Exercise 6.3

1 Here are the heights of 20 adults, measured to the nearest centimetre.

161	193	180	167	151	188	170	171	159	179
182	166	177	185	164	175	155	173	180	160

a Copy and complete the grouped frequency table.
b How many of the adults are more than 180 cm tall but less than or equal to 190 cm tall?
c How many of the adults are more than 170 cm tall? Explain how you use the grouped frequency table to work out your answer.
d How many of the adults are less than or equal to 180 cm tall? Explain how you use the grouped frequency table to work out your answer.

Height, h (cm)	Tally	Frequency
$150 < h \leqslant 160$		
$160 < h \leqslant 170$		
$170 < h \leqslant 180$		
$180 < h \leqslant 190$		
$190 < h \leqslant 200$		
	Total	

2 All the students in Mrs Turay's class ran the 200 m race. These are their times, in seconds.

30	33	42	36	32	46	45	34	50
31	49	26	38	44	39	32	40	35
41	38	39	45	40	36	44	37	43

a Copy and complete the grouped frequency table.
b How many students are in Mrs Turay's class?
c How many students ran the 200 m in more than 40 seconds, but less than or equal to 45 seconds?
d How many students took more than 35 seconds to run the 200 m race?
e How many students took 35 seconds or less to run the 200 m race?

Time, t (seconds)	Tally	Frequency
$25 < t \leqslant 30$		
$30 < t \leqslant 35$		
$35 < t \leqslant 40$		
$40 < t \leqslant 45$		
$45 < t \leqslant 50$		
	Total	

3 Here are the heights, in centimetres, of some plants.

10	34	19	10	20	26	17	28	15
41	24	16	18	11	17	25	37	14

a Put these heights into a grouped frequency table.
Use the class intervals $10 \leqslant h < 18$, $18 \leqslant h < 26$, $26 \leqslant h < 34$ and $34 \leqslant h < 42$.
b How many plants are in the survey?
c How many of the plants are greater than or equal to 18 cm high, but less than 26 cm high?
d How many of the plants are less than 34 cm high?
e How many of the plants are at least 26 cm high?

4 The two-way table shows the hair colour and gender of the students in Miss Jebson's class.

	Brown hair	Black hair	Other hair colour	Total
Girls	6	5	3	14
Boys	10	4	2	16
Total	16	9	5	30

a How many of the boys have black hair?
b How many of the girls have brown hair?
c How many students are there altogether in Miss Jebson's class?
d How many of the students do not have brown hair?

5 The two-way table shows the favourite subjects of the students in Mr Hassan's class.

	Maths	Science	English	Other subject	Total
Girls	8	4		1	18
Boys	6		1		
Total		9			32

Use the 'Total' column and 'Total' row to help work out the missing values in the table.

a Copy and complete the table.
b How many of the boys chose science as their favourite subject?
c How many of the students didn't choose maths, science or English as their favourite subject?

6 A school has 42 teachers. All the teachers travel to school by car, bus or bicycle.
20 of the teachers are male. Five of the male teachers and three of the female teachers cycle to school.
17 of the teachers travel to school by bus.
10 of the female teachers travel to school by car.
Copy and complete the two-way table to show the numbers of teachers that travel to school by car, bus and bicycle.

	Car	Bus	Bicycle	Total
Male				
Female				
Total				

Summary

You should now know that:

- ★ You can carry out a survey by either giving people a questionnaire to fill in, or by carrying out an interview.
- ★ You can record the results of an event happening by either carrying out an experiment or by recording observations that you make.
- ★ Discrete data can only have exact values.
- ★ Continuous data can take any value in a range, and it is data that is measured.
- ★ You can use the symbols $<$ and $\leqslant$ to help describe the class intervals in a frequency table.
- ★ In a two-way table you record different information in the rows and columns in a way that makes it easy to read the information.

You should be able to:

- ★ Identify and collect data to answer a question.
- ★ Select the method of data collection.
- ★ Decide on the sample size.
- ★ Decide on the degree of accuracy needed for data that involves measurements.
- ★ Know the difference between discrete and continuous data.
- ★ Construct and use frequency tables, with given equal class intervals, to gather continuous data.
- ★ Construct and use two-way tables to record discrete data.