


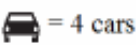

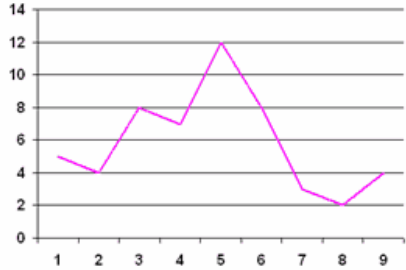
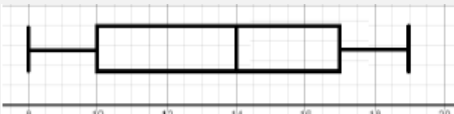


## Topic: Representing Data

Topic/Skill	Definition/Tips	Example																																						
1. Frequency Table	A record of <b>how often each value</b> in a set of data <b>occurs</b> .	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;">Number of marks</th> <th style="width: 25%;">Tally marks</th> <th style="width: 25%;">Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>       </td> <td>7</td> </tr> <tr> <td>2</td> <td>    </td> <td>5</td> </tr> <tr> <td>3</td> <td>      </td> <td>6</td> </tr> <tr> <td>4</td> <td>    </td> <td>5</td> </tr> <tr> <td>5</td> <td>   </td> <td>3</td> </tr> <tr> <td><b>Total</b></td> <td></td> <td><b>26</b></td> </tr> </tbody> </table>	Number of marks	Tally marks	Frequency	1		7	2		5	3		6	4		5	5		3	<b>Total</b>		<b>26</b>																	
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2. Bar Chart	Represents data as vertical blocks.  <i>x – axis</i> shows the <b>type</b> of data <i>y – axis</i> shows the <b>frequency</b> for each type of data Each bar should be the <b>same width</b> There should be <b>gaps</b> between each bar Remember to <b>label</b> each axis.	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <caption>Data for Bar Chart: Number of pets owned</caption> <thead> <tr> <th>Number of pets owned</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td>0</td><td>3</td></tr> <tr><td>1</td><td>8</td></tr> <tr><td>2</td><td>12</td></tr> <tr><td>3</td><td>1</td></tr> <tr><td>4</td><td>2</td></tr> </tbody> </table>	Number of pets owned	Frequency	0	3	1	8	2	12	3	1	4	2																										
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3. Types of Bar Chart	<p><b>Compound/Composite</b> Bar Charts show data stacked on top of each other.</p> <p><b>Comparative/Dual</b> Bar Charts show data side by side.</p>	<p><b>Compound/Composite Bar Chart Data:</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Sample</th> <th>Aluminum (gm)</th> <th>Carbon (gm)</th> <th>Iron (gm)</th> <th>Total Weight (gm)</th> </tr> </thead> <tbody> <tr><td>A</td><td>25</td><td>20</td><td>20</td><td>65</td></tr> <tr><td>B</td><td>20</td><td>15</td><td>20</td><td>55</td></tr> <tr><td>C</td><td>25</td><td>20</td><td>20</td><td>65</td></tr> </tbody> </table> <p><b>Dual Bar Chart Data: Rainfall (cm)</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Month</th> <th>London (cm)</th> <th>Bristol (cm)</th> </tr> </thead> <tbody> <tr><td>Jan</td><td>12</td><td>15</td></tr> <tr><td>Feb</td><td>18</td><td>20</td></tr> <tr><td>Mar</td><td>32</td><td>35</td></tr> <tr><td>Apr</td><td>42</td><td>45</td></tr> <tr><td>May</td><td>48</td><td>50</td></tr> </tbody> </table>	Sample	Aluminum (gm)	Carbon (gm)	Iron (gm)	Total Weight (gm)	A	25	20	20	65	B	20	15	20	55	C	25	20	20	65	Month	London (cm)	Bristol (cm)	Jan	12	15	Feb	18	20	Mar	32	35	Apr	42	45	May	48	50
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4. Pie Chart	Used for showing <b>how data breaks down into</b> its constituent <b>parts</b> .  When drawing a pie chart, <b>divide 360° by the total frequency</b> . This will tell you how many degrees to use for the frequency of each category.  Remember to <b>label</b> the category that each sector in the pie chart represents.	<p><b>Pie Chart Data:</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Sport</th> <th>Degrees</th> </tr> </thead> <tbody> <tr><td>Football</td><td>144°</td></tr> <tr><td>Netball</td><td>80°</td></tr> <tr><td>Hockey</td><td>60°</td></tr> <tr><td>Tennis</td><td>40°</td></tr> <tr><td>Squash</td><td>36°</td></tr> </tbody> </table> <p>If there are 40 people in a survey, then each person will be worth <math>360 \div 40 = 9^\circ</math> of the pie chart.</p>	Sport	Degrees	Football	144°	Netball	80°	Hockey	60°	Tennis	40°	Squash	36°																										
