**Science Skills**

**Bar Graphs Level 4**

**Book 2**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Bar Graphs**

**Bar graphs** are used to **compare** things, concentrating on **one aspect** of them.

There are two main differences between bar graphs at Level 3 and at level 4:

1. At Level 4, you are not usually given the **scale for the Y axis.** You are expected to be able to work it out yourself. The scale is usually less obvious than at Level 3.
2. The numbers are not always whole numbers. **Decimal points** are involved.

**Example**:

The table shows the electric current required for different electrical appliances.

|  |  |
| --- | --- |
| **Appliance** | **Current (A)** |
| 3 bar fire | 12.6 |
| Kettle | 12.0 |
| Iron | 4.4 |
| Hair drier | 4.0 |
| Food mixer | 2.4 |
| Television | 0.8 |

1. All the usual rules for bar graph layout apply. (See next page)
2. The usual sequence for drawing the bar graph applies.
* Write the **Title** for the graph
* Fill in what is being compared on the X axis. Remember to make the bars the same width and the spaces between them the same width. Start with a space.
* Write in the names under the bars.
* Now look at the numbers in the other set of data in the table. Look at the lowest and the highest to decide on the **scale**.
* Fill in the scale on the Y axis. Make sure it goes up evenly spaced.
* Look back at the data in the table.
Draw the bars to the correct height according to the scale.
* Label the X axis.
* Label the Y axis. Remember to put in the units.

**Scale with Decimal points:**

**5**

1. Look at the **whole numbers**
– the biggest and the lowest.
2. Decide a scale for the whole
numbers.

**4**

1. Fit the decimals in evenly between
the whole numbers.

**3**

1.8

It is usually not necessary to actually write

these. The graph becomes too messy.

1.6

But you must know what they are.

**2**

1.4

Can you see in the example that the appliance
uses 1.4 A of current?

**1**

1.2

0

**Bar Graphs Layout**

When you draw a bar graph, you **must** include **all** of the following:

This is a **bar graph**. All the bars are separated from each other.

The bars must be **evenly spaced**.

The bars must be the **same width**.

This is the **Y axis**.
It has a **scale**.

The numbers should start at 0 at the bottom and go up **evenly** in 1s, 2s, 5s 10s etc.
This one goes up in **2s**.

The graph ***must*** have a **heading**.
The whole point of a graph is that you understand **instantly** what it is about.

The **Y** axis is where you put the ***aspect*** of the things you are comparing. Here it is the **storage life** of the batteries.

Both axes must have a **label.**

The label should explain what the numbers on the scale mean.

You must write the **units** used.
The units used here are **years**.

This is the **X axis**.
This is where you put the **things being compared**.

It must have a **title**. Here the title is ***Types of Battery***.

Each **bar** must have its **name** under it.

The bar graph should be **big** enough to more or less fill the size of the graph paper.

It should **not** be tiny and squeezed into a corner.

**Histograms**

A **histogram** is like a bar graph except that the bars are **not** **separated**.

Histograms are sometimes called bar graphs.

Histograms are easier to draw than bar graphs because you do not have to measure out the spaces between the bars.

|  |  |
| --- | --- |
| ***Appliance*** | ***Current (A)*** |
| *3 bar fire* | *12.6* |
| *Kettle* | *12.0* |
| *Iron* | *4.4* |
| *Hair drier* | *4.0* |
| *Food mixer* | *2.4* |
| *Television* | *0.8* |

**Drawing a Bar Graph using Microsoft Word**

1. You should have the data ready in a table.
2. Click the **Insert** menu button and then **Chart**.
3. Choose a chart type from the **Column** option.
(The first is the standard bar chart used here)
Click the button and then OK.
4. A spreadsheet document will open up.
Where it says **Category 1** in the spreadsheet, type in the first item in the **X axis**. Here it is *3 bar fire*.
In category 2 type in *Kettle*.
Do this until you have filled in all the categories in the X axis.
5. Now look at the **Series 1** list in the spreadsheet.
Fill in the corresponding data from the table. Here 3 bar fire has 12.6 in the Series 1 list. Fill in all the data. This will go into the **Y axis**.
6. Drag the **blue box** in the spreadsheet around only the data in the spreadsheet you need for your chart. This will be around the Categories and Series 1 data.
7. The chart will appear automatically in your document, with the scale and bars.
Close down the spreadsheet document.
8. Click the chart. The **Chart Tools** button appears. Click the Format menu and Text Wrapping, square, to move the chart around.
9. “Series 1” in the chart are both in text boxes. Click on the title and change it. Delete the other one at the side.
10. Insert the **titles** of the axis by clicking on the chart and selecting Chart Tools, Layout, Axes Titles.
For the X Axis click Primary Horizontal Axis Title, Title below Axis. Type the title in the text box in the chart.
For the Y Axis, click Primary Vertical Axis, Rotated title and type the title in the text box in the chart.
11. To fill in the exact data, click Chart Tools, Layout, Data Labels, Center and the exact data will appear in the bars.

14.





15. 



16.





17. The results of an investigation are seen in the table below.





18.



19.



20. An investigation was carried out.



21.



22. 





23. The human body is made up of different types of tissue.

 This table shows the percentage of body mass made up of different types of tissue.



 Present this information as a bar graph.



24.





25.

 Present this information as a bar graph.



 Tensile strength (MPa)

26.

 Present the information in the table as a bar graph.

