Heinemann

active maths

Pupil Book 5
Time and Measure

Contents

Time problems

The time is shown on the clock.
Write how long it is until the event.

1 **7:00** School starts at 9 o'clock

2 School play at 6 o'clock

3 **4:30** GUIDE Cartoons at 7:30

4 **07:30** Bus leaves at 11:30

5 Shop opens at 2:00

6 **10:30** Wedding starts at 3:30

Make up problems like these for your partner to do.

Write the time two hours later.

7 **06:00**

8

9 **8:30**

10 **2:30**

I can solve problems about o'clock and half past times

3

Quarter past, quarter to

The boats have to go back at different times. Write the time which matches each clock.

7. quarter past 2

1. 2:15

2.

3.

4.
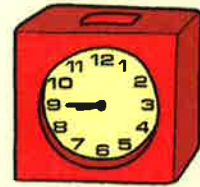
5. 5:45

6.

quarter past 7

quarter past 10

quarter past 4

quarter past 2

quarter to 6

quarter to 9

Write the times, in order, starting at quarter past 2.

Write these times.

7. quarter to 2

7. 1:45

8. 12:15

9. 6:15

10. 11:45

I can solve problems about quarter to and quarter past times

15 minutes

Monsters take quarter of an hour to eat their meal. These are the starting times. When do they finish?

1. quarter to 3

1

2 7:00

3

4
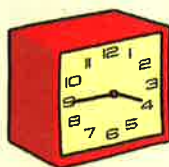
5 10:15

6

Monsters sleep for half an hour after their meal. These are the times when they fall asleep. Write what the alarm clock shows when they wake up.

7. 430

7 4 o'clock	8 half past 6	9 11 o'clock
10 half past 10	11 quarter past 3	12 quarter past 9
13 quarter to 1	14 half past 8	15 quarter to 7

Monster number 15 wants to sleep until 8 o'clock. The 'snooze' button goes off every 15 minutes. How many times must he hit the button?

I can solve problems about quarters of an hour

5 minutes

Write the number of minutes between each pair of clocks.

1

2

3

4

5

6

7 Sarah leaves home at quarter past 3. She arrives at 3:55. How long is her journey?
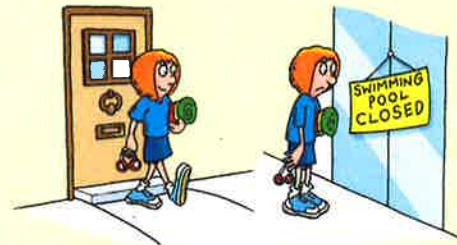
8 Pop Special starts at 9:45 and lasts for 25 minutes.
Then Quiz Bang is on for 30 minutes.
What time does Quiz Bang finish?

9 Greg needs to arrive at 8:30. It takes him 40 minutes to have breakfast and walk to school. What time should he start his breakfast?

Write your own story like these!
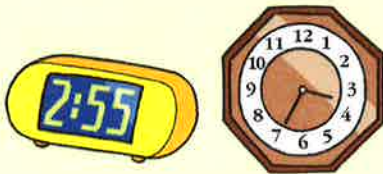
I can solve problems about time

5 minutes

Write each time:

1 15 minutes later

2 10 minutes earlier

3 20 minutes later

4 25 minutes later

5 35 minutes later

6 20 minutes earlier

Write each clock time 100 minutes later.

Write each digital time:

7. 3:25

7 15 minutes earlier   3:40

8 10 minutes later   4:55

9 25 minutes earlier   7:45

10 20 minutes earlier   7:10

11 15 minutes earlier   6:05

12 40 minutes later   3:50

I can solve problems about time

7

Minutes 'past' and 'to'
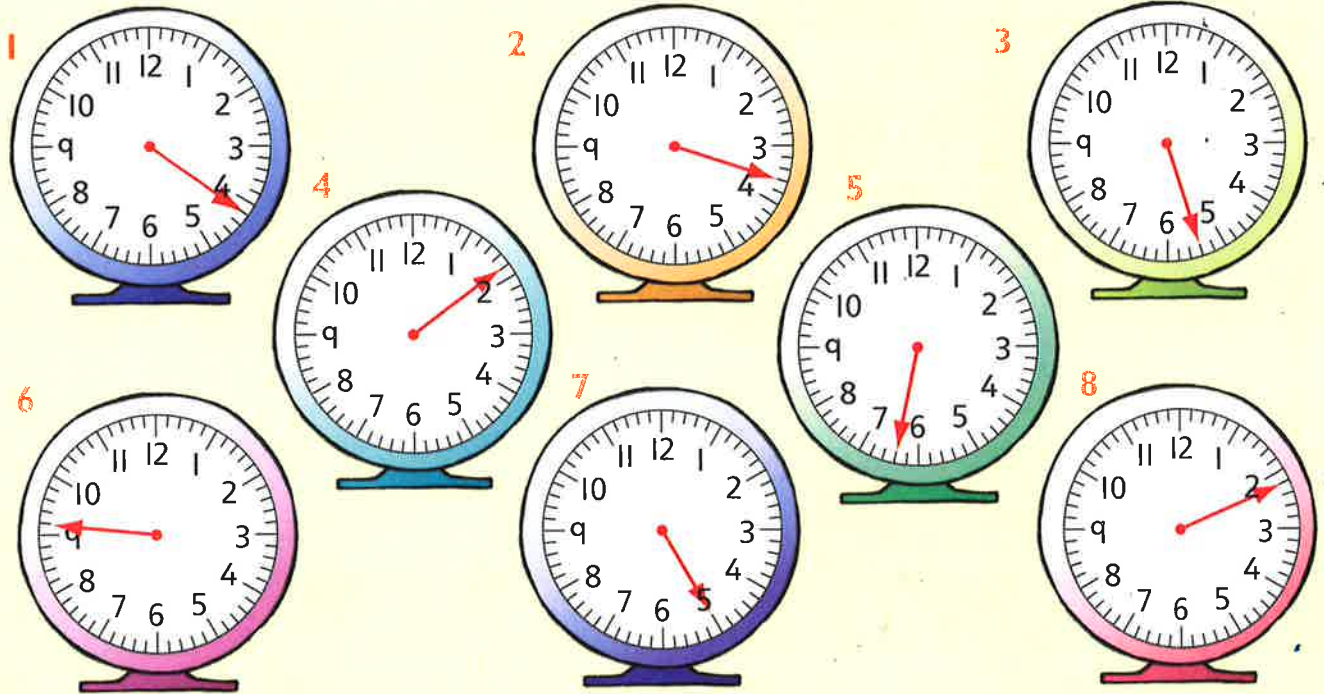
Write the number of minutes past each hour.

