5 The animal shelter

I work at the local animal shelter. We try to find new homes for stray and unwanted animals. I help to look after dogs and cats, and small animals like rabbits, hamsters and gerbils.

We have a plan of the animal shelter so that people can find out where the different types of animal are.

We have records of all the animals that we look after. We use lists, tables and charts to make the information easier to understand.

Talk about it

Do you have a pet?

What sort of pet do you have?

Do you have an unusual pet?

Where did you get your pet?

Can you read information from plans, lists, tables and charts?

Do you know how to record information?

What maths skills do you think you might need to record and show information?

These are the skills you will practise in this unit.

Which are the most useful for you? Tick the boxes.   **Skill code**

☐ Using plans, lists, tables, and charts to obtain information   **HD1/E3.1**

☐ Using bar charts and pictograms to compare data   **HD1/E3.2**

☐ Using a tally to record data   **HD1/E3.3**

☐ Arranging the data so that others can understand it   **HD1/E3.4**

What does it all mean?

Activity 1

We have a plan of the animal shelter to help people find their way around.
Each animal has its own space. We make sure our animals have plenty of room.

Remember

You need **all** this information to help you make sense of a plan.

- **A title** – this tells you what the plan is for.
- **Labels** – these tell you what the different parts on the plan mean.
- **Measurements** – these show the lengths of parts on the plan.

Plan of part of the animal shelter (not drawn to scale)

Offices

6.0 m

1.5 m

Dogs

0.5 m

Small animals

1.0 m

2.1 m

Cats

1.35 m
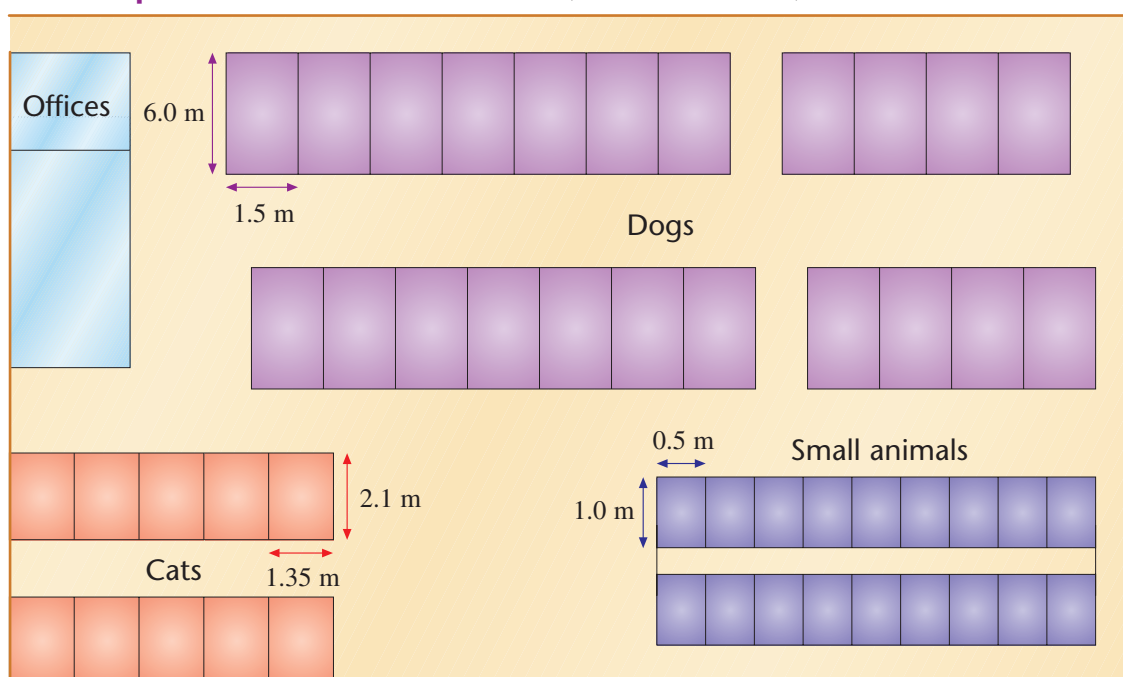
Each small animal has a space that is 0.5 m wide and 1.0 m deep.

1   How much space does a dog have? .... m wide and .... m deep

2   How much space does a cat have? .... m wide and .... m deep

There are 18 cages for small animals.

3   Which type of animal has most cages? ....

4   Which animal has fewest cages? ....

Activity 2

People have to pay to take pets home from the animal shelter. This is called 're-homing'. The people are called 're-homers'. We also charge to look after pets while their owners are away. This is called 'boarding'. This gives us enough money to run the shelter.

Here is a list of our charges.

