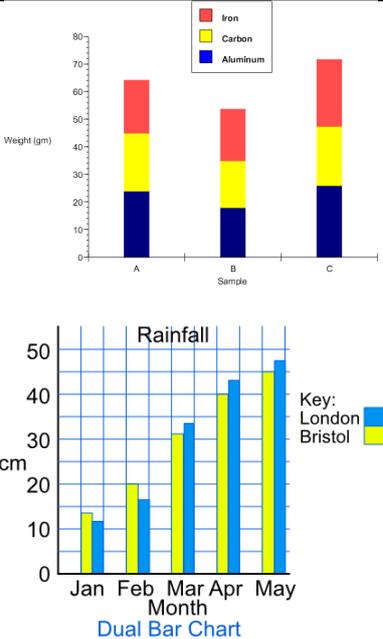
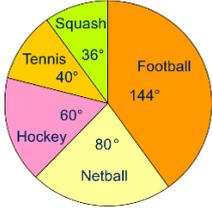
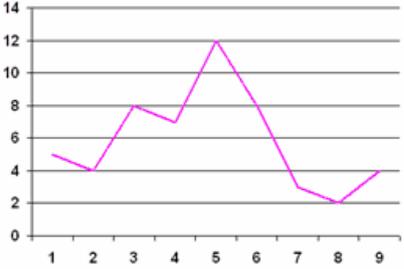


Topic/Skill	Definition/Tips	Example
<p>1. Increase or Decrease by a Percentage</p>	<p>Non-calculator: Find the percentage and add or subtract it from the original amount.</p> <p>Calculator: Find the percentage multiplier and multiply.</p>	<p><u>Increase 500 by 20% (Non Calc):</u> 10% of 500 = 50 so 20% of 500 = 100 500 + 100 = 600</p> <p><u>Decrease 800 by 17% (Calc):</u> 100% - 17% = 83% 83% ÷ 100 = 0.83 0.83 x 800 = 664</p>
<p>2. Percentage Multiplier</p>	<p>The number you multiply a quantity by to increase or decrease it by a percentage.</p>	<p>The multiplier for increasing by 12% is 1.12</p> <p>The multiplier for decreasing by 12% is 0.88</p> <p>The multiplier for increasing by 100% is 2.</p>
<p>3. Reverse Percentage</p>	<p>Find the correct percentage given in the question, then work backwards to find 100%</p> <p>Look out for words like 'before' or 'original'</p>	<p>A jumper was priced at £48.60 after a 10% reduction. Find its original price.</p> <p>100% - 10% = 90%</p> <p>90% = £48.60 1% = £0.54 100% = £54</p>
<p>4. Simple Interest</p>	<p>Interest calculated as a percentage of the original amount.</p>	<p>£1000 invested for 3 years at 10% simple interest.</p> <p>10% of £1000 = £100</p> <p>Interest = 3 × £100 = £300</p>
<p>5. Types of Bar Chart</p>	<p>Compound/Composite Bar Charts show data stacked on top of each other.</p> <p>Comparative/Dual Bar Charts show data side by side.</p>	 <p>The first chart is a stacked bar chart showing the weight (in grams) of three elements: Iron (red), Carbon (yellow), and Aluminum (blue) across three samples (A, B, and C). The y-axis ranges from 0 to 80 grams. Sample A has approximately 25g Aluminum, 20g Carbon, and 20g Iron. Sample B has approximately 18g Aluminum, 15g Carbon, and 20g Iron. Sample C has approximately 25g Aluminum, 20g Carbon, and 25g Iron.</p> <p>The second chart is a dual bar chart titled 'Rainfall' showing monthly rainfall in centimeters for London (blue bars) and Bristol (yellow bars) from January to May. The y-axis ranges from 0 to 50 cm. In January, London has ~12 cm and Bristol has ~15 cm. In February, London has ~18 cm and Bristol has ~20 cm. In March, London has ~32 cm and Bristol has ~30 cm. In April, London has ~42 cm and Bristol has ~40 cm. In May, London has ~48 cm and Bristol has ~45 cm.</p>

6. Pie Chart	<p>Used for showing how data breaks down into its constituent parts.</p> <p>When drawing a pie chart, divide 360° by the total frequency. This will tell you how many degrees to use for the frequency of each category.</p> <p>Remember to label the category that each sector in the pie chart represents.</p>	 <p>If there are 40 people in a survey, then each person will be worth $360 \div 40 = 9^\circ$ of the pie chart.</p>																				
7. Line Graph	<p>A graph that uses points connected by straight lines to show how data changes in values.</p> <p>This can be used for time series data, which is a series of data points spaced over uniform time intervals in time order.</p>																					
8. Mean	<p>Add up the values and divide by how many values there are.</p>	<p>The mean of 3, 4, 7, 6, 0, 4, 6 is</p> $\frac{3 + 4 + 7 + 6 + 0 + 4 + 6}{7} = 5$																				
9. Mean from a Table	<ol style="list-style-type: none"> 1. Find the midpoints (if necessary) 2. Multiply Frequency by values or midpoints 3. Add up these values 4. Divide this total by the Total Frequency <p>If grouped data is used, the answer will be an estimate.</p>	<table border="1" data-bbox="983 992 1433 1115"> <thead> <tr> <th>Height in cm</th> <th>Frequency</th> <th>Midpoint</th> <th>F × M</th> </tr> </thead> <tbody> <tr> <td>$0 < h \leq 10$</td> <td>8</td> <td>5</td> <td>$8 \times 5 = 40$</td> </tr> <tr> <td>$10 < h \leq 30$</td> <td>10</td> <td>20</td> <td>$10 \times 20 = 200$</td> </tr> <tr> <td>$30 < h \leq 40$</td> <td>6</td> <td>35</td> <td>$6 \times 35 = 210$</td> </tr> <tr> <td>Total</td> <td>24</td> <td>Ignore!</td> <td>450</td> </tr> </tbody> </table> <p>Estimated Mean height: $450 \div 24 = 18.75\text{cm}$</p>	Height in cm	Frequency	Midpoint	F × M	$0 < h \leq 10$	8	5	$8 \times 5 = 40$	$10 < h \leq 30$	10	20	$10 \times 20 = 200$	$30 < h \leq 40$	6	35	$6 \times 35 = 210$	Total	24	Ignore!	450
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10. Median Value	<p>The middle value.</p> <p>Put the data in order and find the middle one.</p> <p>If there are two middle values, find the number half way between them by adding them together and dividing by 2.</p>	<p>Find the median of: 4, 5, 2, 3, 6, 7, 6</p> <p>Ordered: 2, 3, 4, 5, 6, 6, 7</p> <p>Median = 5</p>																				
11. Mode /Modal Value	<p>Most frequent/common.</p> <p>Can have more than one mode (called bi-modal or multi-modal) or no mode (if all values appear once)</p>	<p>Find the mode: 4, 5, 2, 3, 6, 4, 7, 8, 4</p> <p>Mode = 4</p>																				
12. Range	<p>Highest value subtract the Smallest value</p> <p>Range is a ‘measure of spread’. The smaller the range the more <u>consistent</u> the data.</p>	<p>Find the range: 3, 31, 26, 102, 37, 97.</p> <p>Range = $102 - 3 = 99$</p>																				

13. Scatter
Graphs and
Outliers

A value that **'lies outside'** most of the other values in a set of data.
An outlier is **much smaller or much larger** than the other values in a set of data.

