

Look back at pages 29–34 of Numeracy Outcome 1 pack and read what it says there.

- First of all, decide that it is really a line graph that you want to draw.
- Decide which is the independent variable (you plot that along the horizontal axis) and which is the dependent variable (you plot that up the vertical axis).
- Decide the range of numbers which have to be scaled on each axis. Remember that you don't have to start at 0.

Finally, draw the graph.

**Example 9a**

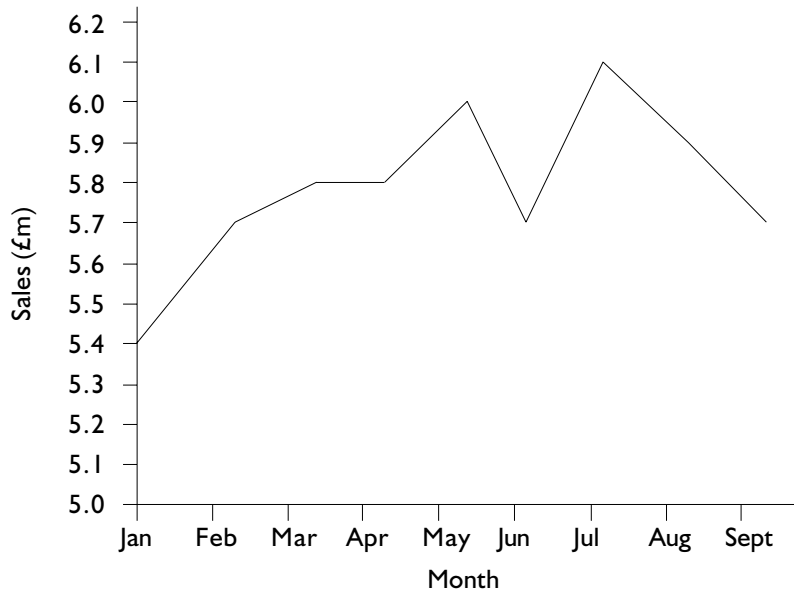
This table shows a company's sales for three quarters of a year. Draw a line graph to illustrate this.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Sales (£m)	5.4	5.7	5.8	5.8	6.0	5.7	6.1	5.9	5.7

**Solution:**

Clearly the months will be plotted on the horizontal axis, the sales on the vertical axis.

We can start the vertical scale at 5.0. The completed graph is shown below.



Remember that interpolation is impossible here. The sales are monthly totals, which occur at discrete, i.e. completely separate, points. You can't find the sales for 'May and a half' for instance.

Note that a bar chart would do just as well here, but the line graph perhaps looks more emphatic.

**Example 9b**

This table shows the temperature of a patient taken at 2-hourly intervals of time:

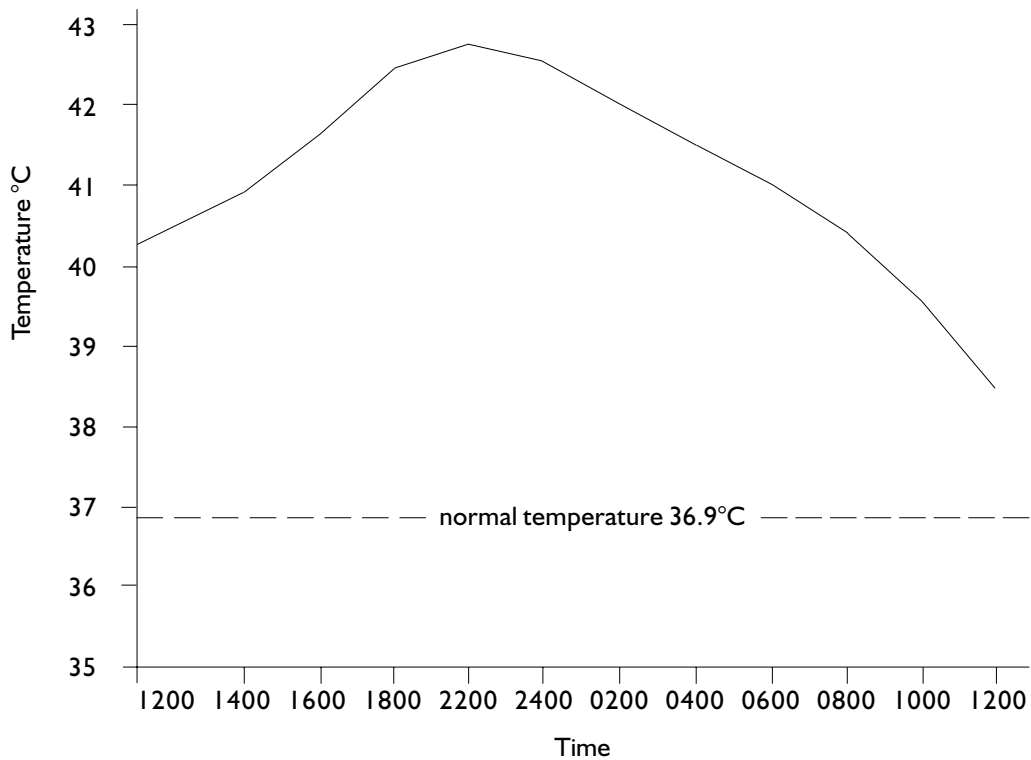
Time	1200	1400	1600	1800	2200	2400	0200	0400	0600	0800	1000	1200
Temp	40.3	40.9	41.6	42.4	42.7	42.5	42.0	41.5	41.0	40.4	39.6	38.5

Draw a line graph to illustrate this.

**Solution:**

Time will be horizontal, temperature will be vertical. The temperature scale can start at, perhaps, 35°C, since the average temperature of a healthy body is 36.9°C.

We can interpolate here, because the time here is an example of a continuous variable, e.g. we could take the time every minute or even second or millisecond (in theory anyway) and measure the temperature then.



**Example 9c**

Why is each of these not suitable for illustration as a line graph?

Wages Paid (£)	150-175	175-200	200-225	225-250	250-275	275-300
No. of Employees	25	76	70	53	42	18

Make of Car	Fiat	Vauxhall	Ford	Nissan	Toyota
No. Sold	43	75	94	73	50

**Solution:**

The wages are in class intervals, so you can't plot any single values on the axis. The intervals could just as easily been described using words such as 'low', 'medium' etc. You could have drawn an ogive, though. The cars are not a numerical variable, so a line graph is wholly inappropriate.



Draw a line graph to illustrate the following information. Make sure you remember to give each graph a title, to label each axis, and to make the units clear.

For each graph ask yourself if it makes sense to interpolate or not.

- This table shows the annual sales figures (in £million) for Alberts plc:

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Sales	8.5	8.7	8.9	9.3	10.2	11.4	12.9	10.6	8.3	7.2	7.1	7.3	7.9

- This table shows the height of a plant measured over a period of one month:

Day	0	5	10	15	20	25
Height (cm)	0	10.2	30.7	70.8	110.5	115.2

- This table shows the progress of a group of cyclists in a road race which follows a circular route and stops at the same place as it started. Distances are measured in kilometres.

Time	1500	1515	1530	1545	1600	1615	1630	1645	1700
Distance (from start)	0.0	14.9	35.2	47.1	65.2	51.8	34.6	14.5	0.0