`1.2 1`

1

2

3

4

5

6

7

8

Write the number of minutes until the next hour.

`1.3 9`

Write what time it is right now. Now look at the clocks in the questions. Which one is closest to the time now? Which is furthest away?

9   Write these times in order, between 4 o'clock and 5 o'clock.

| 10 minutes past 4 | 19 minutes past 4 | 11 minutes to 5 |

quarter to 5   26 minutes to 5
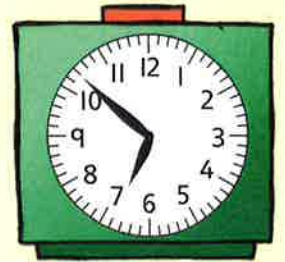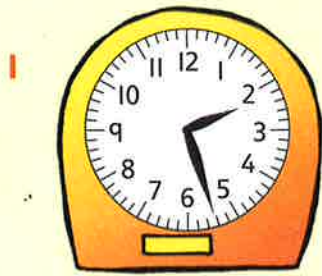
quarter past 4   20 minutes to 5

I can solve problems about time

8

Reading the time

Write the time for each clock using 'past' or 'to'.

1. 27 minutes past 2

1

2

3

4

5

Write the digital time to match each clock.

1. 2 2 7

Write these digital times:

6. 7 5 5

6 10 minutes later than
7:45

7 10 minutes earlier than
8:14

8 20 minutes later than
9:52

9 20 minutes earlier than
6:15
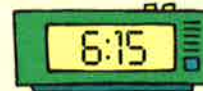
10 25 minutes earlier than
10:55

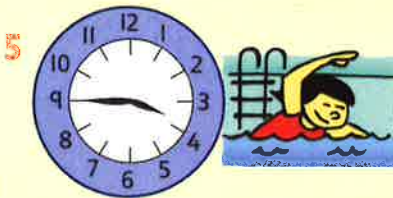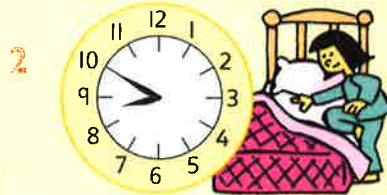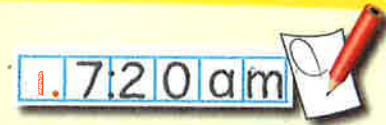**11** 15 minutes earlier than
4:07

Write the time you wake up. Write the time you go to sleep. How long are you awake? How long are you asleep?

I can read and write the time using minutes

9

am and pm

Write each time using am or pm.

1. 7:20 am

1 2 3

4 5 6

7 Jon wakes up at 7:45 am. He takes 12 minutes to wash and get dressed, 16 minutes over breakfast, then leaves for school. It takes him 9 minutes to walk to school. What time does he arrive?

Make up a story problem like this for your partner to solve.

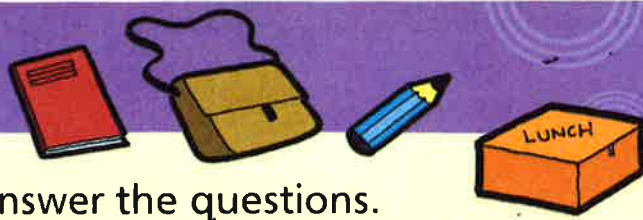Write these times using am or pm.

8. 6:00 am
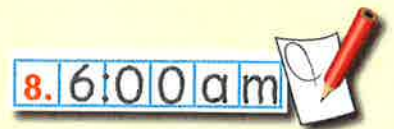
8 six o'clock in the morning

9 quarter to two in the afternoon

10 ten past eight in the evening

11 twenty past midnight

I can use am and pm times

Timetables

Look at the timetable. Answer the questions.

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00	English	Maths	English	Maths	English
10:45					
11:10	Maths	History / Geography	Maths	Science	Drama
12:20					
1:30	Art	English	RME	English	PE / Music
3:00					

1   What time is Science?   2   On which days do we have Maths?

3   How many times in the week do we have English?

4   Which lessons start at 1:30?   5   Which lessons last $1\frac{3}{4}$ hours?

6   Which are the longest lessons in the day? And the shortest?

7   How long do we spend doing English each week?

Work with a partner to write your own lesson timetable for the week.

3:00   go bowling
5:10   travel to cafe
5:20   start meal
6:45   travel to cinema
7:05   film starts
8:50   film ends

8   How long do we spend bowling?
9   Which part of the day takes longest?
10   How long do we spend travelling?
11   Which takes longer, the meal or the film?

