

Data 2

Frequency Distribution Tables

One easy way of presenting data is a *frequency distribution table*.

The *frequency* is the number of times that a type of data occurs.

A frequency distribution table consists of three columns:

<i>Data</i>	<i>Tally</i>	<i>Frequency</i>
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Frequency distribution tables can be used to display both categorical and numerical data.

Example

50 people were asked what pet they owned and the results are shown in the frequency distribution table below.

<i>Pet</i>	<i>Tally</i>	<i>Frequency</i>
Dog		14
Cat		7
Bird		3
Other		16
None		10
<i>Total</i>		50

In the *Tally* column each tally mark represents one person. Note that the fifth tally mark is drawn through the last four marks to make it easier to find the frequency for each item of data.

EXERCISE 25A

1. Copy and complete the following frequency distribution tables by filling in the frequency of each item and the total.

(a) A number of people were surveyed and asked how many movies they watched at a cinema last year. The results are shown in this table.

<i>Number of Movies</i>	<i>Tally</i>	<i>Frequency</i>
0		
1		
2		
3		
4		
5		
more than 5		
Total		

(b) A number of people were surveyed and asked which area of Government they thought was most important. The results are shown in the table below.

<i>Area of Government</i>	<i>Tally</i>	<i>Frequency</i>
Defence		
Education		
Employment		
Environment		
Foreign Affairs		
Health		
Social Services		
Total		

Example

Complete a frequency distribution table for the following data.

50 people were surveyed and asked their favourite fruit. Their responses are shown below.

apple, mango, pineapple, banana, watermelon, strawberry,
 pineapple, apple, mango, orange, mango, grapes, strawberry,
 banana, grapes, mango, banana, watermelon, banana, mango,
 watermelon, mango, watermelon, grapes, apple, watermelon,
 strawberry, strawberry, strawberry, banana, strawberry,
 pineapple, strawberry, orange, strawberry, mango, banana,
 strawberry, grapes, mango, mango, orange, mango, grapes,
 mango, watermelon, mango, orange, watermelon, pineapple

Step 1 Find out how many different fruits have been listed.

There are eight: apple, mango, banana, watermelon, strawberry, pineapple, orange, grapes.

Step 2 Draw a frequency distribution table with eight rows.

Step 3 Working through the list make a tally mark for each item of fruit. Using a pencil make a soft line through each item as it is included in the table. This will help to avoid mistakes when the data is transferred to the frequency distribution table.

Step 4 Complete the table by filling in the frequencies and total.

<i>Favourite Fruit</i>	<i>Tally</i>	<i>Frequency</i>
Apple		3
Mango		12
Banana		6
Watermelon		7
Strawberry		9
Pineapple		4
Orange		4
Grapes		5
Total		50

2. Complete a frequency distribution table for each of the following sets of data.

(a) A number of students were asked what their favourite colour was and the results are listed below.

blue, purple, yellow, red, blue, black, blue, green,
green, blue, purple, red, yellow, orange, red, black,
yellow, blue, orange, black, purple, green, red, orange,
green, blue, blue, green, yellow, orange, green, yellow,
blue, green, red, blue, yellow, orange, purple, blue

(b) A zoologist was studying dingoes and recorded the number of pups in litters found in a National Park in the Northern Territory. The number of pups in each litter is recorded below.

1, 7, 6, 4, 6, 7, 6, 5, 1, 4, 2, 5, 8, 7, 8, 5, 4, 5, 6, 2, 5, 5, 7, 8, 7, 3, 4,
4, 8, 7, 6, 4, 3, 5, 7, 5, 8, 5, 4, 6, 7, 6, 5, 4, 5, 2, 5, 4, 5, 2, 5, 5, 3, 5,
6, 3, 5, 6, 4, 5, 4, 6, 3, 6, 5, 4, 6, 2, 5, 3, 6, 4, 1, 6, 5, 3, 4, 6, 5, 3, 6,
3, 4, 6, 7, 1, 6, 4, 6, 6, 7, 2, 1, 7, 5, 7, 2, 3, 8, 7, 6, 1, 4, 7, 7, 4, 7, 5
8, 2, 8, 3, 5, 4, 8, 5, 8, 3, 8, 5, 3, 7, 2, 4, 8, 1, 3, 6, 5, 6, 2, 4, 8, 1, 7



Grouped Data

It is sometimes easier to record numerical data in groups.

Example

The runs scored by a cricketer in 30 innings are listed below and recorded in the frequency distribution table.

14, 72, 21, 36, 50, 19, 23, 0, 47, 15, 8, 61, 65, 106, 96
16, 7, 21, 36, 19, 10, 84, 1, 67, 42, 30, 120, 11, 13, 87

<i>Runs</i>	<i>Tally</i>	<i>Frequency</i>
0 - 25		15
- 50		6
- 75		4
- 100		3
- 125		2
Total		30

EXERCISE 25B

1. The ages of 50 people who attended a festival are shown below. Copy and complete the frequency distribution table for this data.

45, 31, 18, 52, 33, 27, 9, 42, 24, 20, 44, 58, 16, 27, 33, 14, 7,
31, 63, 8, 14, 46, 55, 8, 70, 13, 39, 86, 5, 23, 27, 36, 38, 43,
26, 52, 17, 11, 38, 22, 9, 25, 30, 41, 14, 28, 23, 28, 37, 18

<i>Age</i>	<i>Tally</i>	<i>Frequency</i>
0 - 9		
10 -		
20 -		
30 -		
40 -		
50 -		
60 -		
Total		50

2. A group of scientists at Antarctica were studying penguins. As part of the studies they weighed a number of penguins and those weights (in kg) are listed below. Copy and complete the frequency distribution table.