THE SANCTUARY ANIMAL SHELTER
CHARGES

RE-HOMING		BOARDING
£80.00	Dogs	£7.50 per day
£50.00	Cats	£3.00 per day
£25.00	Rabbits	£2.00 per day
Up to £10.00	Various small pets	£2.00–£2.50 per week

To find out how much it costs to take home a cat, look for 'cats', then look across to the left in the 're-homing' column. You will see £50.00. This is the amount you pay to re-home a cat.

'Various small pets' includes animals such as gerbils, mice, budgies and other birds.

1 What is the cost of re-homing a dog? ....

2 What is the cost per day for boarding a rabbit? ....

3 What is the cost of re-homing a rabbit? ....

4 How much does it cost to board a cat for

   a one day? ....

   b two days? ....

   c a week? ....

5 What is the maximum price to re-home a mouse? .

   ....

6 What is the cost of boarding a gerbil for a week?

   a maximum cost = ...

   b minimum cost = ...

Activity 3

At the animal shelter, we divide the dogs into two types: pedigrees and crossbreeds. Most of the dogs in the shelter are crossbreeds but there are always a few pedigree dogs. The dogs are of different sizes: small, medium and large. We use a table to show people how many dogs we have, in which sizes and of which type.

Types and sizes of dogs in the animal shelter – June 2002

Type of dog	Size of dog		
	Small	**Medium**	**Large**
Pedigree	1	2	6
Crossbreed	7	11	13

To find out how many medium-sized pedigree dogs we have, I find the heading 'Pedigree' in the first column …
look along the top row until I see 'Medium'…
and I see that we have two medium-sized pedigree dogs.

Look at all the parts of the table – the title, the rows and the columns – to answer these questions.

1 When was the information gathered? ....

2 How many large pedigree dogs do we have? ....

3 How many medium-sized crossbreed dogs do we have? ....

4 How many small pedigree dogs do we have? ....

How many small dogs are there altogether?
Look down the column headed 'small'. There is one pedigree dog and seven crossbreed dogs, so there are eight small dogs altogether.

5 How many large dogs are there in the shelter altogether? ....

6 How many crossbreed dogs do we have? ....

7 How many dogs do we have in the shelter altogether? ....

Review

Do you need more practice in reading plans, lists and tables?   **Yes** ☐   **No** ☐

For more work on this, go to H1 and H2 (page 12).
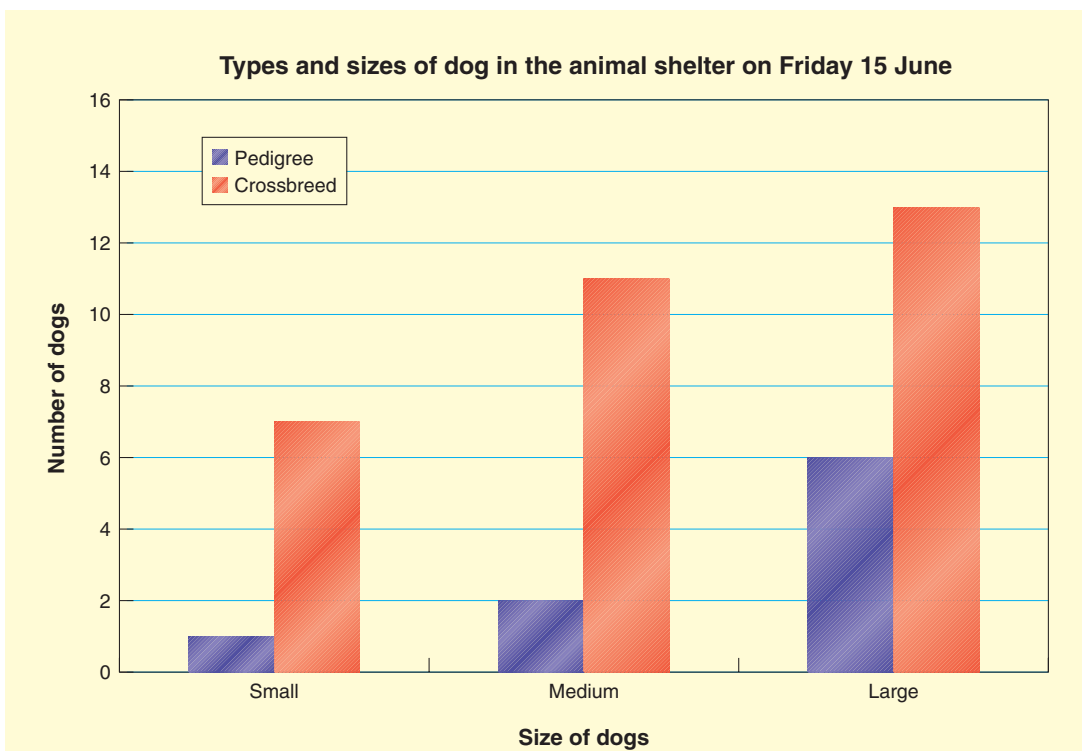
How many dogs?

Activity 4

I use bar charts to show information. The vertical axis shows the number of dogs.