I can interpret timetables

11

Timetables

1 Look at these facts. Draw up a timetable.

HYPERSPACE TOURS

Rocket leaves Moon	Rocket arrives at Mars	Rocket arrives at Jupiter
7:15 am	11:00 am	1:00 pm
9:00 am	12:20 pm	3:40 pm
3:00 pm	7:00 pm	10:00 pm
6:00 pm	12:00 midnight	7:25 am

2 Which is the quickest rocket to Mars?

3 What time do I reach Mars if I leave the Moon at 3:00 pm?

4 What is the latest time I can leave Mars to get to Jupiter?

5 Which is the slowest rocket to Jupiter?

6 Look at this timetable. Choose four journeys. Write how long each journey takes.

LONDON ▶ ALL DESTINATIONS   Monday to Saturday

Notes	London	Ashford	Calais	Lille	Brussels	Paris	Train
1	05:34	06:27				09:23	9078
1	06:10	06:59		08:56	09:37		9106
2	06:27	07:20		09:18	10:01		9108
	06:34	07:24	08:56			10:23	9002
1	07:09	07:59		09:56		10:59	9004
2	07:39	08:29				11:23	9006
	07:43				10:58		9112

I can interpret timetables

Timetables

1 Copy the timetable and fill in the gaps.
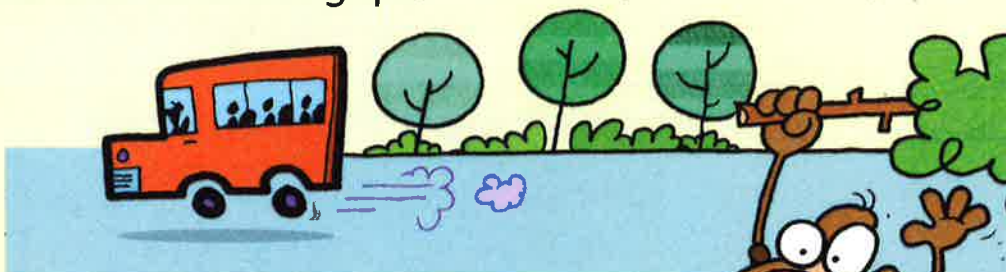
Tour timetable

Entrance	Zebras	Monkeys	Lions	Penguins
9:30	9:40	9:50	10:00	10:10
10:20	10:30			
12:15		12:35		
2:45			3:15	
4:05	4:15			

2 Draw up a timetable for the wardens using the information below.

We feed the tigers for an hour at 7:00 am and at 3:00 pm.

We clean out the tigers after we have fed them.

We give the baby tiger its vitamins at 10:00 am and at 5:00 pm.

It takes an hour to clean out the tigers.

It takes half an hour to provide fresh straw.

We provide fresh straw at 1:00 pm.

We shut the tigers in their house at 6:00 pm.

I can interpret timetables

13

Timetables

Look at the timetable. Answer the children's questions.

Glasgow	Perth	Inverness
8:40 am	9:30 am	11:50 am
11:40 am	12:30 pm	2:50 pm
1:30 pm	2:30 pm	5:00 pm

1 What time do we leave Glasgow to get to Inverness at 5:00 pm?
2 Which train is slowest from Perth to Inverness?
3 How long will it take to get from Glasgow to Perth if I take the 1:30 pm train?
4 How long will it take to get from Perth to Inverness on the 9:30 am train?
5 Which is the slowest train from Glasgow to Perth?
6 How long will it take from Glasgow to Inverness on the 1:30 pm train?

The railway from Perth to Inverness is being mended so all the journeys take an extra 10 minutes. What are the new times the trains arrive at Inverness?

7 The children are going home tomorrow. They have worked out a timetable to make sure they catch the train. Work out how long they have for each activity.

7:15	start getting up
7:35	start eating breakfast
7:55	start cleaning teeth
8:00	start packing bags
8:20	start walking to station
9:00	get on train

NEXT TRAIN

Work with a partner to write a timetable for your normal school morning.

I can interpret timetables

Which unit?

Write which unit of measurement you would use for each answer.

1. kilometres

millimetres centimetres metres kilometres
grams kilograms millilitres litres

1 How far is it to fly from Edinburgh to Paris?

2 How long is a millipede?
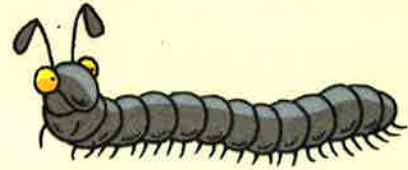
3 How heavy is a conker?

4 How much water is in a paddling pool?

5 What is the width of a football pitch?

6 How long is an ant?

7 How much pop is in a can of fizzy drink?

8 How heavy is a cow?

Make up a question like this for your partner to answer.

I can suggest a sensible unit to use

15

Metres and centimetres
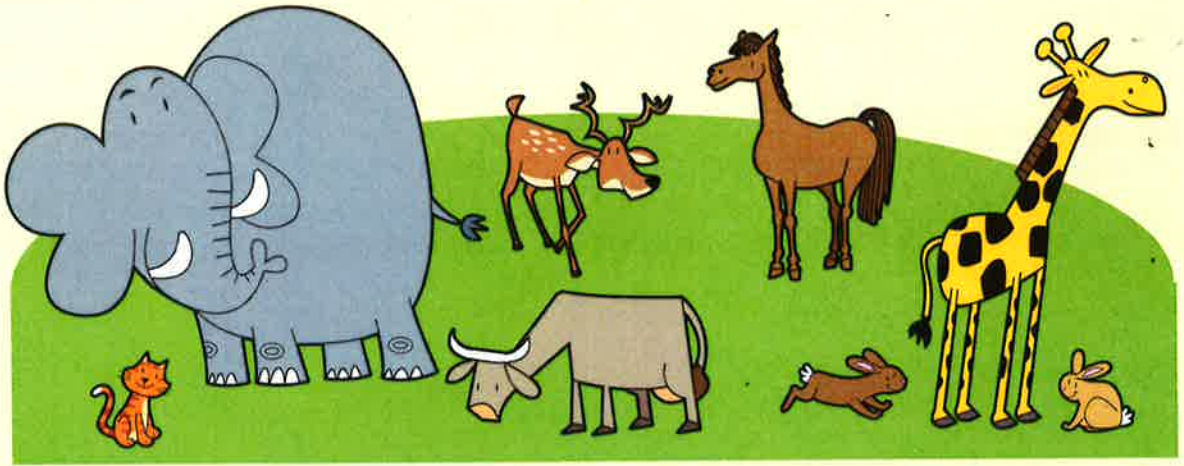
1   Write which animals are taller than I metre.