7.5 5.6 5.2 6.8 3.9 1.2 2.6 4.7 9.5 4.1 5.0 3.3 6.9 6.4 5.2
 3.6 2.1 7.0 7.3 6.5 5.2 4.8 8.4 7.7 9.0 6.4 5.6 8.9 1.8 8.1
 1.1 9.2 1.9 3.0 6.0 8.3 3.7 4.1 7.1 7.8 6.3 8.7 2.8 1.9 3.8
 8.0 1.0 5.7 6.6 9.8 3.5 5.7 7.2 6.0 4.6 7.1 1.9 4.3 7.2 5.9

<i>Weight (kg)</i>	<i>Tally</i>	<i>Frequency</i>
0 - 2		
- 4		
- 6		
- 8		
- 10		
<i>Total</i>		

3. The annual salaries of a number of employees at a company are shown below. Copy and complete the frequency distribution table.

\$54,600 \$76,250 \$38,700 \$33,250 \$24,950 \$38,700 \$44,750
 \$65,500 \$44,750 \$68,500 \$24,500 \$56,750 \$44,750 \$44,750
 \$65,400 \$48,750 \$44,750 \$48,750 \$24,800 \$60,200 \$48,750
 \$44,750 \$48,750 \$24,950 \$78,750 \$44,750 \$48,750 \$72,700
 \$85,500 \$57,750 \$44,750 \$59,750 \$82,750 \$44,750 \$29,500

<i>Annual Salary</i>	<i>Tally</i>	<i>Frequency</i>
0 - \$25,000		
- \$50,000		
- \$75,000		
- \$100,000		
<i>Total</i>		

Dot Plots

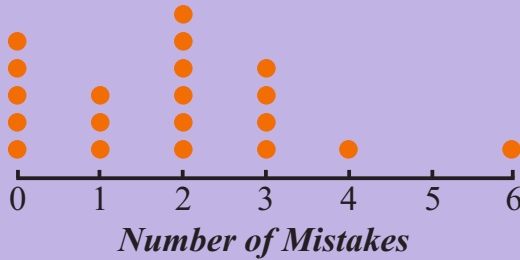
A dot plot is an easy way to represent and compare data.

Example 1

20 students were asked to spell ten words. The number of words spelt incorrectly by each student is shown below:

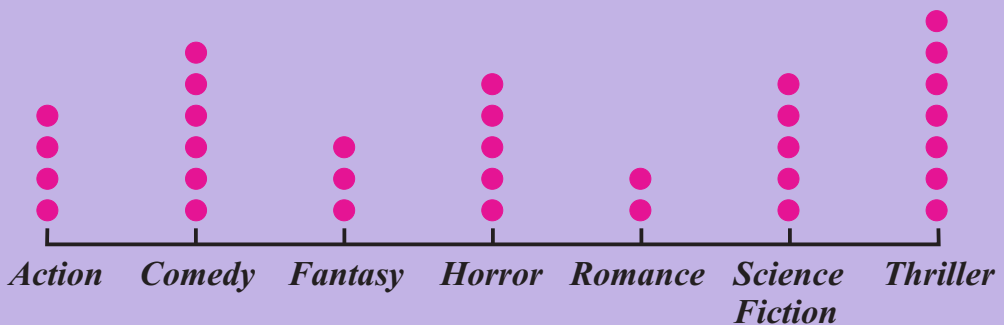
0, 2, 3, 1, 2, 0, 4, 2, 1, 0, 3, 2, 6, 2, 3, 0, 1, 0, 2, 3

A dot plot can be used to display this data.



Example 2

A number of people were asked their favourite type of movie and the results are shown on this dot plot.



1. How many people were surveyed?
2. What was the most popular type of movie?

Answers

1. There were 32 people surveyed (add the number of dots).
2. The most popular type of movie was *thriller* (7 people).

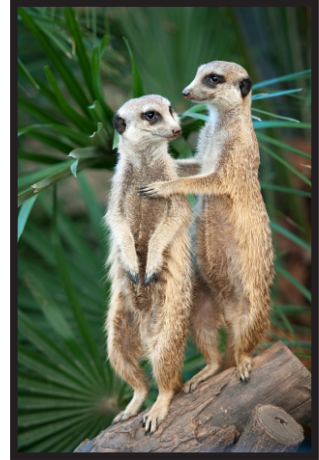
EXERCISE 25C

1. A number of people were surveyed and asked how many overseas holidays they had been on. The results are shown below.

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

- (a) Draw a dot plot to display this data.
 (b) How many people from the survey have not been on an overseas holiday?
2. Twenty-five people were surveyed and asked their favourite animal at the zoo. The results are shown below.

monkey, lion, meerkat, giraffe, monkey,
 penguin, elephant, meerkat, elephant,
 lion, meerkat, monkey, elephant, meerkat,
 monkey, lion, giraffe, seal, penguin,
 monkey, meerkat, seal, elephant,
 monkey, lion



- (a) Draw a dot plot to display this data.
 (b) From the people surveyed which animal was the most popular?
3. A number of people were surveyed and asked their favourite place to visit in Australia. The results are shown on the dot plot below.

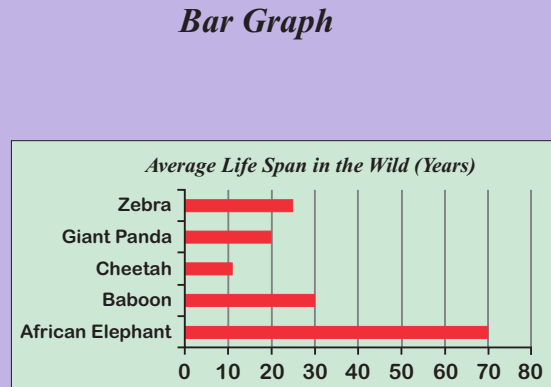
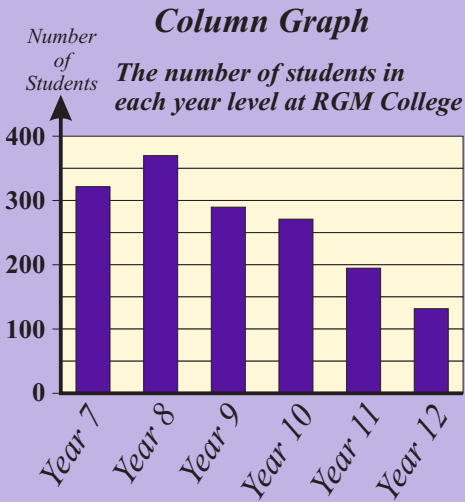


- (a) How many people were surveyed?
 (b) From the people surveyed which of the places listed was the most popular?