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5. Pictogram	<p>Uses <b>pictures</b> or symbols to <b>show the value</b> of the data.</p> <p>A pictogram must have a <b>key</b>.</p>	<p>Black </p> <p>Red </p> <p>Green   = 4 cars</p> <p>Others </p>																																																
6. Line Graph	<p>A graph that uses <b>points connected by straight lines</b> to show how data changes in values.</p> <p>This can be used for <b>time series data</b>, which is a series of data points spaced over uniform time intervals in <b>time order</b>.</p>																																																	
7. Two Way Tables	<p>A table that <b>organises data</b> around <b>two categories</b>.</p> <p>Fill out the information step by step using the information given.</p> <p>Make sure all the totals add up for all columns and rows.</p>	<p>Question: Complete the 2 way table below.</p> <table border="1" data-bbox="954 712 1420 806"> <thead> <tr> <th></th> <th>Left Handed</th> <th>Right Handed</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>10</td> <td></td> <td>58</td> </tr> <tr> <td>Girls</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td>84</td> <td>100</td> </tr> </tbody> </table> <p>Answer: Step 1, fill out the easy parts (the totals)</p> <table border="1" data-bbox="954 817 1420 918"> <thead> <tr> <th></th> <th>Left Handed</th> <th>Right Handed</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>10</td> <td>48</td> <td>58</td> </tr> <tr> <td>Girls</td> <td></td> <td></td> <td>42</td> </tr> <tr> <td>Total</td> <td>16</td> <td>84</td> <td>100</td> </tr> </tbody> </table> <p>Answer: Step 2, fill out the remaining parts</p> <table border="1" data-bbox="954 929 1420 1019"> <thead> <tr> <th></th> <th>Left Handed</th> <th>Right Handed</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>10</td> <td>48</td> <td>58</td> </tr> <tr> <td>Girls</td> <td>6</td> <td>36</td> <td>42</td> </tr> <tr> <td>Total</td> <td>16</td> <td>84</td> <td>100</td> </tr> </tbody> </table>		Left Handed	Right Handed	Total	Boys	10		58	Girls				Total		84	100		Left Handed	Right Handed	Total	Boys	10	48	58	Girls			42	Total	16	84	100		Left Handed	Right Handed	Total	Boys	10	48	58	Girls	6	36	42	Total	16	84	100
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8. Box Plots	<p>The minimum, lower quartile, median, upper quartile and maximum are shown on a box plot.</p> <p>A box plot can be drawn independently or from a cumulative frequency diagram.</p>	<p>Students sit a maths test. The highest score is 19, the lowest score is 8, the median is 14, the lower quartile is 10 and the upper quartile is 17. Draw a box plot to represent this information.</p> 																																																
9. Comparing Box Plots	<p>Write two sentences.</p> <ol style="list-style-type: none"> <li>1. Compare the <b>averages</b> using the <b>medians</b> for two sets of data.</li> <li>2. Compare the <b>spread</b> of the data using the <b>range or IQR</b> for two sets of data.</li> </ol> <p>The <u>smaller</u> the range/IQR, the <u>more consistent</u> the data.</p> <p>You must compare box plots <b>in the context of the problem</b>.</p>	<p>'On average, students in class A were more successful on the test than class B because their median score was higher.'</p> <p>'Students in class B were more consistent than class A in their test scores as their IQR was smaller.'</p>																																																