2   Write which animals are shorter than I metre.
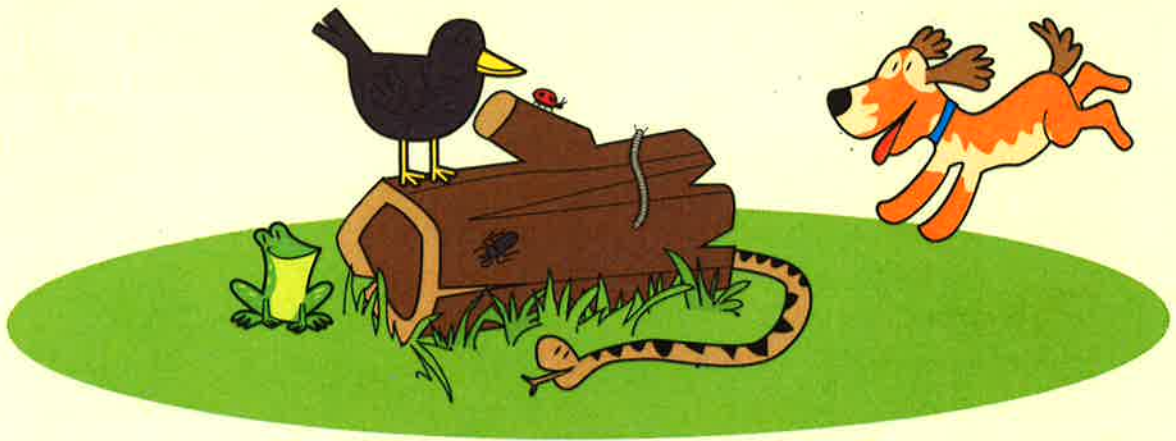
3   Write 3 animals which are longer than 10 centimetres.

4   Write 3 animals which are shorter than 10 centimetres.

Think of 10 animals and write them down. Put them in order of length.

I can talk about a metre and 10 centimetres

Units of length

Write which unit of length is best to use each time. **1. metres**

| millimetres | centimetres | metres | kilometres |

1 the length of a lorry

2 the width of a butterfly
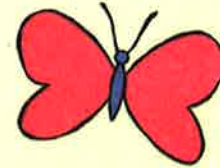
3 the length of a rabbit

4 the height of a ferris wheel

5 the length of a train journey

6 the depth of a jug

7 the thickness of a coin

8 the height of a giraffe

Now make up two problems like these for your partner to do.

I can choose a sensible unit of length

Centimetres

Write the length of each caterpillar in centimetres.

1. 5 cm

1
cm 1 2 3 4 5 6

2
cm 1 2 3 4 5

3
cm 1 2 3 4 5 6 7 8

4
cm 1 2 3 4 5
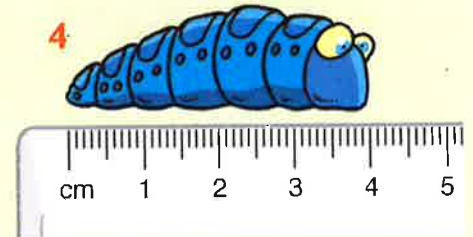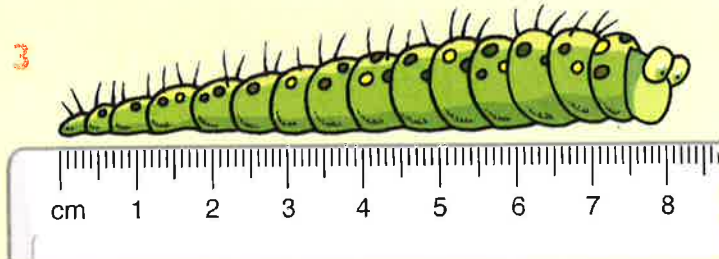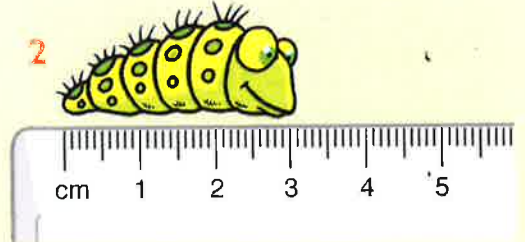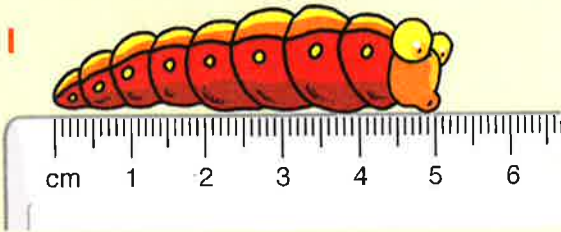
Estimate each pencil's length in centimetres.
Then use a ruler to measure it.

5. Estimate: 6 cm
Length: 7 cm

5

6

7

8

9

10

Draw a wiggly line more than 15 cm long.

I can estimate and measure using centimetres

18

Measuring length

You will need some measuring equipment and:

a shoe
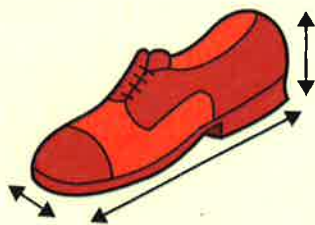
a jumper

a T-shirt

a trainer

1. the length of the shoe is .... cm

Measure:
1   the length of the shoe
2   the width of the shoe
3   the height of the shoe
4   the length of the jumper's sleeve
5   the width of the jumper's chest
6   the length of the T-shirt's sleeve
7   the width of the T-shirt's chest
8   the length of the trainer
9   the height of the trainer
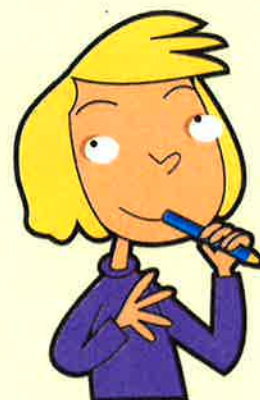
Which measurements did you find hard to do? Explain why they were hard.