Column Graphs and Bar Graphs

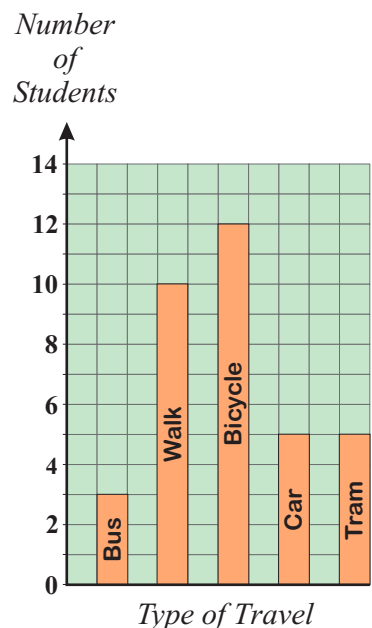
Another way to display and compare data is on column graphs and bar graphs. The main difference between these two types of graphs is that column graphs are vertical and bar graphs are horizontal.

Examples

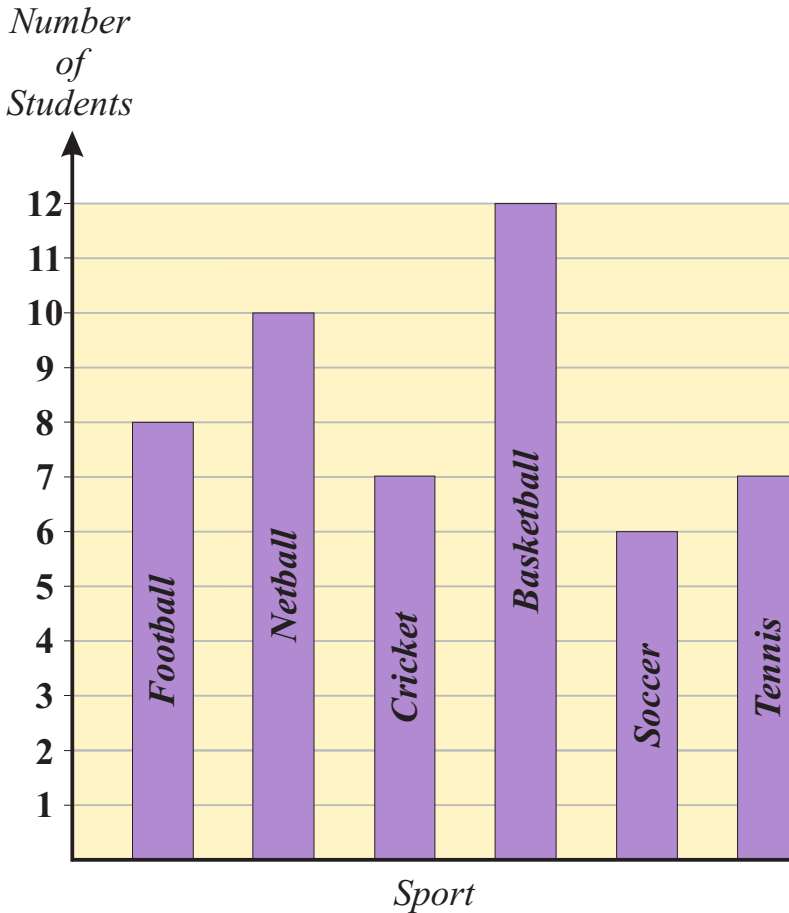


EXERCISE 25D

1. A number of students at T.R.C. College were surveyed and asked how they travelled to school. The results are shown in this column graph.
- (a) How many students used each of the types of travel?
- (i) Bus (ii) Walk (iii) Bicycle
(iv) Car (v) Tram
- (b) How many students were surveyed?
- (c) From the information in the graph is T.R.C. College more likely to be:
- A** In a large city
B In a small country town

