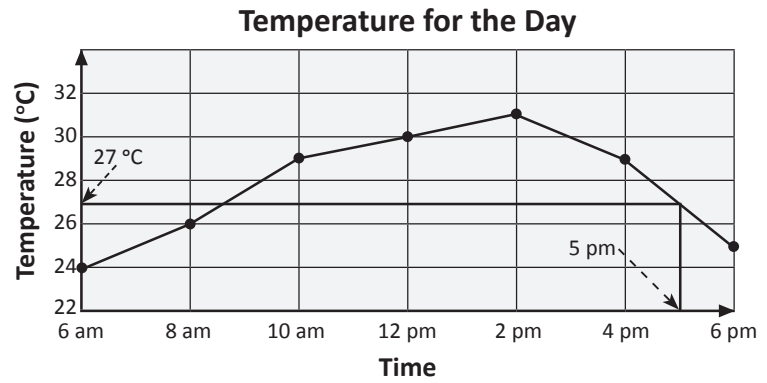


Types of graphs 3 – reading line graphs

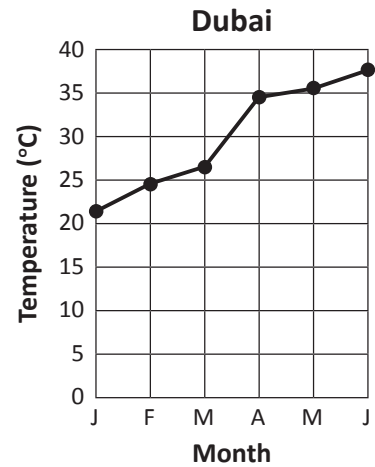
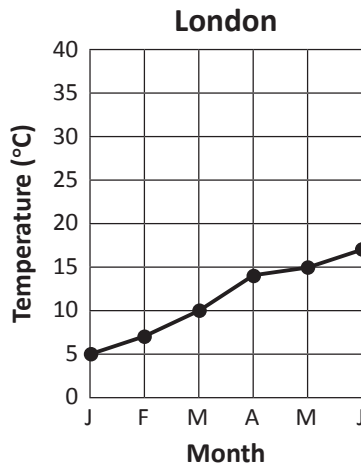
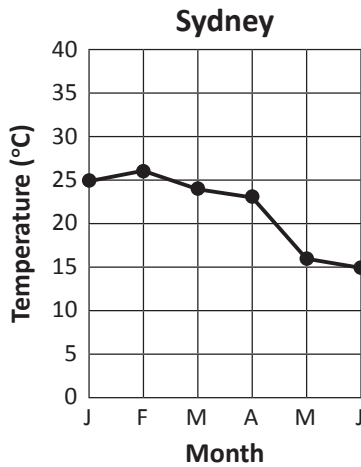
Line graphs can show how something changes over time in relation to something else.

In this topic we are going to look at many different examples of line graphs.

Here is an example of a temperature line graph.



- 1 The line graphs below show the average temperatures in degrees Celsius (°C) in Sydney, London and Dubai for the first 6 months of the year.



- a Study the graphs carefully and complete the table:

	January	February	March	April	May	June
Sydney				23		
London		7				
Dubai			27			

- b Are these statements true or false? Circle one:

In January, the difference between Dubai and Sydney is 4 °C. True / False

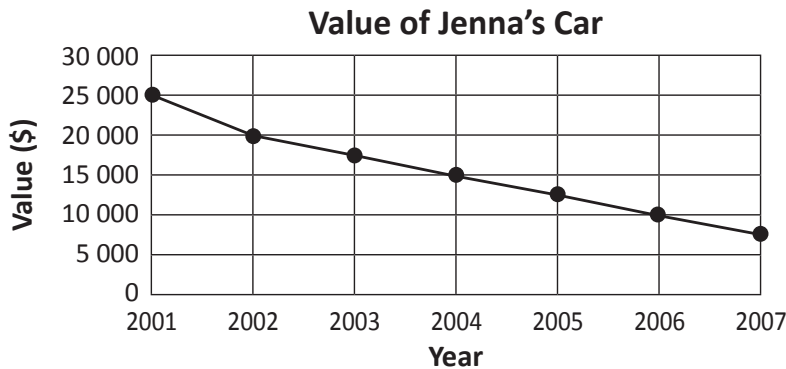
In February, the difference between Dubai and London is 18 °C. True / False

