increase?

4   A lorry travels **10 miles** on every **1 litre of diesel**.

   a Complete the table below:

Diesel (litre)	1	2	3	4	5	6	7	8
Distance (miles)								

   b Copy the set of axes below, plot the points from the table and draw a straight line through them with your ruler.
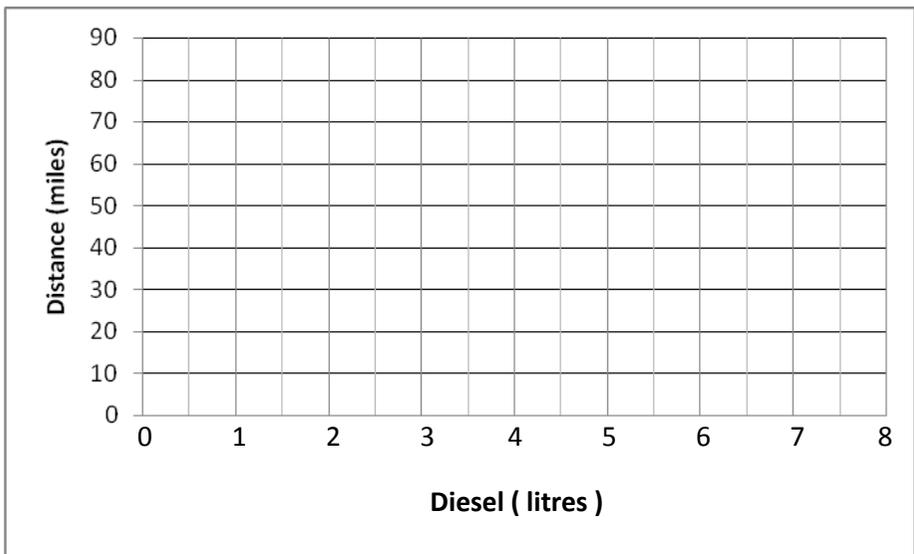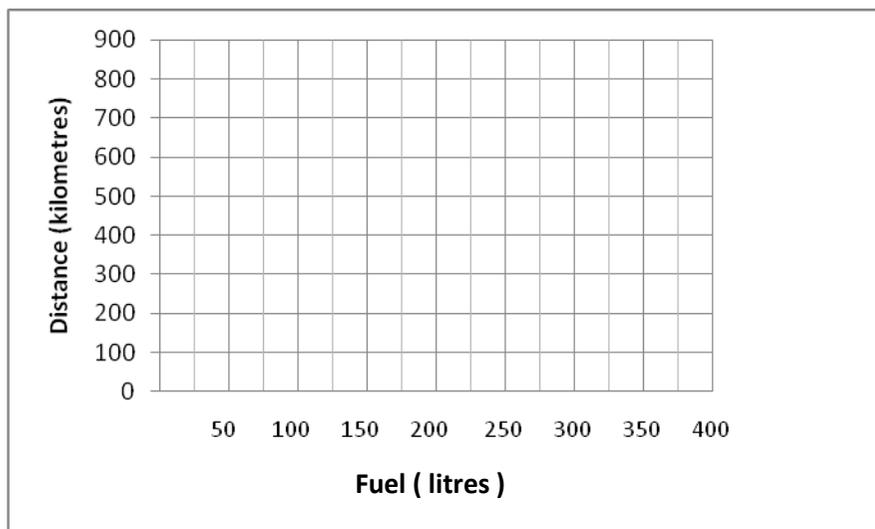
5   An aeroplane travels an average distance of **2 kilometres** on **1 litre of fuel**.

a   Complete the table below

Fuel (litres)	50	100	150	200	250	300	350	400
Distance (kilometres)	100		300					

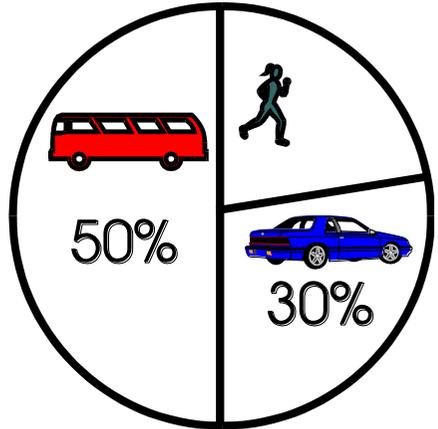**b**   Copy the set of axes below, plot the points from the table and draw a straight line through them with your ruler.

Fuel (litres)

Distance (kilometres)
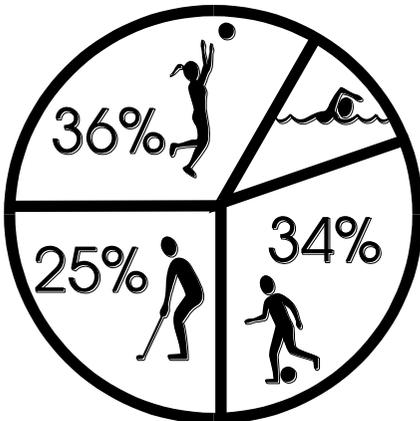
Exercise 4 Pie Charts

1   This pie chart shows how a group of pupils come to school.

What percentage of pupils come by

a   Bus

b   Car

c   Walking?

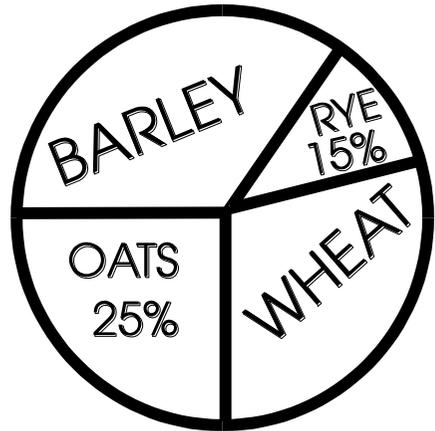**d**   What are the benefits of walking to school?

2   This pie chart shows the favourite sport of some pupils.

What percentage of pupils have **swimming** as their favourite sport?

3   This pie chart shows the different ingredients of a breakfast cereal.

There is the **same amount** of barley and wheat in the cereal.

What percentage of the cereal is barley?

4   The pie chart shows the holiday arrangements for a group of people.

a) What percentage went touring if **touring** had **10% fewer** people **than seaside?**

b) If **camping** and **at home** have the same percentage then what is the percentage that stayed **at home**?