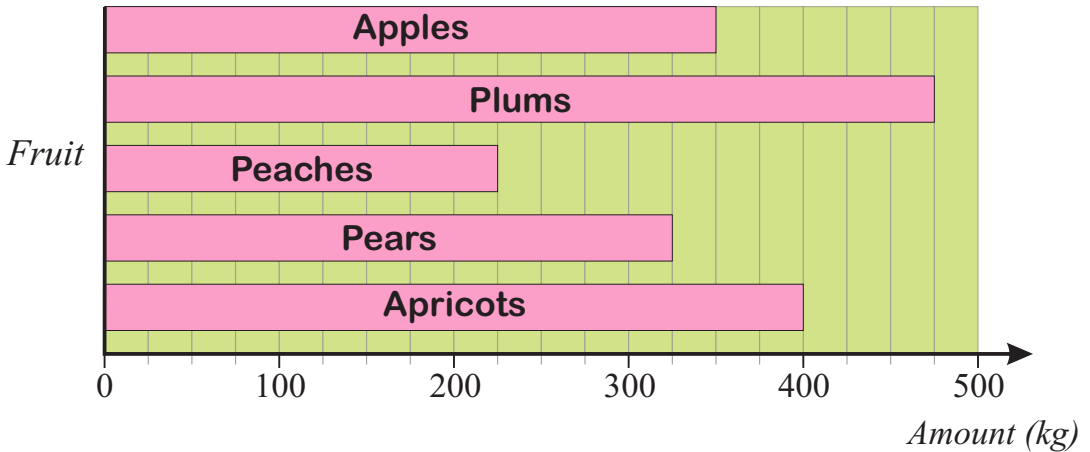


2. A number of students were asked which sport they preferred to play. The results are shown on the column graph below.



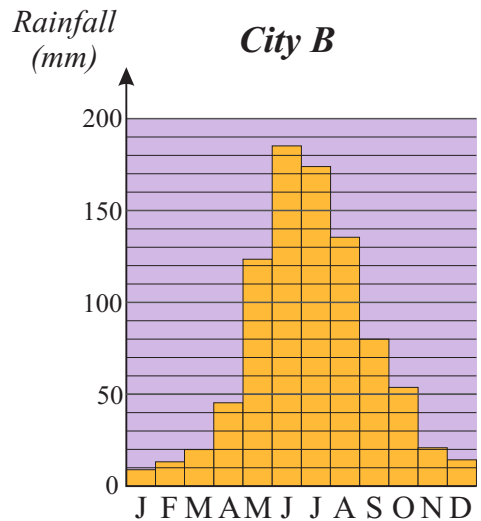
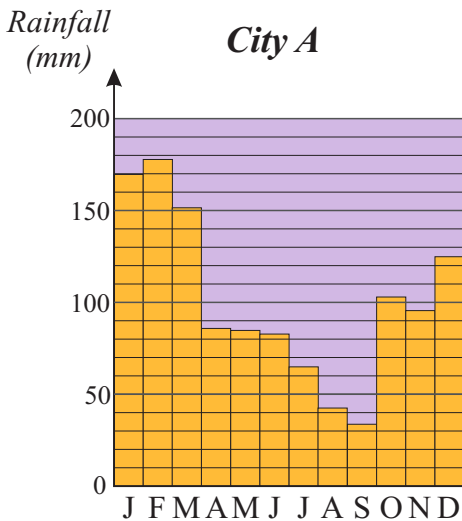
- Which sport was the most popular?
- Which sport was played by the least number of students surveyed?
- Which sports had the same number of students play them?
- If there were four boys who preferred to play tennis, how many girls preferred to play tennis?
- There were the same number of boys as girls that chose basketball. How many girls preferred to play basketball?
- One third of the soccer players were girls. How many girls preferred to play soccer?
- How many students were surveyed?

3. I. M. Picken is a fruit farmer. The bar graph below shows the amount (in kg) of each type of fruit he produced in one year.



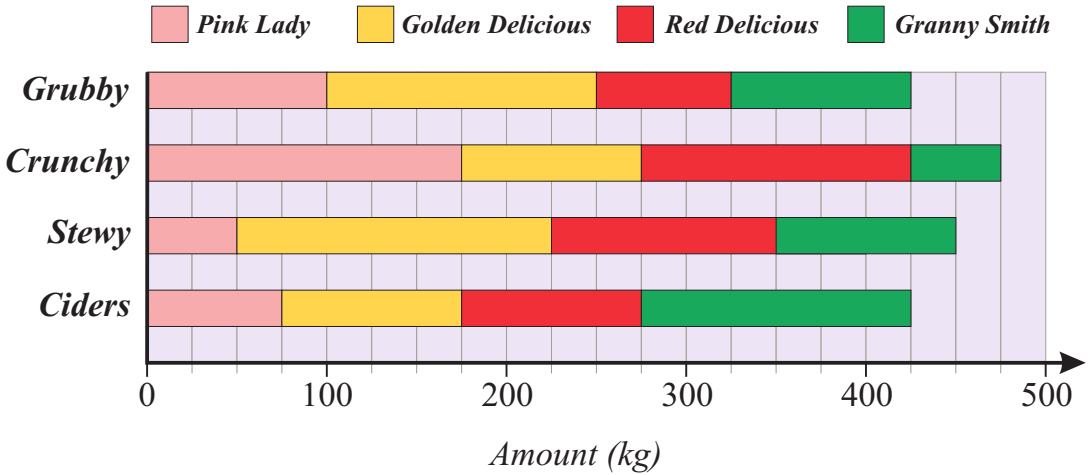
Find the amount (in kg) of each type of fruit he produced.

4. The average monthly rainfall for each month for two Australian cities is shown on the graphs below.



- What is the approximate average December rainfall for city A?
- Which month has the highest average rainfall for city B?
- Find the approximate average *winter* rainfall for city A.
- Find the approximate average *annual* rainfall for city B.
- The information on the two graphs are the actual figures for Perth and Brisbane. Use your knowledge of Australian climate to determine which is City A.

5. Grubby, Crunchy, Stewy and Ciders are apple growers. They each grow four varieties of apples - Pink Lady, Golden Delicious, Red Delicious and Granny Smith. The graph below shows the amount (in kg) of each variety of apple that the growers produced in one year.



Copy and complete the table below showing the amount of each variety of apple and the total amount of apples that the growers produced.

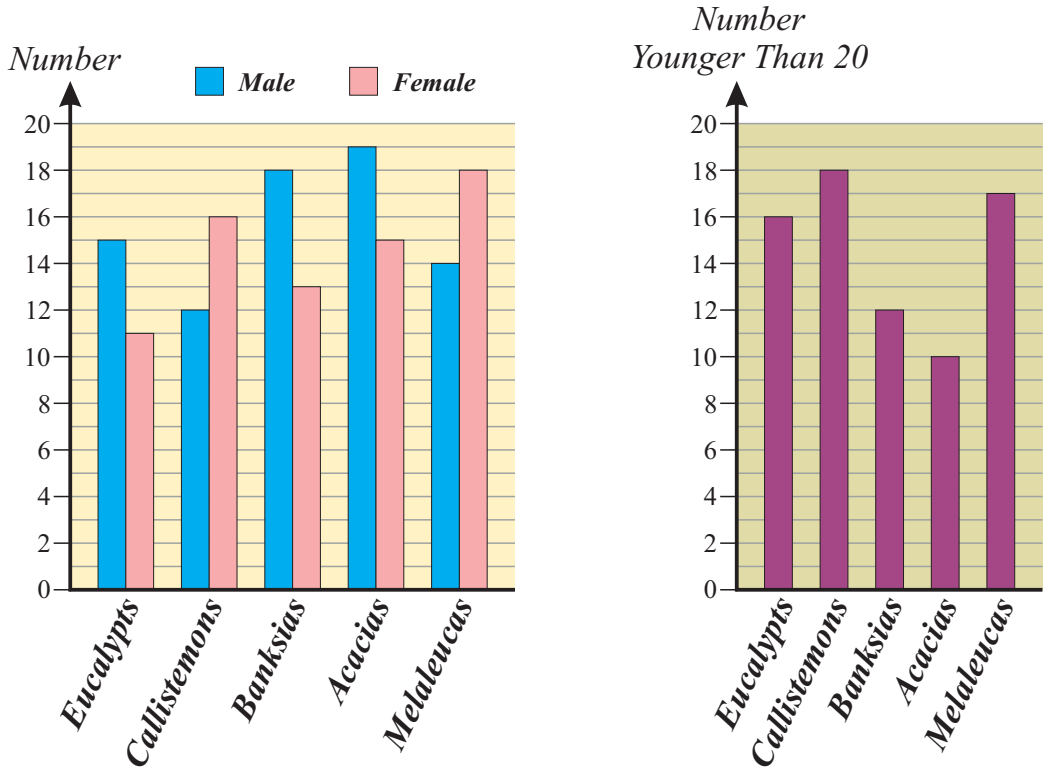
Grower	Amount (kg)				Total
	Pink Lady	Golden Delicious	Red Delicious	Granny Smith	
Grubby					
Crunchy					
Stewy					
Ciders					