In May, Dubai is 21 °C warmer than London. True / False

Types of graphs 3 – reading line graphs

- 2 Jenna bought a new car in 2001 for \$25 000. The dollar value of her car changed each year as shown in line graph below:

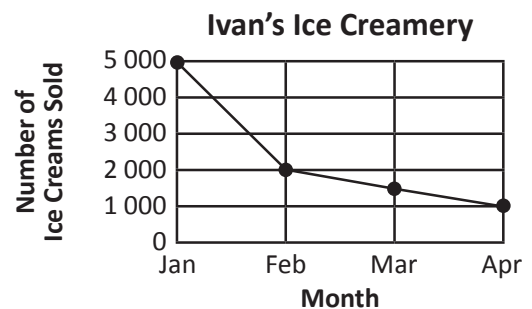
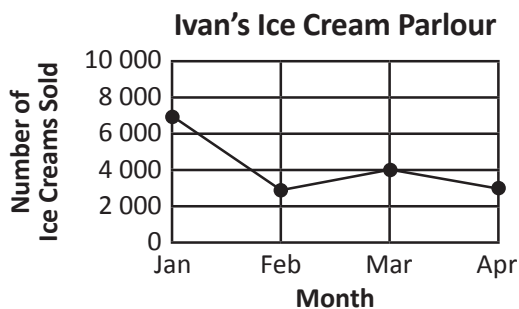
a Transfer the data from the graph into the table.



Value of Jenna's Car	
Year	Value
2001	
2002	
2003	
2004	
2005	
2006	
2007	

- b What was the value of Jenna's car in 2003?
- c By how much did the car's value drop between 2002 and 2005?
- d Between which years was the greatest drop in value?

- 3 Ivan, a very inventive ice cream manufacturer, is analysing sales of his new range of ice cream flavours. He wants to find out if his latest creations such as Chocolate Garlic Ripple, Caramel Squid Ink or Crunchy Seaweed Swirl are taking off or not. Help him find out by comparing his 2 stores. One store sells the crazy new flavours and the other sells regular flavours.



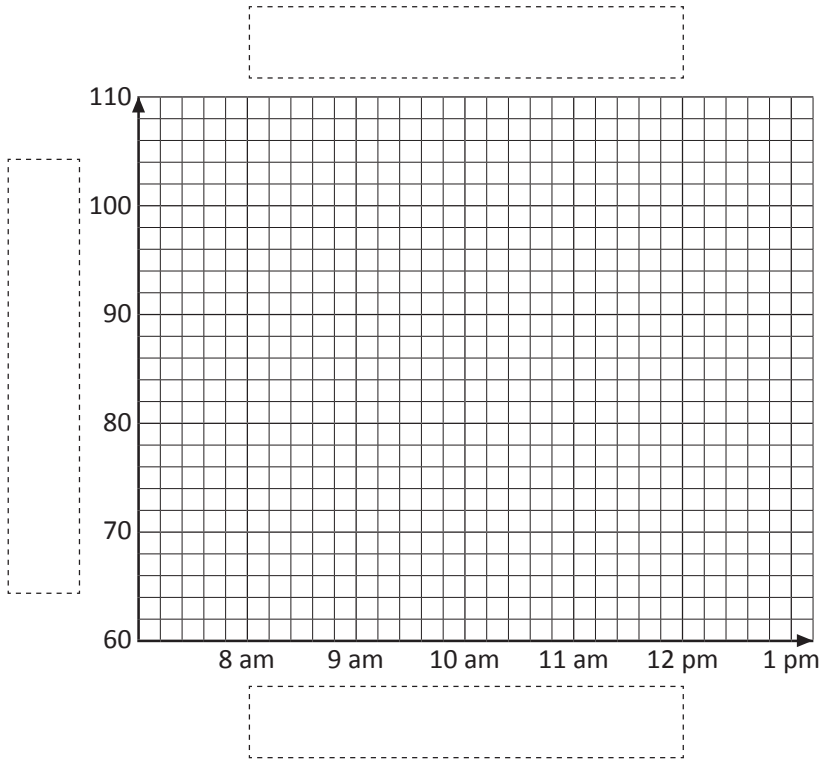
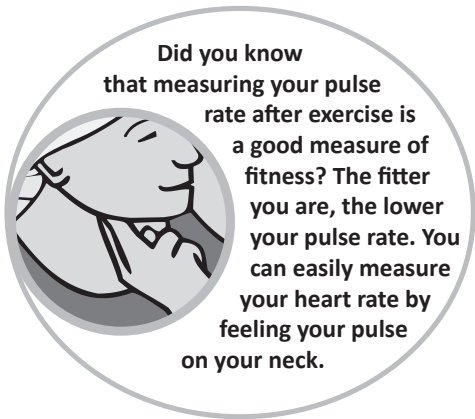
- a How many ice creams were sold over January at Ivan's Ice Cream Parlour?
- b How many ice creams were sold over January at Ivan's Ice Creamery?
- c What was the difference in the number of ice creams sold at each store in March?
- d Which of Ivan's stores do you think sells his latest crazy creations and why?

