

	Strengths	Weaknesses
Mean	<ul style="list-style-type: none"> + It is necessary for further statistical analysis such as standard deviation. + It can always be found when using ordinal or above level data. 	<ul style="list-style-type: none"> - It is influenced by anomalous results. - It may produce a 'non-sense' value not in the original data set.
Median	<ul style="list-style-type: none"> + It is not influenced by anomalous results. + It can always be found when using ordinal or above level data. 	<ul style="list-style-type: none"> - It is not useful in further statistical analysis. - It may produce a 'non-sense' value that was not in the original data set.
Mode	<ul style="list-style-type: none"> + It can be used for data measured on a nominal scale and is not a 'non-sense' value. + The value has definitely occurred in the data set. 	<ul style="list-style-type: none"> - There may be more than one result, or no result if the data set is varied. - It may not display what is occurring in the centre of the data set if there is a skewed distribution.
Range	<ul style="list-style-type: none"> + Is relatively easy to calculate (unlike standard deviation). + It gives an indication about the consistency/ reliability of the data. 	<ul style="list-style-type: none"> - It is influenced by anomalous results; this is a problem because only the highest and lowest scores are considered in the calculation (limits validity).
Standard Deviation	<ul style="list-style-type: none"> + A more sophisticated measure of dispersion - reflects every score in the data set (unlike the range). + Gives you an indication of how close the majority of the scores are to the mean in a normal distribution. 	<ul style="list-style-type: none"> - Time consuming to calculate compared to the mean or range. - Not all scores will be within one standard deviation, so it can be misleading when it comes to anomalies.

Assessment

- AO1:** Demonstrate knowledge and understanding of measures of central tendency and dispersion.
- AO2:** Calculate, interpret and estimate the measures. Apply knowledge and/or evaluation of the measures to a novel scenario, or your personal investigations.
- AO3:** Evaluate the measures of central tendency and dispersion.

Measures of Central Tendency: A form of estimation of a mid-point/average in a set of data.

Mean: The average that is shown by **all scores** in the data set when they are divided by n .

$$\frac{\sum x}{n}$$

Calculate by adding all the scores in the data set together and dividing the total by the number of scores that were added. Show your workings in full.

Median: The **mid-point** in a set of data that has been placed in order.

When there is no 'middle score', as the mid-point falls between two different scores, you should take the two scores either side of the midpoint, add them together and divide the result (sum) by two.

Mode: The **most common** value within a set of data.

Use a tally chart, or group the data together, so it becomes apparent which score occurs most frequently. Clearly state the mode in your answer.

Measures of Dispersion: A measure that shows the **spread of data**, whether it is tightly clustered or has a broader spread.

Range: A value that shows the spread of data, representing the **difference between the lowest and highest scores**.

Take the lowest score from the highest score and add one. Show your workings.

Standard Deviation: A value that represents the amount of **variation of results from the mean score**.

Calculate the sum of x , minus the mean, squared using a table. Divide this by $n-1$. Then take the square root of this answer to find the standard deviation.

$$\sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$