6. All the volunteers at a tree planting day were divided into five groups. Each group was given a different variety of tree to plant - *eucalypts*, *callistemons*, *banksias*, *acacias* and *melaleucas*.

The first column graph below shows the number of males and females in each group.

The second column graph shows the number of volunteers in each group who were younger than 20.



- (a) Find the total number of volunteers in each group:
 - (i) eucalypts (ii) callistemons (iii) banksias (iv) acacias (v) melaleucas
- (b) Find the total number of volunteers.
- (c) Find the number of volunteers in each group who were aged 20 or older:
 - (i) eucalypts (ii) callistemons (iii) banksias (iv) acacias (v) melaleucas
- (d) Rearrange the letters **HOTTER BULBS** to find a common name for a *callistemon*.
- (e) Fill in the letters in the word below to find a common name for an *acacia*.

W _ _ T _ E

- (f) What is a common name for a *eucalypt*?

Stem-and-Leaf Plots

Stem-and-leaf plots are a convenient way of arranging numerical data in order from smallest to largest.

Example

Construct a stem-and-leaf plot for the following numbers.

17, 26, 30, 19, 42, 38, 21, 33, 46, 12, 32, 40, 24, 35

Step 1 Note the number of digits in each of the data items.
In this example all the numbers have *two* digits.

Step 2 Note the range of numbers of the first digit - this is called the *stem*.
In this example the first digit ranges from 1 to 4.

Step 3 Construct a stem-and-leaf plot with these numbers (first digits) as the *stems*.

<i>Stem</i>	<i>Leaf</i>
1	
2	
3	
4	

Step 4 Complete the stem-and-leaf plot by using the second digit of each item of data as the *leaf*. Work through the data items from left to right. This is called a *non-ordered stem-and-leaf plot*.

<i>Stem</i>	<i>Leaf</i>
1	7 9 2
2	6 1 4
3	0 8 3 2 5
4	2 6 0

Step 5 Check that the number of items listed on the stem-and-leaf plot is the same as the original data list to make sure you haven't missed any data. In this example there 14 items of data.

Step 6 Arrange each row of digits in the leaf column in order from the smallest to the largest. This is called an *ordered stem-and-leaf plot*.

Stem	Leaf
1	2 7 9
2	1 4 6
3	0 2 3 5 8
4	0 2 6

Step 7 Include a key to show what numbers the stem-and-leaf plot represent.

$$1 \mid 2 = 12$$

EXERCISE 25E

- For the set of numerical data items listed below:
 - construct a non-ordered stem-and-leaf plot.
 - construct an ordered stem-and-leaf plot.
 - state the number of data items.
 - state the smallest data item.
 - state the largest data item.

45, 37, 51, 23, 35, 50, 41, 38, 30, 42, 53, 29, 38, 38, 57, 40, 31, 51

- The ages of a number of people who attended a concert are shown below.

33, 20, 41, 56, 18, 62, 38, 45, 60, 40, 42, 38, 31, 18, 22, 32, 28, 23, 28, 41, 20, 29, 50, 42, 37, 28, 26, 29, 31, 27, 19, 25, 39, 34, 27, 26, 25, 33

For this list of ages:

- construct a non-ordered stem-and-leaf plot.
- construct an ordered stem-and-leaf plot.
- state the number of people who were asked their age.
- state the age of the youngest person asked.
- state the age of the oldest person asked.

Example 1

Construct a stem-and-leaf plot for the following data list.

125, 134, 140, 152, 138, 122, 131, 158, 149, 140, 151, 136, 139, 144

For numerical data with three digits use the first two digits as the stems.

Non-ordered stem-and-leaf plot

Stem	Leaf
12	5 2
13	4 8 1 6 9
14	0 9 0 4
15	2 8 1

$$\begin{array}{c|c} 12 & 5 \\ \hline & 5 \end{array} = 125$$

Ordered stem-and-leaf plot

Stem	Leaf
12	2 5
13	1 4 6 8 9
14	0 0 4 9
15	1 2 8

$$\begin{array}{c|c} 12 & 5 \\ \hline & 5 \end{array} = 125$$

Example 2

Construct a stem-and-leaf plot for the following data list.