Remember

Making sense of bar charts.
- Read the **title** to find out what the bar chart is about.
- The **horizontal axis** is the line going along the bottom. There is a name under each bar. There is a label telling you what the bars represent.
- The **vertical axis** is the line going up the left-hand side. It has numbers at equal intervals. There is a label telling you what the numbers represent. Make sure you look closely at the numbers on the vertical axis.
- Look at the **labels** on the **axes**.
- There is a **key** telling you what the colours mean.

Look at the **blue bar** for medium dogs. It is for pedigrees.

Types and sizes of dog in the animal shelter on Friday 15 June

Number of dogs

Key:
- Pedigree
- Crossbreed

Size of dogs

The horizontal axis shows the sizes and types of dog.

1 When was the information gathered? ....

2 What do the red columns show? ....

3 How many large crossbreeds do we have? ....

4 How many small pedigree dogs do we have? ....

5 How many medium dogs do we have altogether? ....

6 Which size of dog do we have most of? ....

7 How many pedigree dogs are there in the shelter? ....
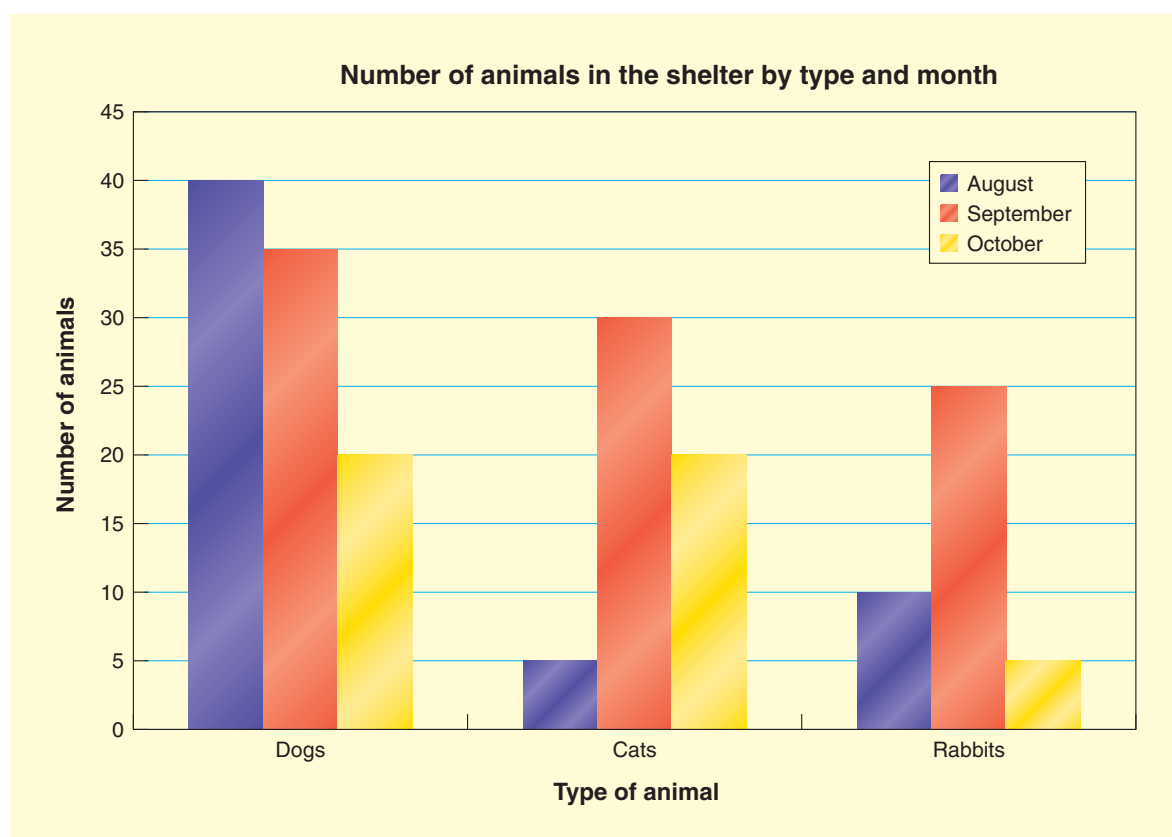
Are there more or less?

We need to compare the numbers of animals we have in the shelter from month to month.

Activity 5

> We use bar charts to help us compare figures about the animals. Here is a bar chart showing the number of dogs, cats and rabbits at the shelter in August, September and October.

Number of animals in the shelter by type and month

The yellow columns show the numbers for October.

1 Which month is represented in blue? ....

The shortest column for dogs is yellow, so we had fewest dogs in October.

2 We had most dogs in ....

3 We had fewest cats in ....

Now use the chart to find the numbers of animals.

4 We had .... rabbits in September.

5 We had .... cats during the three months shown.

Activity 6

People come to the shelter to choose a pet. I use pictograms to help them understand and compare information.

