N5 Chemistry: Whole Course REVISION

Lesson 11 – Graphs

Learning Outcomes

By the end of this lesson you should have revised:

1. How to choose an appropriate graph given a set of data.
2. How to create a graph and achieve full marks

Success Criteria

You will have been successful in this lesson if you:

1. Watch the links provided
2. Complete revision questions provided
3. Complete and submit homework assigned

There is also a further reading section to help you gain more depth of understanding for this section.

If you have any questions about the content of this lesson, you should ask your class teacher either through your class MS team or via email. MS Teams will be monitored throughout the week by a chemistry teacher. If you need help or clarification with either the task or the content of the lesson, just ask.

Links to Prior Knowledge

You may wish to revise the following to help you understand this lesson:

- N5 Unit 2: Homologous Series

You do not need to copy any notes as this is all revision, but you should complete all questions and tasks as outlined in this document.

Watch this video first:

https://youtu.be/qO2vwCKnUp8

Graphs

Graphs can be created to show information in a different way.

The type of graph you use depends on the type of data you have.

Discrete Data

This data is normally given as numbers and words.

e.g. the different types of pets owned by pupils in a classroom

Type of Pet	Number of Pupils that
Dog	5
Cat	8
Fish	4
Rabbit	3

This data is best represented by bar charts or pie charts.

Continuous Data

This data is normally given as number and numbers.

e.g. the effect of changing temperature on the time a reaction takes

Temperature (°C)	Time (s)
10	90
20	75
30	62
40	51
50	45

This data is best represented by a line graph or scatter graph.

You do not need to be able to define these types of data but you should be able to identify them and then select the correct graph to represent this data.

The two main types of graphs you will be expected to use are:

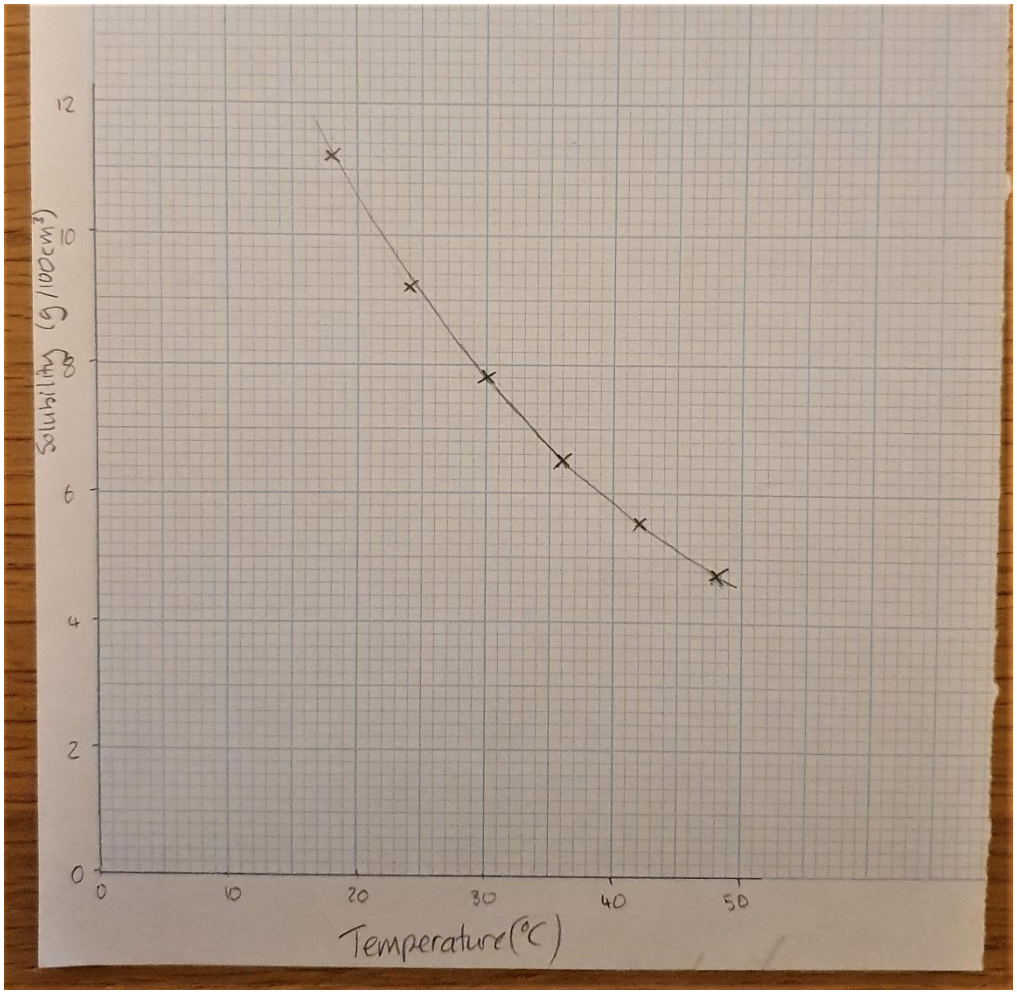
Scatter Graphs

(straight or curved line of best fit)

- continuous data (numbers and numbers)
- Looking for a relationship (trend) between the two variables
- The independent variable (the one you change) goes on the x-axis. The dependent variable (the one you measure) goes on the y-axis.