8.3, 5.6, 4.2, 2.7, 5.3, 7.7, 3.7, 8.4, 7.0, 4.8, 5.1, 7.7, 2.5, 3.7, 5.8, 3.5, 4.2, 7.6, 3.2, 5.9, 4.0, 3.0, 5.9, 4.2, 5.7, 8.0, 3.6, 4.9

Non-ordered stem-and-leaf plot

Stem	Leaf
2	7 5
3	7 7 5 2 0 6
4	2 8 2 0 2 9
5	6 3 1 8 9 9 7
6	
7	7 0 7 6
8	3 4 0

$$\begin{array}{c|c} 2 & 5 \\ \hline & 5 \end{array} = 2.5$$

Ordered stem-and-leaf plot

Stem	Leaf
2	5 7
3	0 2 5 6 7 7
4	0 2 2 2 8 9
5	1 3 6 7 8 9 9
6	
7	0 6 7 7
8	0 3 4

$$\begin{array}{c|c} 2 & 5 \\ \hline & 5 \end{array} = 2.5$$

EXERCISE 25F

1. The heights (in cm) of the students in a year 7 class are shown below.

163, 170, 159, 163, 151, 172, 164, 169, 158, 162, 160, 158, 178,
179, 182, 168, 171, 173, 164, 173, 159, 160, 170, 172, 163, 172

- (a) Construct a non-ordered stem-and-leaf plot for this data.
 (b) Construct an ordered stem-and-leaf plot for this data.
 (c) What is the height of the shortest student in the class?
 (d) What is the height of the tallest student in the class?
 (e) How many students are in the class?
2. The weights (in kg) of a number of dolphins studied near Byron Bay are shown below.

215, 287, 254, 201, 293, 235, 262,
227, 230, 241, 219, 299, 239, 245,
261, 229, 209, 217, 220, 231, 242,
251, 248, 250, 210, 227, 283, 237,
251, 244, 219, 223, 247, 237, 239,
227, 231, 233, 204, 217, 228, 240

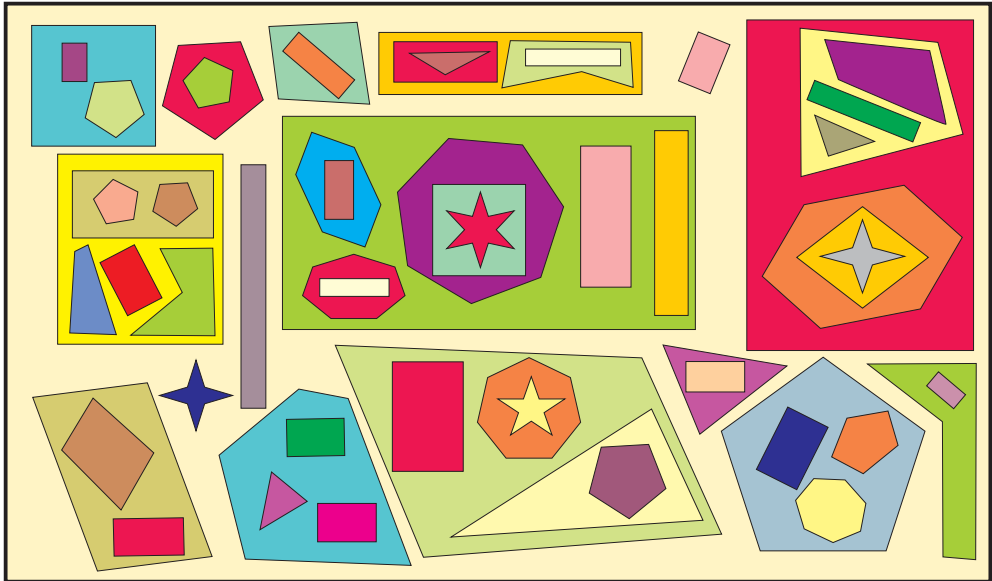


- (a) Construct a non-ordered stem-and-leaf plot for this data.
 (b) Construct an ordered stem-and-leaf plot for this data.
 (c) What was the weight of the smallest dolphin in the data list?
 (d) What was the weight of the largest dolphin in the data list?
 (e) How many dolphins were studied?
3. In a school athletics meeting twelve students competed in the shot put event. The best distances thrown by each student (in metres) is shown below.

8.7, 7.6, 6.9, 8.3, 7.3, 7.8, 8.0, 9.1, 8.8, 7.9, 9.0, 7.7

- (a) Construct a non-ordered stem-and-leaf plot for this data.
 (b) Construct an ordered stem-and-leaf plot for this data.
 (c) What was the furthest distance thrown?
 (d) What was the shortest distance thrown?

4. Thirty students recorded how long (in seconds) it took each of them to find the *five triangles* in this diagram. The times they took are shown below.



3.5, 4.8, 5.3, 1.9, 2.6, 6.7, 4.6, 3.8, 2.8, 3.8, 4.7, 3.1, 4.2, 4.3, 4.2, 2.9, 3.8, 2.5, 3.7, 8.2, 4.3, 5.3, 2.7, 1.8, 3.1, 3.7, 2.4, 2.1, 3.7, 4.0

- (a) Construct a non-ordered stem-and-leaf plot for this data.
 (b) Construct an ordered stem-and-leaf plot for this data.
 (c) What was the fastest time?
 (d) What was the slowest time?
5. The maximum temperatures (in degrees °) on each day in January in Alice Springs in a particular year are shown below.

42.5, 38.7, 33.4, 29.8, 31.5, 36.7, 42.3, 44.5, 40.7, 39.6, 37.2, 36.5, 33.8, 38.5, 40.3, 39.1, 37.3, 35.4, 32.7, 38.5, 32.6, 33.5, 37.8, 35.9, 30.6, 29.6, 34.6, 37.1, 38.0, 39.0, 34.7

- (a) Construct a non-ordered stem-and-leaf plot for this data.
 (b) Construct an ordered stem-and-leaf plot for this data.
 (c) What was the hottest temperature recorded?
 (d) What was the lowest temperature recorded?

Back-to-Back Stem-and-Leaf Plots

A back-to-back stem-and-leaf plot can be used to compare two sets of numerical data.

Example

The points scored by two netball teams in 12 rounds of a competition are listed below.

Blue Birds: 34, 46, 53, 38, 47, 29, 50, 42, 33, 40, 36, 32

Red Robins: 28, 31, 22, 18, 23, 31, 30, 17, 28, 33, 20, 26

A back-to-back stem-and-leaf plot shows both teams' scores.