The number of people who took cats from the shelter in the first four months of 2002

Month	
January	
February	
March	
April	

represents 5 people. represents 4 people.

1 What does represent? ....

2 What does represent? ....

3 Count up the symbols and complete the table below to show the numbers of people who re-homed cats.

January	February	March	April

4 In which month were most cats re-homed? ....

5 Write down a quick way of finding the answer. ....

6 In which month were fewest cats re-homed? ....

7 Write down a quick way of finding the answer. ....

Remember

Pictograms

- Try to use a simple symbol or picture – remember, you may have to draw each one many times and they **must** be identical!
- Symbols must be in neat columns and rows.
- Include a key to show the number of items a symbol stands for.
- Use part of the symbol to represent smaller numbers.

Review

Do you need more practice in using bar charts or pictograms?

Yes ☐   No ☐

This work links to mini-project M4 (page 15).

Tally!

We collect lots of information about our animals.
We use a tally chart to record the information.

Remember

Tallying

- For each unit, you write a tally mark, like this | .
- When you have five units, make your fifth line go through the other four, like this: ‖‖. You can then count the answers in batches of 5.
- Tick or cross off each entry as you put it into the tally chart. This will help you to keep track of which results you have not yet tallied.

Activity 7

We need to find out if the new owners already own a dog.

We asked 20 people wanting to re-home a dog how many dogs they already had.

These were the answers.

0 dog ✓	0 dog ✓	0 dog ✓	0 dog ✓
0 dog ✓	1 dog ✓	2 dogs ✓	0 dog ✓
1 dog	0 dog	0 dog	0 dog
0 dog	0 dog	2 dogs	1 dog
0 dog	0 dog	0 dog	3 dogs

Most people had no dogs but some have one or two, or even three.
Use the tally chart below to count the answers. The first two rows have been done.

1 Finish the tally chart below.

The number of dogs re-homers already have

Number of dogs	Tally	Frequency
0	‖‖	
1			
2			
3		
	Total	

2 When you have finished tallying, count the number of tallies in each row. Write the totals in the last column.

Use the tally chart to answer these questions.

3 How many re-homers have only one dog? ....

4 How many re-homers have no dogs? ....

5 How many re-homers have two dogs? ....

6 We must visit any home with two or more dogs before we allow another dog to go there. How many homes must we visit? ....

Activity 8

These figures show the number of cats re-homed each week during the first half of 2002.

3	2	4	1	2	4	2
1	3	3	1	1	0	1
0	1	0	5	2	3	
5	1	2	2	3	0	

1 Complete the tally table below.

Cats re-homed each week during the first half of 2002

Number of cats	Tally	Total
	Total	

2 In how many weeks were no cats re-homed? ....

3 What was the largest number of cats re-homed in any one week? ....

A picture is worth a thousand words

Activity 9

Here are the results of our survey of how many dogs people already own.

Fourteen people do not own a dog, three people own one dog, two people own two dogs, and one person owns three dogs.

You can use a table to make the figures easier to read.

Results of the dog owner survey

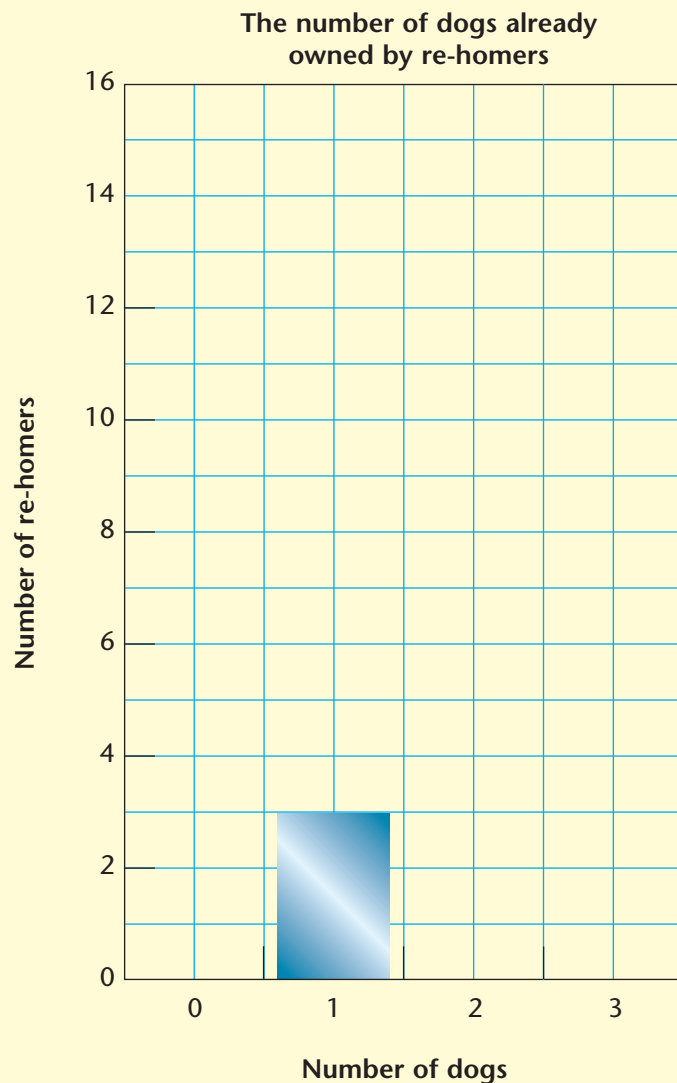| Number of dogs	0	1	2	3
Number of owners		3		