Example: The table below gives information about the solubility of sulfur dioxide.

Temperature (^oC)	18	24	30	36	42	48
Solubility (g/100 cm^3)	11.2	9.2	7.8	6.5	5.5	4.7



Bar Charts

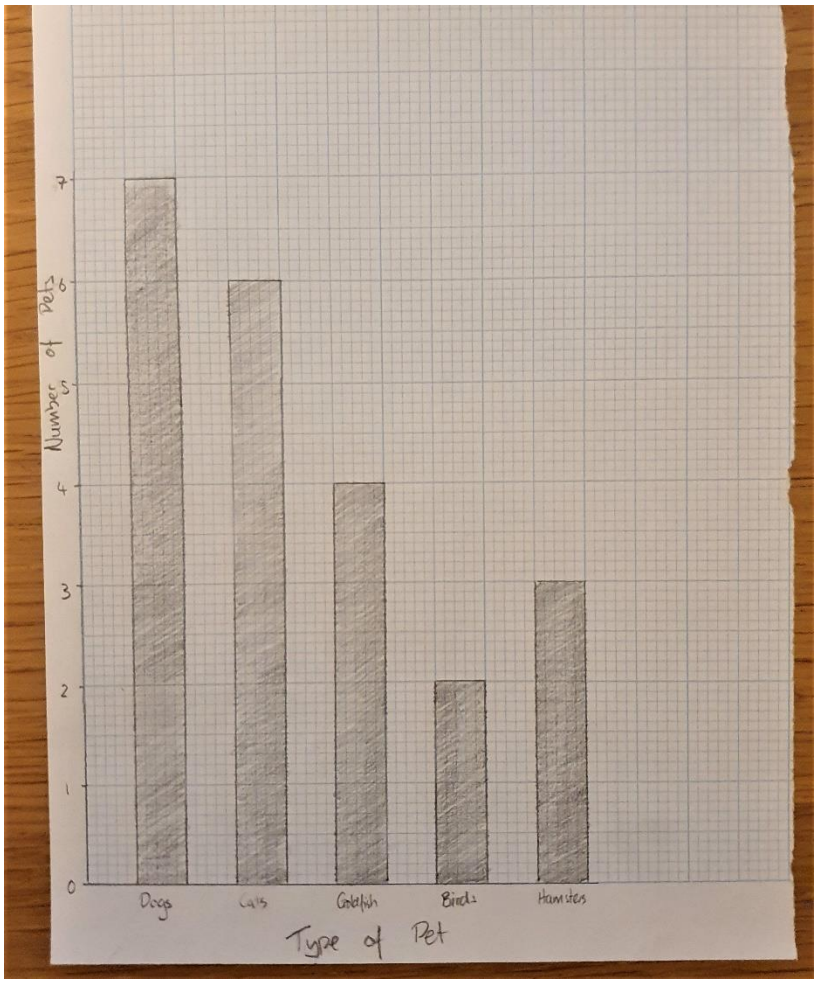
- Discrete data (words and numbers).

- Categories go on the x-axis
  Number values go on the y-axis.

- Bars should be equal width and evenly spaced out.

Example: The numbers of each type of pets owned by a class.

