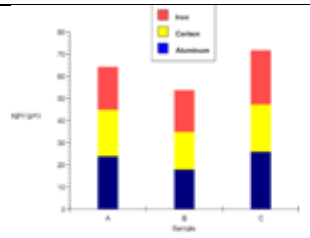
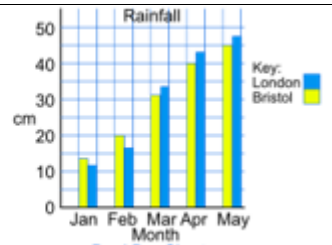
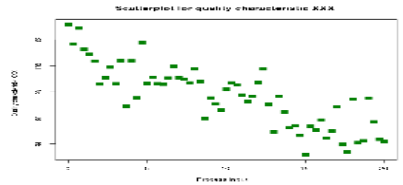
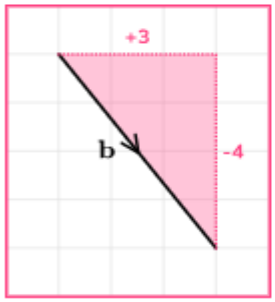
# Knowledge Organiser - Mathematics

Collecting and presenting data, Scatter graphs, Grouped data, Column vectors.

| | Topic | Information | Examples | Sparx clip |
|---|---|---|---|---|
| 1 | Collecting and presenting data | **Compound/Composite** Bar Charts show data stacked on top of each other.<br><br>**Comparative/Dual** Bar Charts show data side by side. |  <br>Compound Bar chart<br>  <br>Dual Bar Chart | U526, U456, U260, U291, U557, U193, U172, U909, U322, U520, U717. |
| 2 | Scatter graphs | A graph in which values of **two variables** are plotted along two axes to **compare** them and see if there is any **connection** between them. |  | U789, U315, U199, U277, U128. |
| 3 | Grouped data | A **grouped frequency table** (grouped frequency distribution) is a way of organising a large set of data into more manageable groups.<br>The groups that we organise the numerical data into are called **class intervals**. They can have the same or different class widths and must not overlap. | | U981, U569, U312, U877, U840. |
| 4 | Column vectors | A column vector is a way of writing a vector which gives information about the vector. It is split into a horizontal component and a vertical component.<br><br>There is a **horizontal** component, also known as the **x component** This is the **top number** in the column vector and tells us how many spaces to the right or left to move.<br>If the number is **positive**, the direction is to the **right**.<br>If the number is **negative**, the direction is to the **left**.<br>There is a **vertical component**, also known as the **y component.** This is the **bottom number** in the column vector and tells us how many spaces up or down to move.<br>If the number is **positive**, the direction is **upwards**.<br>If the number is **negative**, the direction is **downwards**. | Vector $\boldsymbol{b}$ can be written as the column vector $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$<br><br>  | U632, U903, U564, U660. |

| Width, mm | Frequency |
|---|---|
| $0 \leq x < 5$ | 2 |
| $5 \leq x < 10$ | 6 |
| $10 \leq x < 15$ | 9 |
| $15 \leq x < 20$ | 12 |
| $20 \leq x < 25$ | 7 |
| $25 \leq x < 30$ | 4 |