Put the rest of the results into the table.

Activity 10

I decide to use a bar chart to show the results of how many dogs re-homers own already.

Use the information in the table in Activity 9 to finish the bar chart.

The number of dogs already owned by re-homers

Activity 11

I decide to draw a pictogram. I think it is a good way to show my information.

The first thing to do is to decide how I can show the people. I think stick people are easy to draw. I can use a stick person to show two people.

How many dogs do re-homers already have?

Number of dogs	Re-homers							
0								
1								
2								
3								

Key

represents 2 re-homers

Complete the pictogram.

Activity 12

The numbers of rabbits already owned by people re-homing a rabbit are shown in the table.

Number of rabbits owned	0	1	2	3
Number of re-homers	10	5	2	3

Draw a bar chart or pictogram to show this information on the grid below.
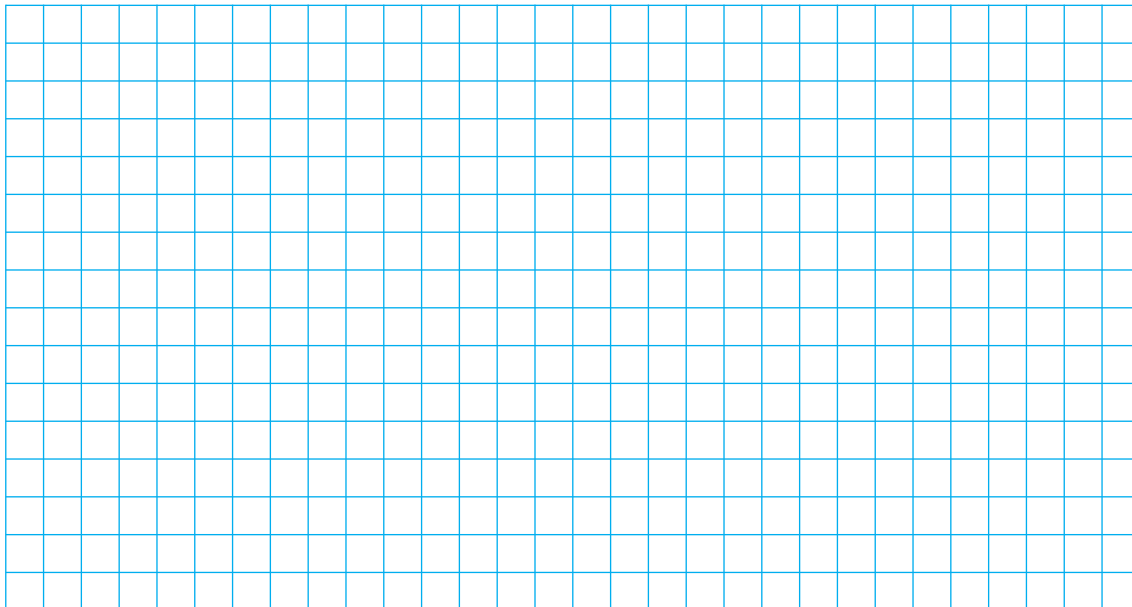
Review

Do you need more practice in tables, bar charts and pictograms?   **Yes** ☐   **No** ☐

For more work on this, go to H3 (page 13) or E2 and E3 (page 14).

This work links to mini-projects M2 and M4 (page 15).

Help

Activity H1

People come to the animal shelter when they are looking for a pet. They want to give a new home to an animal that has no home. If you are looking for a new pet, you need to know when the animal shelter is open. Here are the opening times.