Type of Pet	*Number of Pets*
Dogs	7
Cats	6
Goldfish	4
Birds	2
Hamsters	3



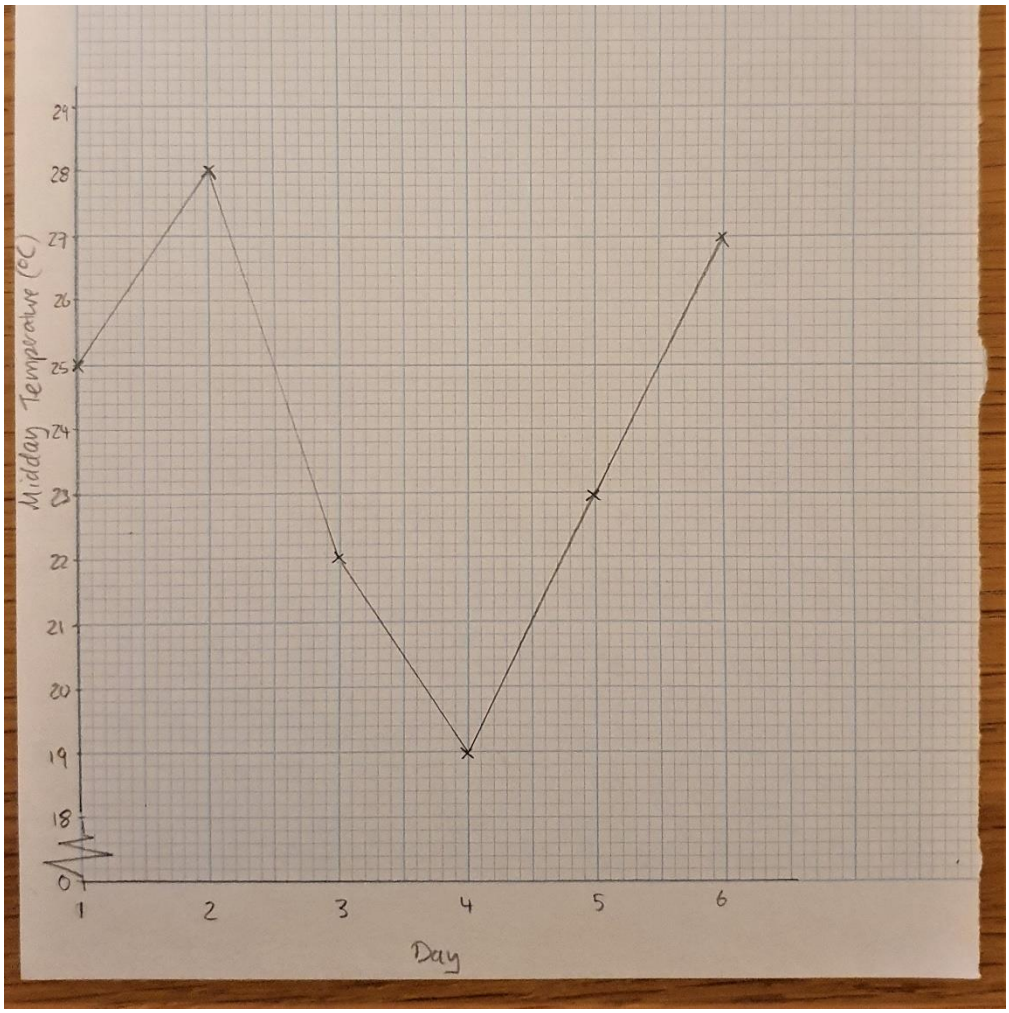
Line Graphs

Line graphs can also be drawn but this is less commonly asked for.

- Continuous data (numbers and numbers)
- looking for a relationship between each individual pair of points
- each plot is joined.

Example: The table below gives information about midday temperature over 6 days.

Day	*Midday Temperature (^oC)*
1	25
2	28
3	22
4	19
5	23
6	27



Marking Schemes

Graphs are awarded 4 marks in an assessment:

- Selecting the correct type of graph — 1 mark
- Axes of graph has suitable scales — 1 mark
- Axes of the graph have suitable labels and units — 1 mark
- Data points are plotted accurately with either a line of best fit drawn or plots joined

  Or — 1 mark

  Heights of bars are plotted accurately

Now work through the powerpoint: 'Spot the Mistake – Graphs'

You can access it in the 'Whole Course Revision' folder in the S4 Chemistry Team Files

Complete the following questions in your class work jotter.
The answers will be posted on Teams on Wednesday.

Practice Questions - Graphs

Create appropriate graphs for the following pieces of data.

1. The table below shows the density of different metals.

Metal	*Density (g cm^{-3})*
Aluminium	2.7
Copper	9.0
Iron	7.9
Magnesium	1.7
Sodium	1.0

(4)

2. The table shows the relationship between temperature of the water and the amount of dissolved oxygen.

Temperature of water (^oC)	0	20	40	60	70	80
Concentration of dissolved oxygen (g/cm^3)	70.8	44.2	31.6	23.4	19.5	14.7

(4)

Total: 8 marks

Past-Paper Questions - Graphs

Past-Paper	Questions
2015	Section 2 – Qu 1b
2018	Section 1 – Qu 1b
2019	Section 3 – Qu 3cii

Further Reading

To learn more about graphs, try the following online resources:

BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/zc7sb82/revision/2

https://www.bbc.co.uk/bitesize/guides/zc7sb82/revision/5

Scholar: Log in through GLOW

National 5 Chemistry → Chemistry in Society → Topic 8 Chemical Analysis → 8.5 Reporting Experimental work → 8.5.2 Graphs →

8.5.2.1 Bar Graphs

8.5.2.2 Scatter Graphs

Extension Questions:

Yellow/Purple book *Graphs* *page 158-160 questions: 1-5*