

# LEARNING MODULE 2


Draw Conclusions from Statistical Data Using the  
Measures of Central Tendency

**GRADE 8**



# 1

## DRAW CONCLUSIONS FROM STATISTICAL DATA USING THE MEASURES OF CENTRAL TENDENCY



**WELCOME, LEARNERS!**

This is our course on " Draw conclusions from statistical data using the measures of central tendency" . Throughout this module, we'll be exploring how to make sense of data by finding its central tendencies. We'll learn how to gather insights from data sets, make informed decisions, and draw conclusions that can help us understand the world around us better. So buckle up and get ready for a journey where math meets real-world application!



### Learning Objectives:

At the end of this module, students will be able to:

**1**

recall what measures of central tendency is (mean, median, and mode)

**2**

articulate how the mean, median, and mode for ungrouped data sets could be basis for statistical conclusions

**3**

realize the significance of central tendency in drawing conclusions from real-world scenarios data.

## Central Tendency

In the realm of statistics, drawing meaningful conclusions from data is a crucial skill. One powerful tool for this purpose is central tendency, encompassing measures such as the mean, median, and mode. Central tendency is a statistical concept that describes the middle or average value of a set of data. It is often used to summarize data and make comparisons between different groups.



**Mean:** It is also known as the average ( $\bar{x} = \frac{\sum x}{n}$ )

**Median:** The median is the middle value in a data set when the values are arranged in order from least to greatest.

**Mode:** The mode is the most frequent value in a data set.

Central tendency measures can be used to draw conclusions about a data set by comparing it to other data sets or to a theoretical distribution.

- If the mean of a data set is higher than the mean of another data set, we can conclude that the first data set has higher values on average.



It can also be used to make predictions about individual values in a data set.  
For example:



- If we know that the mean of a data set is 100, we can predict that any individual value in the data set is likely to be close to 100.
- However, we cannot say for sure that any individual value will be exactly 100.

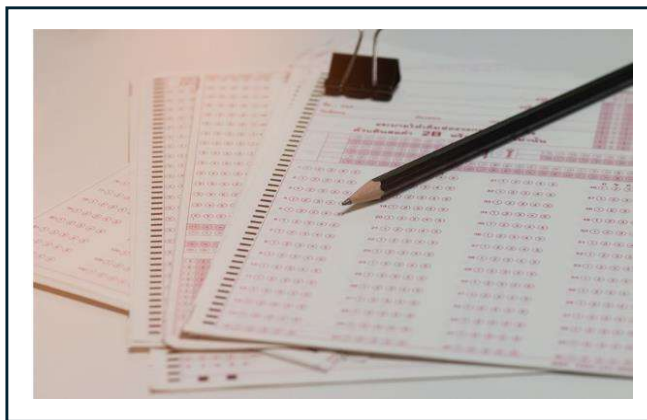


Here are some examples of how central tendency can be used in real life:

**Mean:** Imagine you have a class of eight students, and you're curious about their average test score in math. You add up all their scores and divide them by eight to find the mean, which tells you the typical performance across the entire class.



**Median:** Let's say you have a set of numbers representing the ages of people in a group: 10, 15, 17, 22, 25. To find the median age, you arrange these numbers in ascending order and identify the middle value, which in this case is 17, meaning half of the group is younger than 17 and half is older.



**Mode:** Suppose you're collecting data on favorite colors from a group of friends, and you find that "blue" is mentioned most frequently. In this case, "blue" is the mode, indicating it's the most common favorite color among your friends.



Central tendency is a powerful tool for summarizing and understanding data. However, it is important to remember that it is just one measure of data, and it should be used in conjunction with other measures, such as dispersion and distribution, to get a complete picture of the data.

### POINTS TO REMEMBER USING CENTRAL TENDENCY



- The mean is sensitive to outliers. An outlier is an observation that is significantly different from the rest of the data. Outliers can have a large effect on the mean, so it is important to be aware of them when using this measure of central tendency.
- The median is not affected by outliers. This makes it a more robust measure of central tendency than the mean.
- The mode is only meaningful for categorical data. Categorical data is data that can be divided into categories, such as hair color or eye color. The mode is not a meaningful measure of central tendency for continuous data, which is data that can take on any value within a range.