I can use equipment to measure length

Grams and kilograms

Here are the weights of some items in a shop.

FLOUR 1 kg   I kg

BEANS   50 g

PLAIN CRISPS   35 g

Use the weight of the flour, beans and crisps to help you estimate the weights of these things.

1   SUPER WASH

2

3

4

5

6   MILK

7

8

Write how many of each will weigh I kilogram.

9. | 1 | 0 |
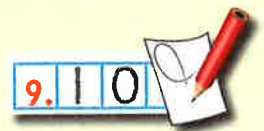
9   100 g

10   500 g

11   200 g

12   50 g

13   10 g

14   250 g

I can estimate using grams and kilograms

Weight

I.C

Match each pet with the correct scale.

1   2kg   900g

2   2kg   400g

3   4kg   400g

4   700g

5   9kg   600g

6   1kg   300g

7   6kg   800g

8   4kg   600g

9   2kg   300g

a 0   1kg   2k

b 0   1kg   2k

c 2kg   3kg   4k

d 4kg   5kg

e 2kg   3kg

f 3kg   4kg   5k

g 9kg   10k

h 2kg   3kg

i 6kg   7kg
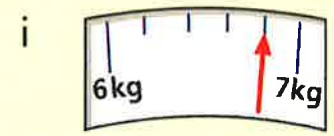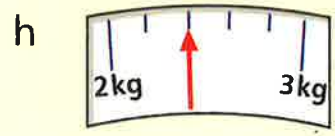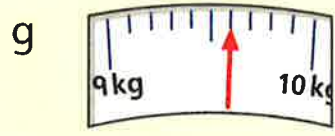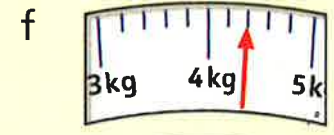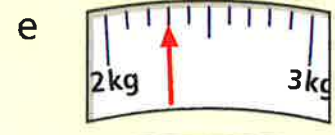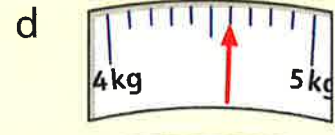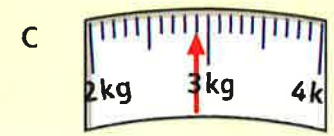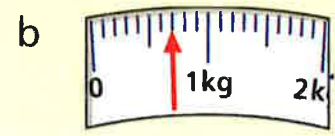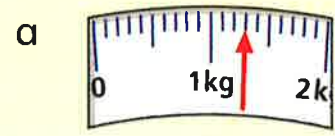
Write the weight of each pet in grams, for example 2900g.

I can read scales

21

Litres and millilitres

Are these 'more than', 'less than' or 'equal to' I litre?

1

800 ml

2

1200 ml

3

1000 ml

4

200 ml

5

500 ml

6

250 ml
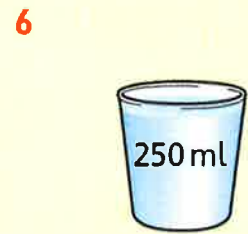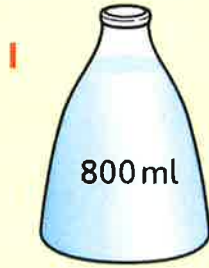
Write how much more or less than I litre each time.

7 How many of container 4 do you need to make I litre?

8 How many of container 5 do you need to make I litre?

9 How many of container 6 do you need to make I litre?

Write the number of millilitres.

10

I l

11

3 l

12

5 l

13

½ l

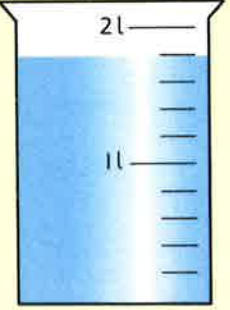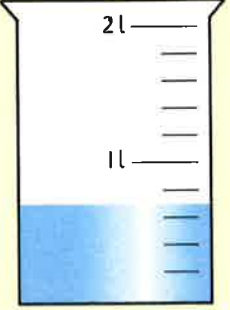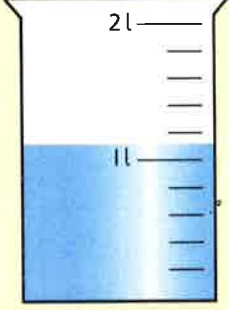I can say how litres and millilitres are related
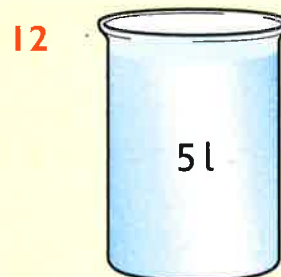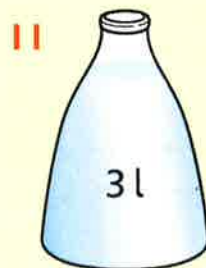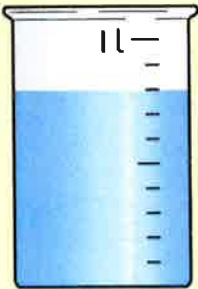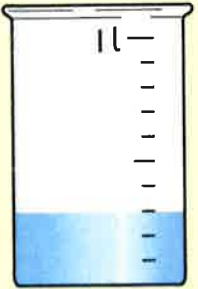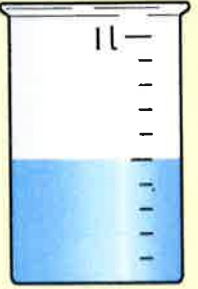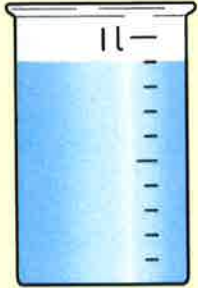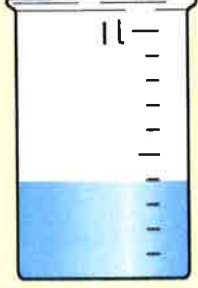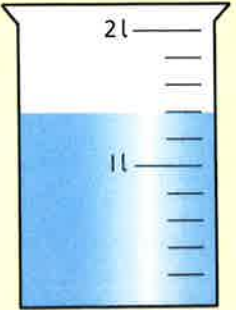
Scales