The stem is shared by both sets of data.

One team's scores are shown on the right side of the stem being recorded left to right.

The other team's scores are shown on the left side of the stem being recorded right to left.

Non-ordered back-to-back stem-and-leaf plot

<i>Blue Birds</i>		<i>Red Robins</i>
<i>Leaf</i>	<i>Stem</i>	<i>Leaf</i>
	1	8 7
9	2	8 2 3 8 0 6
2 6 3 8 4	3	1 1 0 3
0 2 7 6	4	
0 3	5	

$$\begin{array}{c} 2 \\ \hline 5 \end{array} = 25$$

Ordered back-to-back stem-and-leaf plot

<i>Blue Birds</i>		<i>Red Robins</i>
<i>Leaf</i>	<i>Stem</i>	<i>Leaf</i>
	1	7 8
9	2	0 2 3 6 8 8
8 6 4 3 2	3	0 1 1 3
7 6 2 0	4	
3 0	5	

$$\begin{array}{c} 2 \\ \hline 5 \end{array} = 25$$

EXERCISE 25G

1. The heart rate (in beats per minute) of a number of people was recorded before and after they exercised. The results are shown in the ordered back-to-back stem-and-leaf plot below.

<i>Heart Rate Before Exercise</i>		<i>Heart Rate After Exercise</i>
<i>Leaf</i>	<i>Stem</i>	<i>Leaf</i>
	5	
9 8	6	9
9 8 6 6 5 5 3 1	7	3 5 8 8
8 7 7 4 4 3 2 1 0 0	8	0 1 2 3 6 7 8 8 9 9
	9	0 1 2 4 6

$$\begin{array}{c|c} 6 & 9 \\ \hline \end{array} = 69$$

- (a) How many people had their heart rates recorded?
 (b) What was the slowest heart rate before they exercised?
 (c) What was the fastest heart rate before they exercised?
 (d) What was the slowest heart rate after they exercised?
 (e) What was the fastest heart rate after they exercised?
2. The age of all the females and males who attended an art course are shown in the ordered back-to-back stem-and-leaf plot below.

<i>Age of Females</i>		<i>Age of Males</i>
<i>Leaf</i>	<i>Stem</i>	<i>Leaf</i>
	1	
9 9 8 7	2	5 6 6 7 9
9 8 6 6 5 3 2 1 0	3	0 1 2 3 5 8 8
8 7 7 4 4 3 2 1 0 0	4	0 1 1 2 3 9
9 4 3		

- (a) How many females attended the course?
 (b) How many males attended the course?
 (c) What was the age of the youngest female who attended the course?
 (d) What was the age of the oldest female who attended the course?
 (e) What was the age of the youngest male who attended the course?
 (f) What was the age of the oldest male who attended the course?

$$\begin{array}{c|c} 1 & 9 \\ \hline \end{array} = 19$$

3. A Year 7 mathematics class was set a practice exam, then given two weeks of revision before being set the main exam. The percentage marks for all the students for the practice exam and main exam are shown below.

Percentage marks for practice exam:

45, 56, 27, 48, 38, 58, 40, 50, 63, 52, 48, 39,
41, 52, 37, 49, 36, 43, 47, 39, 28, 45, 40, 47

Percentage marks for main exam:

54, 68, 72, 85, 93, 85, 70, 67, 93, 82, 84, 72,
71, 62, 73, 80, 63, 57, 74, 81, 82, 67, 70, 74

- (a) Construct a non-ordered back-to-back stem-and-leaf plot to display this data.
 (b) Construct an ordered back-to-back stem-and-leaf plot to display this data.
 (c) What was the lowest mark on the practice exam?
 (d) What was the highest mark on the practice exam?
 (e) What was the lowest mark on the main exam?
 (f) What was the highest mark on the main exam?
4. Con is a motor mechanic and Cam is his apprentice. The times (in minutes) they each took to service a number of cars are shown below.

Con: 58, 67, 72, 63, 59, 70, 62, 68, 76, 72, 82, 57, 84, 68, 71, 70

Cam: 86, 93, 102, 109, 93, 90, 84, 97, 90, 91, 105, 97, 89, 99, 91

- (a) Construct a non-ordered back-to-back stem-and-leaf plot to display this data.
 (b) Construct an ordered back-to-back stem-and-leaf plot to display this data.
 (c) What was the quickest time that Con took to service a car?
 (d) What was the slowest time that Con took to service a car?
 (e) What was the quickest time that Cam took to service a car?
 (f) What was the slowest time that Cam took to service a car?

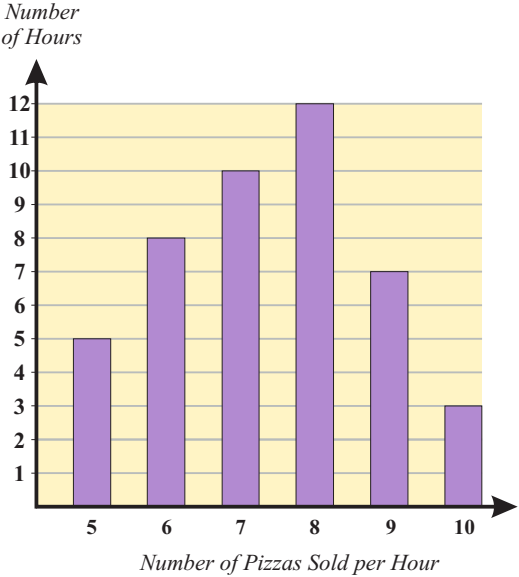
PROBLEM SOLVING

1. A dairy farmer milked 20 cows each day. On one day the amount of milk produced by each cow is shown in this stem-and-leaf plot. On looking at the plot he noticed he had only recorded the amount of milk produced from 19 cows. He noticed that in the milk vat there was a total of exactly 800 litres of milk. How many litres of milk did the cow not recorded on the stem-and-leaf plot produce?

