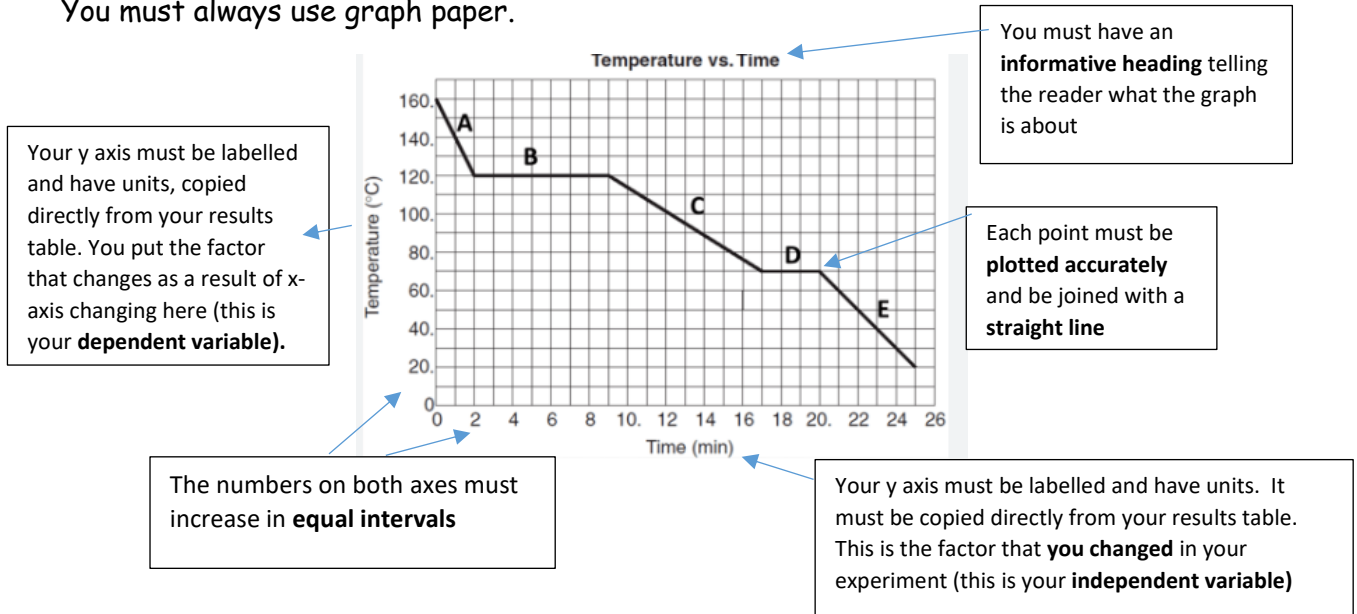


## CONSTRUCTING LINE GRAPHS

A line graph is used to display information that is connected in some way (for example how something changes over time). Unlike a bar chart, you will have a linear scale on both the X and Y axis. The diagram below shows how you should construct a line graph. You must always use graph paper.



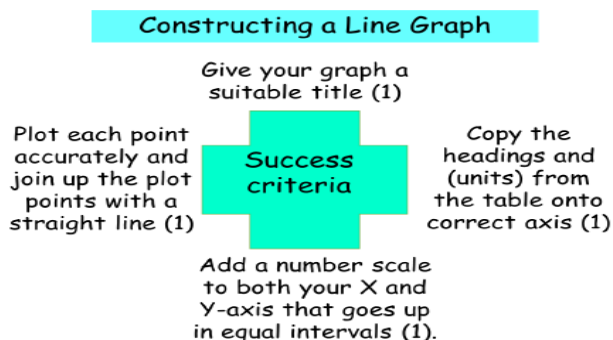
### Interpreting line graphs

You can use the line on a line graph to describe the **relationship** between the independent (x-axis) and dependent variable (y-axis). For example, at point A on the line - as time increased from 0-2 minutes, the temperature decreased from 160 °C to 120 °C . At point B on the line, temperature remained **constant (did not change)** at 120°C from 2 to 9 minutes and so on. The **steepness** of the line shows the rate of increase or decrease. A **steeper** line - is a **faster** increase or decrease compared to a less steep line!

### Line graph success criteria - this is how your line graph will be marked.

#### Line Graphs

There are 4 things which you need to remember when drawing a line graph.



You should have a copy of the success criteria **stuck into your jotter** so that you can use it whenever you need it.

Line graph questions **ANSWERS**

1. The following information shows the change in temperatures in London over a year.

Average daily maximum temperature in London during the year:

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp (°C)	4	5	7	9	12	16	18	17	15	11	8	5

Hints:      X axis = Month                  Y- axis - Temp (°C)      Go up in 2's

- a. Put the following information into a line graph on graph paper then use the graph to
- b. Which was the warmest month? **JULY**
- c. Which was the coldest month? **JANUARY**
2. Paul set up an experiment measuring the number of oxygen bubbles given off by pond weed in one minute. He counted them with the water at various temperatures. His results are in the table below.

Temperature in °C	10	20	30	40	50	60
Number of bubbles per minute	6	10	17	24	15	0

Hints: X axis = Temperature in °C      Y axis = Number of bubbles per minute

- a. Draw a line graph of the results of this experiment on graph paper. Use your line graph to answer the following questions.
- b. At which temperature were the most bubbles produced per minute? **40°C**
- c. At which temperature were the least bubbles produced per minute? **60°C**
- d. What is the difference between the bubbles produced per minute between 20 °C and 40°C? **14°C**

3. Small organisms were fed chicken manure. The volume of biogas produced was measured over a period of five hours.

<i>Time in hours</i>	<i>Volume of Biogas in cm<sup>3</sup></i>
0	0
1	3
2	6
3	12
4	24
5	48

Hint: X-axis = time in hours

Y-axis = Volume of biogas in cm<sup>3</sup>.

- a. Put the following information in a line graph on graph paper.  
b. What is the **relationship** between the time and volume of biogas produced?

*As the time increases, the volume of biogas produced increases*