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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Summarising Data**  |
| 1. Types of Data | **Qualitative** Data – **non-numerical** data**Quantitative** Data – **numerical** data**Continuous** Data – data that can take **any numerical value** within a given range.**Discrete** Data – data that can take **only specific values** within a given range. | Qualitative Data – eye colour, gender etc.Continuous Data – weight, voltage etc.Discrete Data – number of children, shoe size etc. |
| 2. Grouped Data | Data that has been **bundled in to categories**.Seen in grouped frequency tables, histograms, cumulative frequency etc. |  |
| 3. Primary /Secondary Data | **Primary** Data – **collected yourself** for a specific purpose.**Secondary** Data – **collected by someone else** for another purpose. | Primary Data – data collected by a student for their own research project.Secondary Data – Census data used to analyse link between education and earnings. |
| 4. Mean | **Add** up the values and **divide** by how many values there are. | The mean of 3, 4, 7, 6, 0, 4, 6 is $$\frac{3+4+7+6+0+4+6}{7}=5$$ |
| 5. Mean from a Table | 1. Find the midpoints (if necessary)2. Multiply Frequency by values or midpoints3. Add up these values4. Divide this total by the Total FrequencyIf **grouped** data is used, the answer will be an **estimate**. |  |
| 6. Median Value | The **middle** value. Put the data in order and find the middle one.If there are **two middle values**, find the number half way between them by **adding them together and dividing by 2**. | Find the median of: 4, 5, 2, 3, 6, 7, 6Ordered: 2, 3, 4, **5**, 6, 6, 7Median = 5 |
| 7. Median from a Table | Use the formula $\frac{(n+1)}{2}$ to find the position of the median.$n$ is the total frequency. | If the total frequency is 15, the median will be the $\left(\frac{15+1}{2}\right)=8th $position |
| 8. Mode /Modal Value | **Most** frequent/common.Can have more than one mode (called bi-modal or multi-modal) or no mode (if all values appear once) | Find the mode: 4, 5, 2, 3, 6, 4, 7, 8, 4Mode = 4 |
| 9. Range | **Highest value subtract the Smallest value**Range is a ‘measure of spread’. The smaller the range the more consistent the data. | Find the range: 3, 31, 26, 102, 37, 97.Range = 102-3 = 99 |
| 10. Outlier | 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. | Image result for outlier maths |
| 11. Lower Quartile | **Divides** the **bottom half** of the data into **two halves**.**LQ =** $Q\_{1}=\frac{(n+1)}{4}th $**value** | Find the lower quartile of: 2, **3**, 4, 5, 6, 6, 7$Q\_{1}=\frac{(7+1)}{4}=2nd $value 🡪 3 |
| 12. Lower Quartile | **Divides** the **top half** of the data into **two halves**.**UQ =** $Q\_{3}=\frac{3(n+1)}{4}th $**value** | Find the upper quartile of: 2, 3, 4, 5, 6, **6**, 7$Q\_{3}=\frac{3(7+1)}{4}=6th $value 🡪 6 |
| 13. Interquartile Range | The **difference** between the **upper quartile and lower quartile.**$$IQR=Q\_{3}-Q\_{1}$$The **smaller** the **interquartile range**, the **more** **consistent** the data. | Find the IQR of: 2, 3, 4, 5, 6, 6, 7$$IQR=Q\_{3}-Q\_{1}=6-3=3$$ |

**Knowledge Organiser**