



Science: Data – reporting and presenting



This is a good example of where Maths and Science overlap. We need to be able to present data collected by us or someone else, but we also need to be able to apply interpretation – give the data meaning and comment on any trends or patterns we see using our scientific knowledge. You will have already started some data collection and presenting as part of your Maths Unexpected Adventure Trails: recording measurements and volumes in tables – tables are one way of presenting data.

What is data?

Information that has been collected using a specific method for a specific purpose of studying or analysing is known as 'data'. Data can be made up of lots of different information. Usually in Primary Science, data could be measurements; frequency (the number of times something appears or happens); observations.

An interesting fact is that 'data' is actually the plural of 'datum'. We use 'data' as we are usually referring to multiple pieces of information.

How can data be presented?

You have probably thought about this question already and you will have already presented data in different ways. Data can be presented in:

- **Tables**
- **Bar graph**
- Pie charts
- Scatter graphs
- **Line graphs**
- Histograms
- Frequency diagrams

The types in **bold** are the ones we focus on in Year 5 (or before). You could look at this video to find out about the types of graph – it does cover more than you need to know: <https://www.youtube.com/watch?v=yrTB5JSQPoY>

Types of Data

In Maths, we have looked at the different classifications of data: **discrete** or **continuous**.

Discrete Data

Discrete Data can only take certain values.

Example: the number of students in a class

We can't have half a student!



Example: the results of rolling 2 dice

Only has the values 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12



Continuous Data

Continuous data can take any value (within a range). E.g.

A person's height could be any value (within the range of human heights), not just certain fixed heights

A dog's weight

The length of a leaf

Why is this important?

It is important to think about the TYPE of data as each way of presenting data is usually for a particular type. E.g. Bar graphs are usually used for discrete data; line graphs are used for continuous data (such as changes over time) and tables can be used for both.

Plotting bar graphs and line graphs

Watch these videos showing how to plot data from a table onto a bar graph and line graph. This will help you with your tasks.

Remember in Science, the **independent variable** is the thing that is changed and the **dependent variable** is the thing that is measured.

Bar graph: <https://www.youtube.com/watch?v=zGre4QViTmA>

Line graph: <https://www.youtube.com/watch?v=OTDNPnsF9TA>

YOUR TASK

We have presented information about pollution in two tables below. Decide which type of graph you should use to present the data. Think about whether the data is discrete or continuous. We have included graph paper you could print out on the last page or you could use the lines in your books to create the graphs. Before you start plotting, think about the scale you will need to use – especially for the production of plastic as the range is quite large.

Material	Time taken to decompose in the ocean (years)
Aluminium can	200
Disposable nappy	450
Fishing line	600
Plastic bottle	450
Polystyrene cup	50
Tin can	50
Plastic bag	20

Year	Global production of plastic (million tonnes)
1960	8
1970	35
1980	70
1990	120
2000	213
2005	263
2010	313
2011	325
2012	338
2013	352
2015	381

What do you notice about the production of plastic? Why do you think this has happened?



Success criteria:

I have used a pencil and ruler

I have included axes titles (x-axis and y-axis)

I have included a title for my graph

I have used a suitable scale for my axes

I have spaced out my intervals equally