Types of graphs 3 – constructing line graphs

To construct a line graph, we carefully plot the data from the table. If a change occurs between dots, then we join them. If not, we don't.

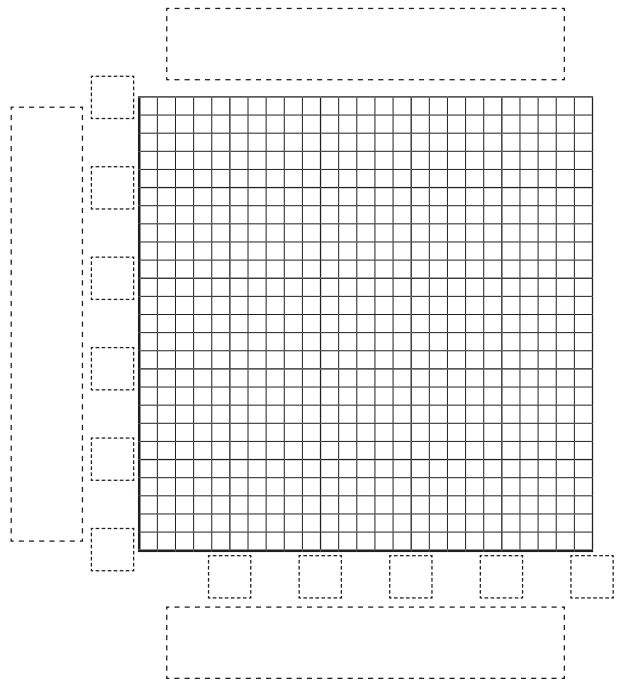
- 1 Jamie wrote down his pulse rate each hour from 8 am to 1 pm. Complete the line graph from the data. Plot the points carefully and then join the dots with a ruler. Label each axis and give the graph a heading.

Time	Pulse Rate (beats per minute)
8 am	62
9 am	66
10 am	60
11 am	76
12 pm	104
1 pm	70



- 2 In pairs, test your pulse rate for 5 minutes after exercise and construct a line graph to show the results. Find a partner and stopwatch. Your partner counts as you do 100 star jumps. Feel the pulse on the side of your neck and count for 1 minute – your partner will tell you when 1 minute is up by using a stopwatch. Do this 5 times and record the data in the table below. Then it's time for your partner to do 100 star jumps as you time them.