How much water in each?
Write the answer in millilitres.
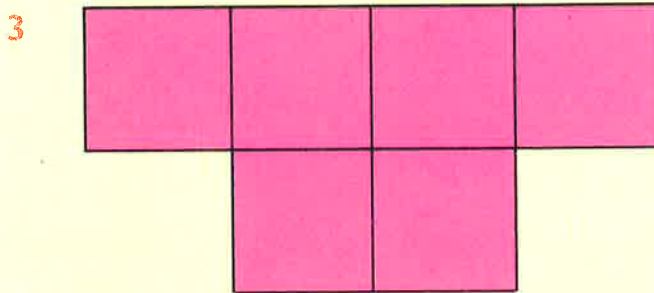
1. 800 ml

1
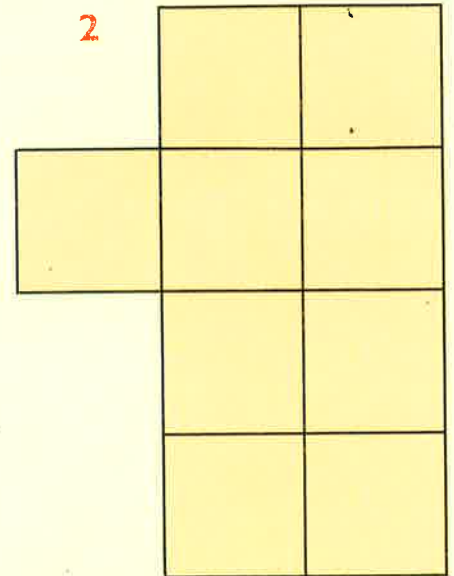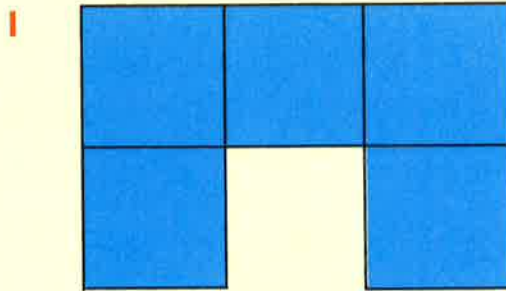
2

3

4

5

6

7

8

9

10

11

12

Find a pair of these containers that together hold
2 litres. How many different pairs can you find?

I can read scales
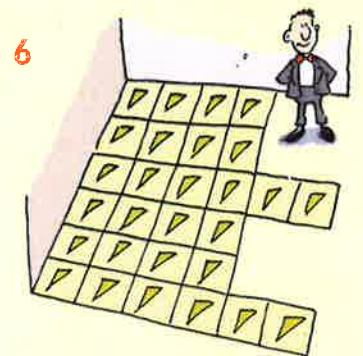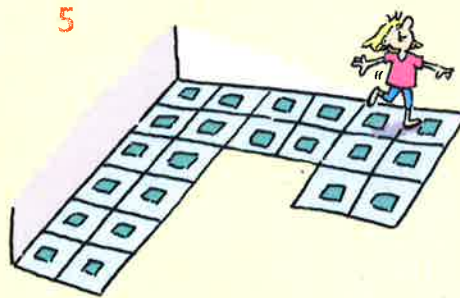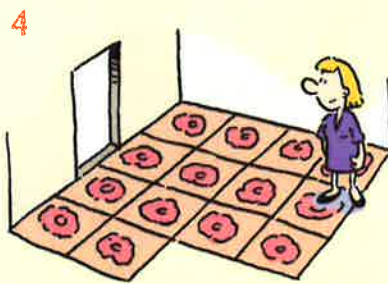
Write the area of each shape in squares.

1

2

3

Look at Question I. What other ways can you find to arrange 5 squares?

Write the area of tiles on each floor.

4

5

6

7 Draw a room with 20 tiles on the floor.
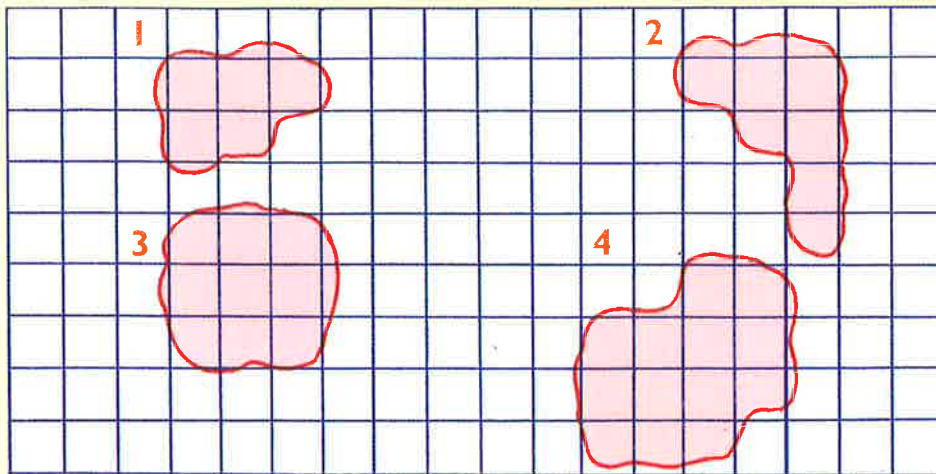
I can find areas by counting squares

Area

Write the area of each stain. Only count part squares if they are half a square or more.
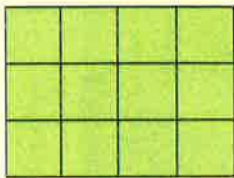
1. 5 squares

With a partner, each draw round your hand on centimetre squared paper. What is the area of your hand in squares?