Day	Opening times
Monday	12:00 noon – 4:00 pm
Tuesday	[Closed]
Wednesday	12:00 noon – 4:00 pm
Thursday	12:00 noon – 4:00 pm
Friday	12:00 noon – 4:00 pm
Saturday	11:00 am – 2:00 pm
Sunday	11:00 am – 2:00 pm

1   On what day is the animal shelter closed?

2   What time does the animal shelter open on Mondays?

3   What time does the animal shelter close on Thursday afternoons?

4   What are the opening times on Saturdays and Sundays?

Activity H2

Dog pens have a special area for a bed and a large area for the dog to run.
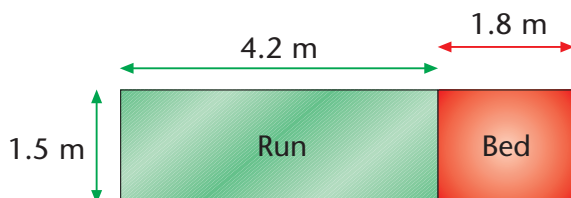
1   How long is the pen? .... metres

2   How wide is the run? .... metres

3   How long is the bed area? .... metres

Activity H3

Most visitors come to the animal shelter on Saturday. I decided to count them as they arrived. Some people came on their own (1), others came as a couple (2) or group (3 or more). Here are my results:

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

Visitors to the animal shelter on Saturday

Number of people in group	Tally	Frequency
1		
2		
3		
4		
	Total	

1 Tally the results.

2 Draw a bar chart to show the number of visitors.
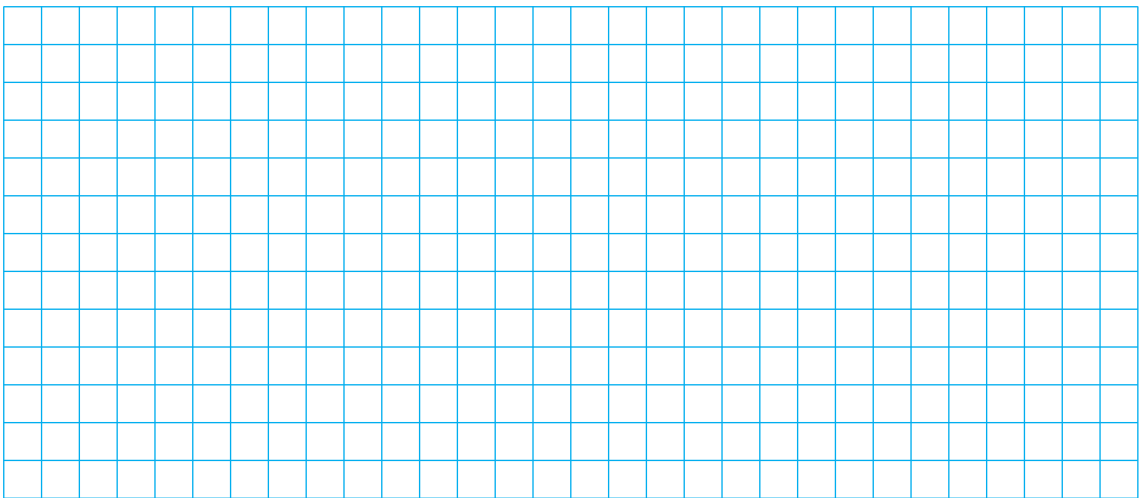
3 On separate paper, draw a pictogram to show the number of visitors.

Look back at the *Remember* boxes on pages 4 and 7 and check that you have included everything.

Extension

Activity E1

There is a whiteboard above the reception desk. Each day we write information about all the dogs that are waiting to find new owners so that everyone can see it.

Saturday: dogs in the shelter

Age in years	Sex M / F
1	F
3	M
1	M
3	M
4	F
3	M
1	F
5	F

Age in years	Sex M / F
3	M
2	M
2	F
1	F
1	F
4	F
1	F
5	F

Age in years	Sex M / F
5	M
3	M
1	F
2	M
5	M
2	M
5	M
3	M

Age in years	Sex M / F
2	F
5	M
3	M
1	M
2	M
2	M
2	F
2	F

1 What does M / F mean? ....

2 On what day of the week was the information gathered? ....

3 On separate paper, tally the information into two charts, one for males and the other for females. Tally the dogs by age.

4 Work out how many male dogs and how many female dogs were in the shelter that day.

   Male: ....   Female: ....

5 On separate paper, draw pictograms to show how many male dogs and how many female dogs were in the shelter that day.

6 On separate paper, draw a bar chart to compare dogs by ages and sex.

Check that your diagrams have all the information needed.

Activity E2

Tables, charts and pictograms are often used to present data. Newspapers use tables and charts to make information easier to understand. Look for examples of tables, charts and pictograms in newspapers and magazines. Make a display. Write about what is shown.

Activity E3

Use 'clip art' on the computer to draw a pictogram from the information in one of the activities in this unit. Use a spreadsheet to draw a bar chart from the information in one of the activities in this unit.

Mini-projects

Activity M1

Carry out your own survey to find out how many pets people have.

Here are some guidelines.

- Ask at least 30 people.
- Use a tally chart to record your results.
- Put your results into a table.
- Use a bar chart and pictogram to present your results.

Activity M2

Look in newspapers and magazines to find examples of surveys.

- How is the information presented?
- What tables are used?
- Are charts or diagrams used?
- Do the charts or diagrams help the reader to understand the results more clearly?