Stem	Leaf
2	8 9
3	0 2 5 6 7 8 9
4	0 1 2 3 3 4 5 7
5	0 1

$$\begin{array}{r} 3 \overline{) 5} = 35 \end{array}$$

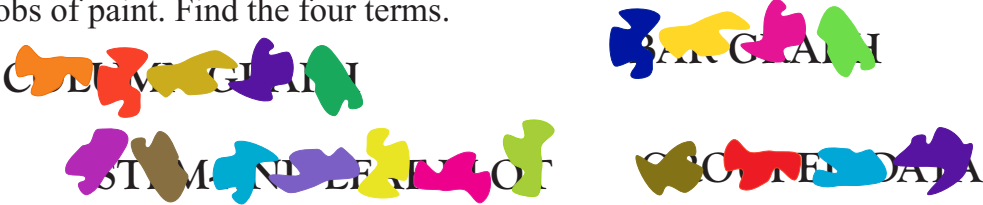
2. Rob sells pizzas from his mobile pizza oven for three hours each day for five days each week. He sells his pizzas for \$12 each. He records the number of pizzas he sells every hour and this column graph shows his pizza sales for a number of days.



- (a) How many *weeks* are recorded on the column graph?
- (b) How much did Rob earn from his pizza sales in the period shown?

PUZZLE

Four terms from this chapter are written below but have been partly covered by blobs of paint. Find the four terms.



CHAPTER REVIEW

1. A number of people were asked how many brothers and sisters they had. The results are shown below.
Construct a frequency distribution table for this set of data.

0, 1, 3, 0, 1, 1, 2, 4, 3, 2, 1, 1, 1, 0, 1, 2, 2, 1, 0, 1, 1, 0, 2, 3, 1, 1, 2, 2, 1, 1, 1, 0, 2, 3, 1, 2, 0, 1, 1

2. The number of passengers taking a trip on a ferry was recorded every trip for a week. The results are shown below.
Copy and complete the frequency distribution table for this data.

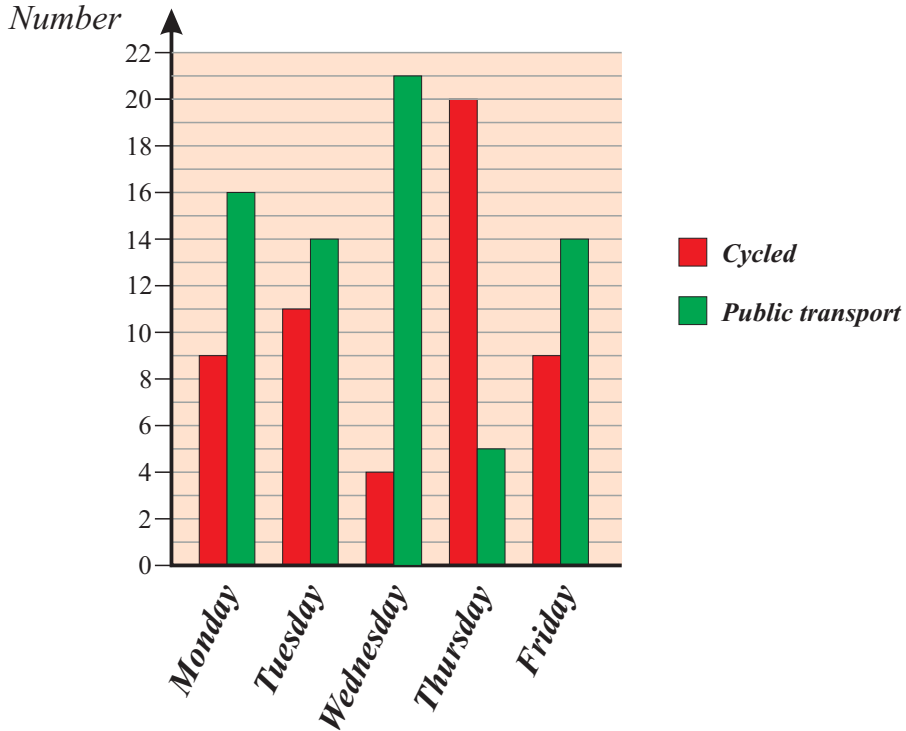
25, 41, 26, 38, 56, 40, 71, 52, 19, 27, 38, 63, 52, 48, 39, 50, 32, 50, 15, 29, 59, 60, 31, 28, 40, 33, 62, 29, 18, 32, 57, 42, 31, 20, 42, 58

<i>Number of Passengers</i>	<i>Tally</i>	<i>Frequency</i>
0 - 20		
- 40		
- 60		
- 80		
	<i>Total</i>	

3. A number of Australians at a conference were asked in which state or territory they live. The results are shown below.
- Draw a dot plot to display this data.
 - How many people were surveyed?
 - In which state or territory did the most people surveyed live?

V, NSW, T, NT, ACT, WA, SA, V, Q, T, V, NSW, V, SA, NSW, WA, Q, NSW, T, SA, ACT, V, Q, NT, WA, Q, V, NSW, SA, V, SA, Q, NT

4. The workers at an inner city store either cycled or caught public transport to work. The number who used each way to get to work was recorded for a working week and displayed on the column graph below.



- (a) On which day did two people work at another store?
 (b) How many people worked at the store?
 (c) On which day did it rain heavily?
 (d) Which day was 'ride-to-work day'?
5. A basketball team recorded all the scores they made for a season and all the scores other teams made against them. This data is shown below.
- Scores for: 57, 68, 48, 50, 47, 69, 72, 48, 53, 42, 59, 44, 68, 71, 66, 58**
- Scores against: 52, 61, 43, 40, 37, 49, 52, 42, 52, 42, 50, 41, 60, 51, 46, 53**
- (a) Construct a non-ordered back-to-back stem-and-leaf plot for this data.
 (b) Construct an ordered back-to-back stem-and-leaf plot for this data.
 (c) How many games did the team play for the season?
 (d) What was the highest score made by the team?
 (e) What was the highest score made against the team?