Find the area of each shape.
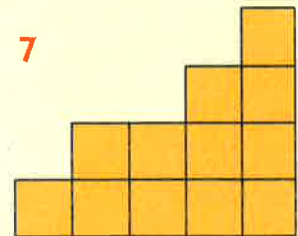
5. area = 12 squares

5

6

7

8
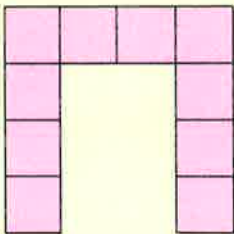
9
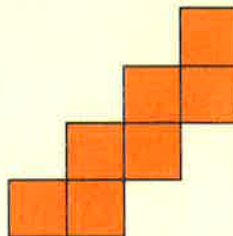
10
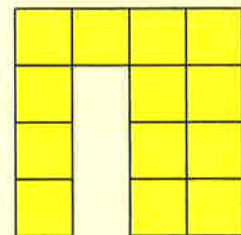
11 For Questions 5 to 10, draw another shape that has the same area.

I can find areas by counting squares and part squares

1 Match the shapes with the same area.

a

b

c

d

e

f

g
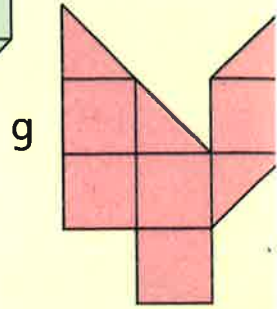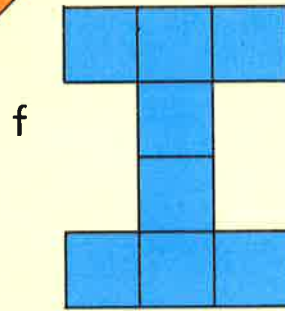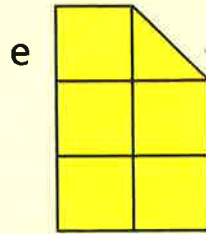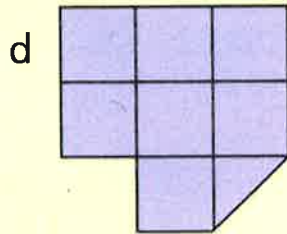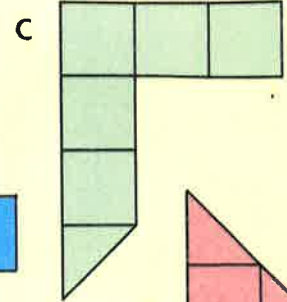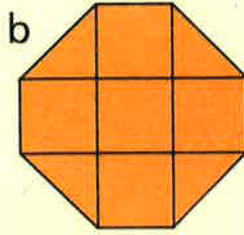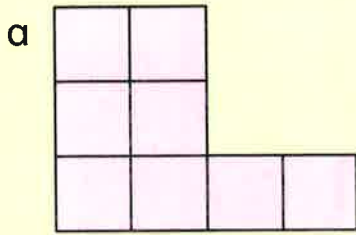
2 Which shape has no partner? Draw one with the same area.

3 Find the areas of the holes in square centimetres.

a   b   c   d
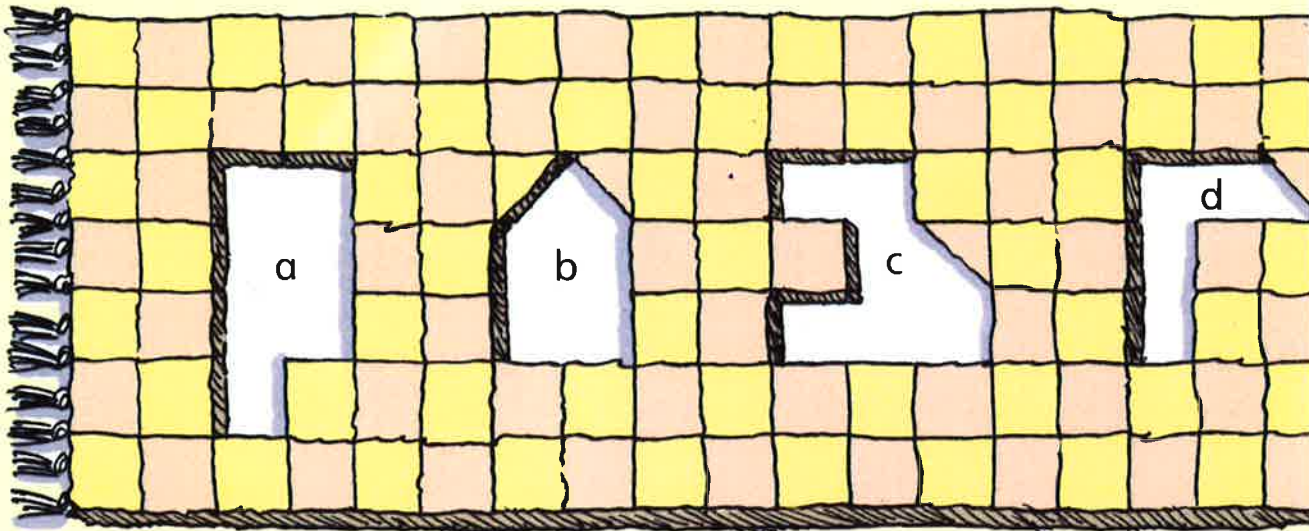
On cm squared paper, how many different shapes can you draw that have an area of 6 square cm?