Time (in minutes)	Pulse Rate (beats per minute)
1	
2	
3	
4	
5	

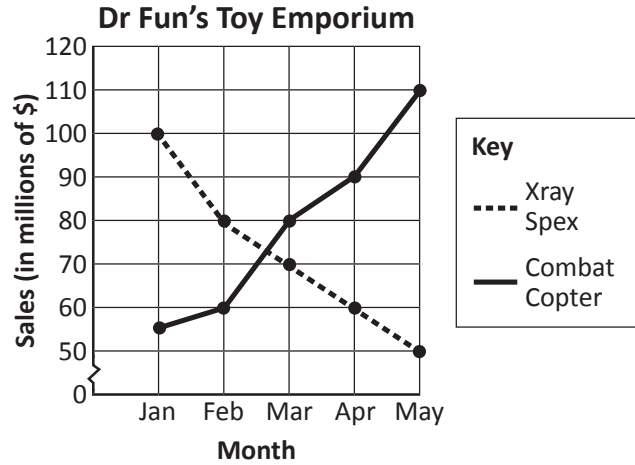


Types of graphs 3 – double line graphs

When we want to compare 2 sets of data in relation to the same thing, we use a double line graph. Double line graphs are the same as regular line graphs except they show 2 sets of data.

1 This double line graph shows the sales of two of Dr Fun's most popular toys over the last 5 months.

Because there is no data to show below 50 but we need the intervals to go up in tens, we use a break in the scale. We show this by having a crooked line between zero and 50 then use intervals of 10 each time.



a Why is there a break in the scale from 0 to 50?

b Molly described this graph in the next paragraph. Correct her errors.

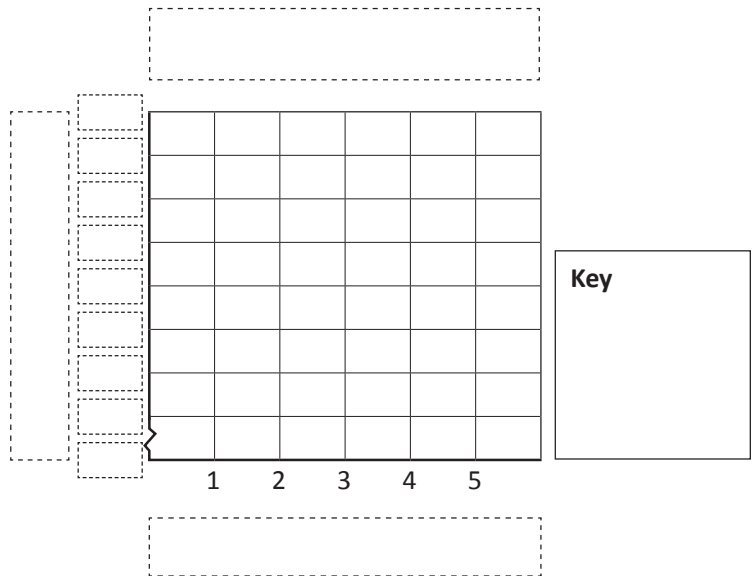
The vertical axis is showing us the year of the sale. The scale of this graph is going up by 50 each time. This graph shows that the sales of Xray Spex have been increasing rapidly while sales of Combat Copter have been decreasing over the same amount of time.

Corrections:

- 1 _____
- 2 _____
- 3 _____

2 Create a double line graph from the table below by plotting both sets of data and connecting the dots. You should use a solid line for one set of data and a dotted line for the other. You must label each axis and provide a key. There is a break in the scale, so where should the scale start? In what intervals should the scale go up by?

Live Mathematics Scores					
Game	1	2	3	4	5
Level 4	85	90	100	105	110
Level 5	50	55	70	85	90

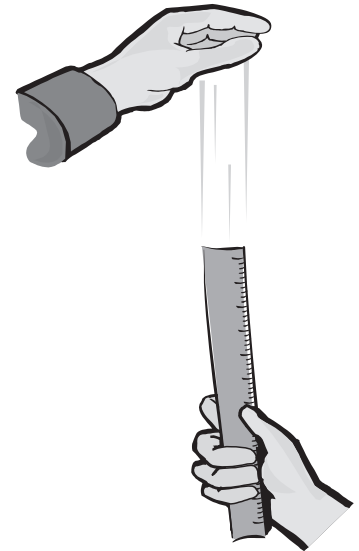


Types of graphs 3 – double line graphs

- 3** In this activity you and your partner are going to test each other's reaction times with a 30 cm ruler.