Activity M3

Find out whether there is an animal rescue centre or animal shelter near where you live.

Or, use the Internet to find out more about the work of animal rescue centres or

visit the Battersea Dogs Home website   www.dogshome.org.uk or

visit the National Canine Defence League website   www.ncdl.org.uk

Activity M4

Do your own research.

1 Decide on a topic.

2 Write down two or three questions to ask on this topic.

3 Ask at least 10 people (the more you ask the better).

4 Illustrate your findings in a table, pictogram or bar chart.

✓ Check it

🎧 *Activity C1*

These are the numbers of dogs that were brought into the shelter each week during a 26-week period in 2002.

5	3	4	4	6	5	3
4	2	1	4	4	3	4
3	3	2	3	5	2	
1	1	3	1	6	1	

1 Tally the results in the chart.

Dogs brought into the shelter in part of 2002

Number of dogs	Tally	Frequency
1		
2		
3		
4		
5		
6		
	Total	

2 Draw a bar chart to show the number of dogs.
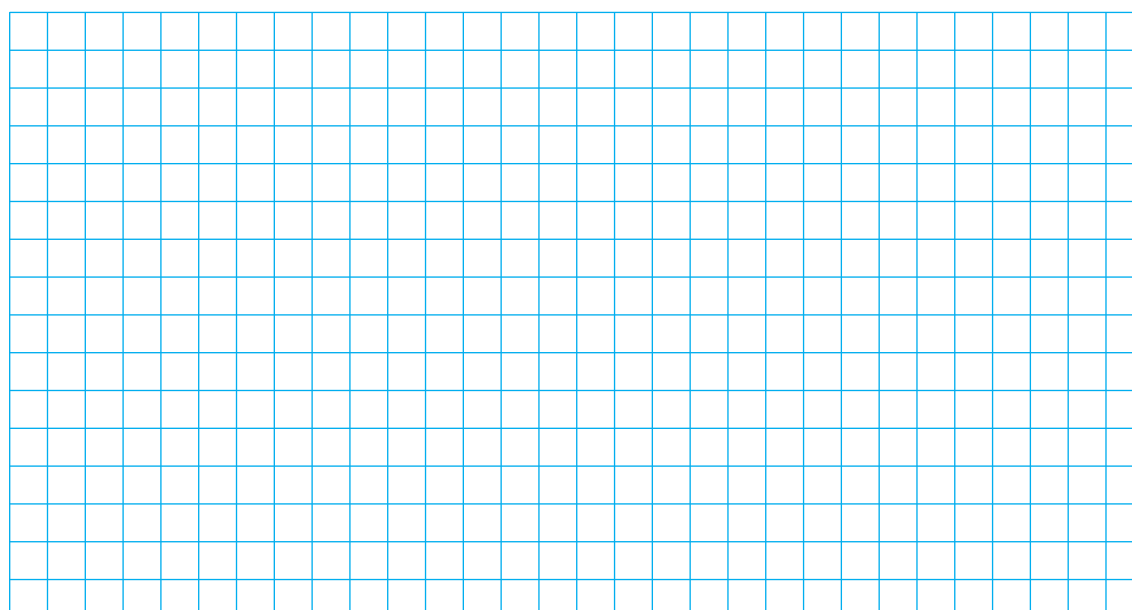
Activity C2

I am responsible for feeding puppies at the animal shelter. I use this table to work out how much food each puppy needs. To use the table, I need to know the age of the puppy and its weight in kilograms (kg).

Most of the time I feed the puppies with dry food. Sometimes I give them canned food. The food weights are recorded in grams (g).

Total quantity of canned or dry food per day

Up to 3 months			3–6 months		
Puppy weight in kg	Amount of canned food in 415 g cans	Amount of dry food food in g	Puppy weight in kg	Amount of canned food in 415 g cans	Amount of dry food food in g
1	$\frac{1}{2}$	50	2.5	1	100
3	1	105	5	1.5	135
7	2	220	15	2	320
13	3	380	25	4	490
17	4	475	40	6	835

1 How much dry food do I need to give to a three-month-old puppy weighing 7 kg?

2 a How many tins of food do I need to give to a six-month-old puppy weighing 25 kg?

   b What weight is each can?

   c How much is this each day?

3 This week I have a litter of four three-month-old puppies. They weigh 3 kg each. How many cans do I need for them?

   a .... each day

   b .... each week

How am I doing?

Now look back at the skills listed on page 1.

Then complete the sentences below.

I am confident with

....

....

I need more practice with

....

....

Date ....