I can find areas by counting squares and part squares

Solving problems

George
1 m 41 cm

Yuko
1 m 15 cm

Jane
85 cm

Emma
1 m 25 cm

Will
91 cm

How much taller is:

1.6 cm
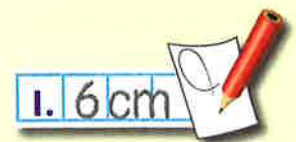
1   Will than Jane

2   Emma than Will

3   Emma than Yuko

4   George than Yuko

5   Emma than Jane

6   George than Will

Find out your own height.

What is the difference in height between you and:

7   Jane

8   George

9   Will

10 Yuko

I can solve problems about length

Measurement problems
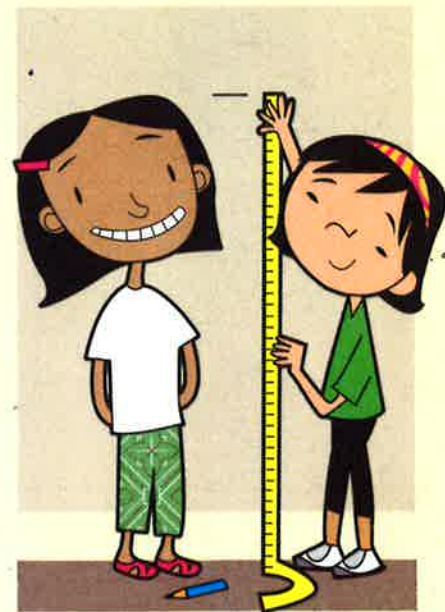
Which of these pieces of equipment would you use to answer each question?

1. ruler

| ruler | scales | measuring jug | tape measure | metre stick |

1 How wide is a CD?

2 How thin is a matchstick?

3 How much water does a water bottle hold?

4 How heavy is a football?

5 How heavy is a book?

6 What is the capacity of a juice carton?

7 What is your waist measurement?

8 How long is your classroom?

Which unit of measurement would you use for each answer?

I can solve measurement problems

Problems

True or false?

1 Half a litre is the same as 500 ml.

2 Five cans, each holding 350 ml, is more than one bottle holding $1\frac{1}{2}$ litres.

3 If I drink 300 ml of orange juice a day, two I litre packs will last me for a week.

4 Two hundred 5 ml spoonfuls will fill a litre jug.

Solve these problems.

5. | 2 | 4 | jugfuls |

5 A jug holds 250 ml of water. How many jugfuls do I need to fill a sink which holds 6 litres?

6 A recipe needs $1\frac{1}{2}$ litres of chicken stock. A cup holds 150 ml of stock. How many cupfuls of stock are needed for the recipe?

7 A can holds 300 ml of fizzy drink. Gary bought a pack of 12 cans. How much fizzy drink does he have?

8 A teaspoon holds 5 ml. How many teaspoons of medicine are there in a $\frac{1}{2}$ litre bottle?

9 Simret took 250 ml of orange juice to a picnic. She drank half of it at lunchtime, then drank another 65 ml in the afternoon. How much was left in the carton?
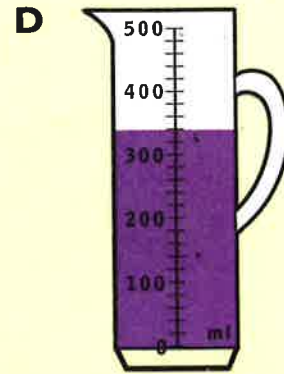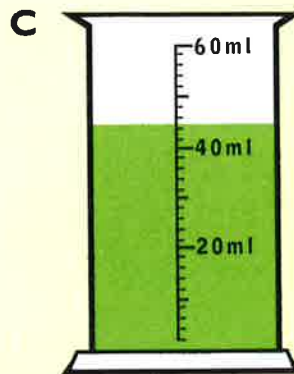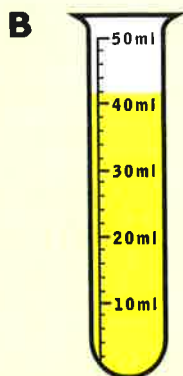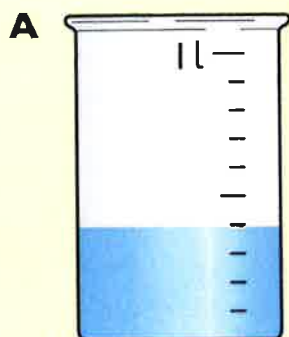
10 A tin holds 450 ml of soup. Bob needs to make enough soup so six people can have 300 ml each. How many tins does he need?

Make up your own story using litres and millilitres.

I can solve problems about capacity

A **B** **C** **D**

1 l

50 ml
40 ml
30 ml
20 ml
10 ml

60 ml
40 ml
20 ml

500
400
300
200
100
0
ml

1. A = 400 ml

1 Write the amounts of magic potion in each container.

2 How much more potion does container C have than container B?

3 If the wizard combines all the potions, how much liquid will she have?

4 The wizard uses 250 ml of potion from container D. How much is left?

5 The wizard adds 5 ml of potion to container C. How much has she now?

6 The wizard pours the contents of containers A and B into a clean cauldron. How much liquid is in her cauldron now? How much water must she add to make it up to 1 litre?

Write a measurement problem of your own for your partner to solve.

I can solve measurement problems

Problems

1 A plum weighs 50 g. If I buy 1 kg of plums, how many plums will I have?

2 Each melon weighs 500 grams. What is the weight in kilograms of 10 melons?

3 Sarita bought a 5 kg bag of potatoes. For each meal she cooks 400 g of them. What weight of potatoes is left after 10 meals have been eaten?

4 The contents of a tin of tomatoes weigh 250 g. A recipe requires 2 kg of tomatoes. How many tins are needed?

True or false?

5. True

5 Ten 100 g weights weigh 1 kilogram.

6 Two and a half kilograms is heavier than six 500 g weights.

7 If one tomato weighs 40 grams, a kilogram of tomatoes contains 22 tomatoes.

8 1 kilogram of potatoes is heavier than 1 kilogram of feathers.

$\frac{1}{2}$ kg = 500 grams

Investigate other fractions of kilograms.