How to test reaction time:

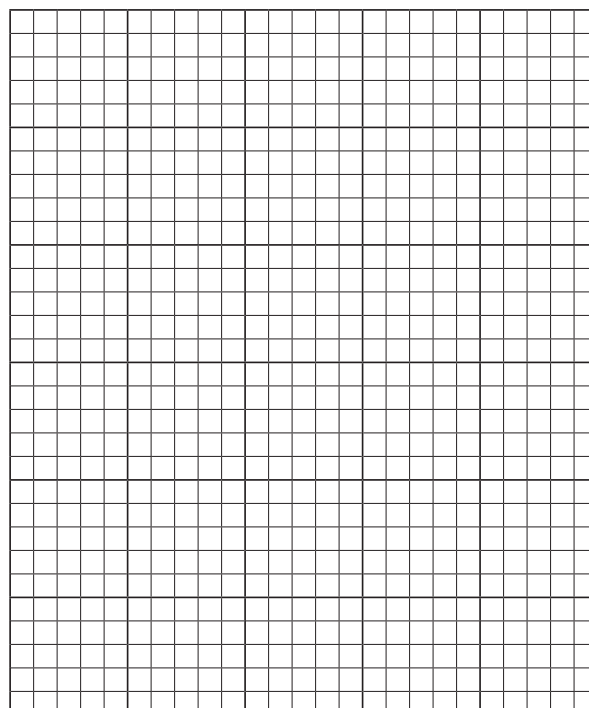
- 1 Place your arm or elbow on a desk, ready to catch the ruler.
- 2 Your partner hangs the ruler so that the tip near the 0 cm mark is close to your catching hand.
- 3 Your partner drops the ruler without warning you. You must try to catch the ruler as quickly as possible.
- 4 Read the cm marking closest to your finger where you caught the ruler and record it in the tables below.
- 5 Swap roles.



Name:					
Trial	1	2	3	4	5
Catch distance					

Name:					
Trial	1	2	3	4	5
Catch distance					

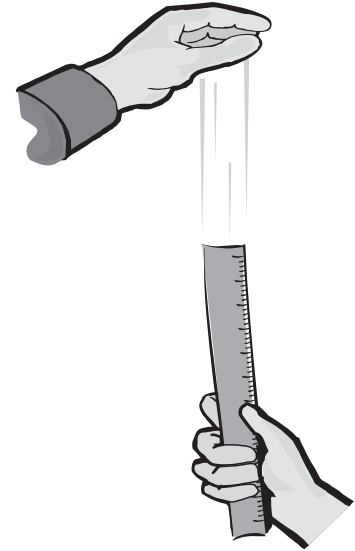
- 4** Graph the results by completing a double line graph.








Types of graphs 3 – double line graphs

- 5 How did you go? Who was faster – you or your partner? What does the graph show? Find out your reaction rating. Work out the average of your catch distances and use the table below:

Catch Distance (in cm)	Reaction Time (in milliseconds)	Rating
1	50	Greased lightning!
2	60	
3	70	
4	80	
5	90	
6	100	
7	120	
8	130	
9	140	Dangerously dexterous
10	140	
11	150	
12	160	
13	160	
14	170	
15	170	Reasonable reaction time
16	180	
17	190	
18	190	
19	200	
20	200	
21	210	Room for improvement
22	210	
23	220	
24	220	
25	230	
26	230	Wakey wakey
27	230	
28	240	
29	240	
30	250	



Key to Rating

-  Greased lightning!
-  Dangerously dexterous
-  Reasonable reaction time
-  Room for improvement
-  Wakey wakey