Answers

Activity 1

1 1.5 m wide and 6.0 m deep
2 1.35 m wide and 2.1 m deep
3 Dogs
4 Cats

Activity 2

1 £80.00
2 £2.00
3 £25.00
4 a £3.00   **b** £6.00   **c** £21.00
5 £10.00
6 a Maximum £2.50
  b Minimum £2.00

Activity 3

1 June 2002
2 6
3 11
4 1
5 19
6 31
7 40

Activity 4

1 Friday 15 June
2 Crossbreed dogs
3 13
4 1
5 13
6 Large
7 1 + 2 + 6 = 9

Activity 5

1 August
2 August
3 August
4 25
5 5 + 30 + 20 = 55

Activity 6

1 Three people
2 One person

3

January	February	March	April
23	14	16	22

4 January
5 Look for the most symbols.
6 February
7 Look for the fewest symbols.

Activity 7

1

Number of dogs	Tally	Frequency
0	ⅢⅢ ⅢⅢ ⅢⅠ	14
1	ⅢⅠ	3
2	ⅠⅠ	2
3	Ⅰ	1
	Total	20

3 3
4 14
5 2
6 3

Activity 8

1

Number of cats	Tally	Total
0	ⅢⅠ	4
1	ⅢⅠ ⅠⅠ	7
2	ⅢⅠ Ⅰ	6
3	ⅢⅠ	5
4	ⅠⅠ	2
5	ⅠⅠ	2
	Total	26

2 4
3 5 cats

Activity 9

Results of the dog owner survey

Number of dogs	0	1	2	3
Number of owners	14	3	2	1

Activity 10

Dogs and owners
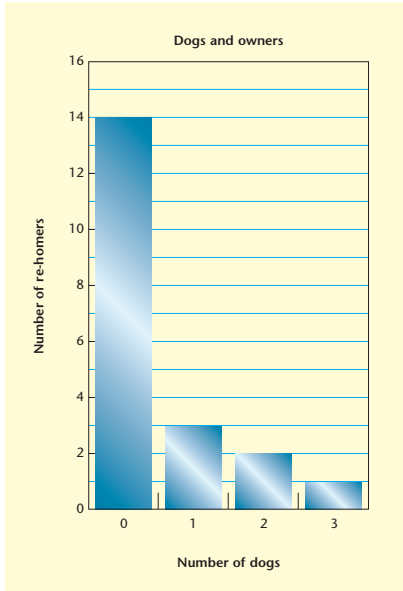
Activity 11

How many dogs re-homers already have

Number of dogs	Re-homers
0	
1	
2	
3	

Activity 12

Check with your answers with your teacher.

Help

Activity H1

1 Tuesday
2 12:00 noon
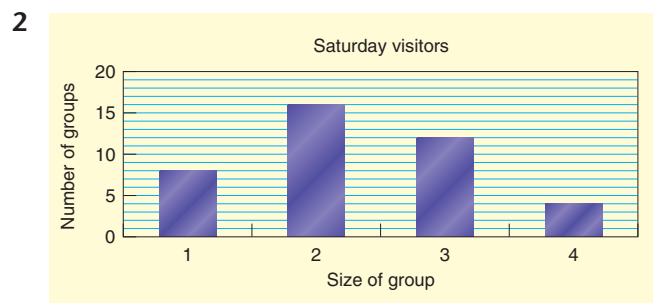**3** 4:00 pm
4 11:00 am to 2:00 pm

Activity H2

1 6 m
2 1.5 m
3 1.8 m

Activity H3

1

Number of people in group	Tally	Frequency
1	JHT III	8
2	JHT JHT JHT I	16
3	JHT JHT II	12
4	IIII	4
	Total	40

2

Saturday visitors

3

Size of group	Number of groups
1	
2	
3	
4	

Extension

Activity E1

1 Male / Female
2 Saturday
3

Male dogs				Female dogs		
Age	Tally	Total		Age	Tally	Total
1	II	2		1	JHT I	6
2	JHT	5		2	IIII	4
3	JHT II	7		3		0
4		0		4	II	2
5	IIII	4		5	II	2

4 18 males 14 females

5 Show your answers to your teacher.

6

Dogs in the shelter
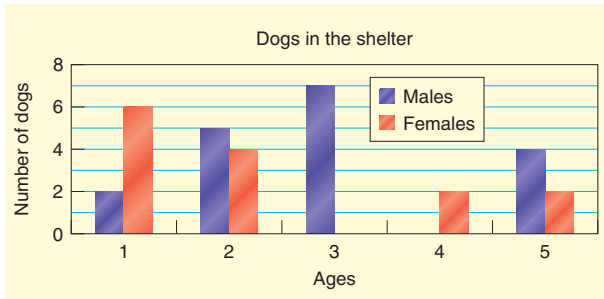
Mini-projects

M1, M2, M3, M4

Show your answers to your teacher.

Check it

Activity C1

1

Number of dogs	Tally	Frequency
1	JHT	5
2					3
3	JHT ||	7
4	JHT		6
5					3
6				2
	Total	**26**

2 Check your answer with your teacher.

Activity C2

1 220 g

2 a 4   **b** 415 g   **c** 1660 g

3 a 4 cans each day

   b 28 cans in the week