STEM from Home

Mean and Mode

Introduction:

Suppose you get a magic lamp and as you rub it, a genie appears. He is granting you a wish—wait wait wait—he is granting you a very peculiar wish wherein you can get shoes for every child in your city. But you can only select one size. You must be wondering that there would be thousands of such children with a variety of shoe sizes. How would you decide which shoe size to choose? If you ask the genie to give size 6 shoes, what are the chances that those shoes will fit some children? How will you know which size will fit the most number of children? You could easily find that out by discovering the mean. **Mean** is the average value of the given numbers or data. It provides a description to whole data.

In our everyday lives, we make several judgments that need logical reasoning as well as calculations. Consider, for instance, how many runs per over your country/team needs to win a cricket match or which number you want to appear often on the dice to win that ludo game? We develop those selections based on mathematical data gathered on that particular topic.

> **Which shoe size do you want me to get for all children?**

Have you ever wondered that how your teacher identifies the topic the most of the children require help with? This is because your teacher has analyzed the data by finding mode. The **mode** is that value that appears the most number of times in a data set. .

In this STEM card, you will reflect on deciding situations that require finding mean or mode; creating google forms to collect data and finding mean or mode using excel sheets.

Main Activity: **Healthy Food vs Junk Food**

Introduction

In simpler terms, finding the mean number means finding an average number. This average number we can get by dividing the sum of the values we are working with by the count of number/quantity in that set. Mode is that value that has appeared the most in a set of data values.

What Will You Need?

Computer/mobile with an internet connection

Important Information

- Mean **includes every value in your data set as part of the calculation**

- A set of data may have one **mode**, more than one **mode**, or no **mode** at all

What Will You Learn?

- Collecting data using google forms

- Calculating mean and mode of the data collected

- Reflecting on usage and application of mean and mode in daily life.

- Google forms can help people in self-reflection easily.

Let's get started! Let's learn how to create google forms. Now, take a look at the complete activity here.

Bonus Activities

Activity 1: Raise the Bar with Bar Graphs

Charlet owns a hotel and wishes to improve his revenue by drawing more guests and increasing his fame. What do you think he will do? Yes, he can plan on hiring additional people and investing in architecture, cleanliness, and decor. However, he has limited finances and will be unable to cover the enormous costs throughout the year but can afford to spend more during 2-3 months. Will it work if we figure out at what time of the year he has the most visitors?

He can apply for loan but needs to show the number of visitors month wise over the last three years. To make the data visually appealing and understandable, he planned to present the data in the form of Bar Graph.

Help Charlet to present this data in the form of Bar graph. Let's import this data into google sheet to get started.

What You Will Need:

Computer with an internet connection

How Will You Do:

To show the mode in a visually attractive manner, create a bar graph of data collected.

Months ↓	NO. OF FAMILIES VISITED IN YEAR 2017	NO. OF FAMILIES VISITED IN YEAR 2018	NO. OF FAMILIES VISITED IN YEAR 2019
JANUARY	100	120	110
FEBRUARY	95	85	80
MARCH	55	60	50
APRIL	40	45	40
MAY	50	52	55
JUNE	30	33	32
JULY	50	55	54
AUGUST	70	65	72
SEPTEMBER	77	75	76
OCTOBER	66	63	64
NOVEMBER	90	99	110
DECEMBER	110	120	125

What You Will Learn:

- How Bar graphs depict the most scattered data in a beautiful and easy way.

- Bar graphs are easily understable by a large group of people.

- Bar graphs helps people visualize trends by representing data that shows changes over time.

- How bargraphs can help in providing feedbacks and predict the future occurences of a particular event.

Challenge Activity: Mode Will Take You to the Solution Road

Have you ever wondered why some grocery stores gain more and more profit, while other grocery stores suffer loss or not able to grow their business more? Find out why some online shopping sites become hit. The simplest yet smart solutions lie in finding the mean and mode unknowingly.

You can be the master guide, a saviour to a number of grocery store owners out there! Find out the simplest way though which grocery stores owner can keep track of the most sold items and the least sold items .

What You Will Need

Computer with an internet connection

How Will You Do

Create a google form to help any one grocery store owner to reflect on their most and least sold items. This google form has to be filled daily for a month. In this way, you will be easily keeping track of the whole month. You may include questions like which item was sold often today? Or which items were not sold? Your one google form can help a grocery store owner to earn more and become rich.

Create the excel sheet after you receive the response of grocery store owner for a month and find out the mode in terms of sold items and leftover items both. You can think of some innovative solution to sell the leftover items like offering a discount with other items.