



Fun with M&M's

Sorting

Fractions

Mean

Objectives: The students will be able to review the measures of central tendency by determining mean, median, mode and range. They will review their understanding of estimation, sorting, graphing, fractions and percentage as well as probability (with and without replacement).

Mode

Graphing

Estimating

Probability

Median

Range

Percentage

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Materials



- Individual small bags of M&M's
- Copies of worksheets for each student
- Pencils
- Colored pencils or markers

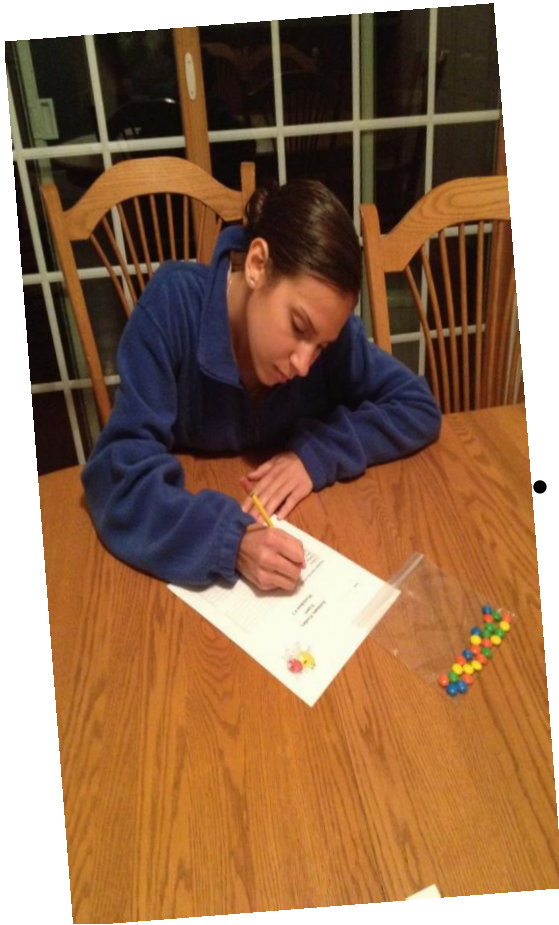
Fractions & Percents

- **Fractions**

- Parts of a whole
- A number written with the bottom part (the denominator) telling you how many parts the whole is divided into, and the top part (the numerator) telling how many you have
- **Example:** There are 15 in the bag and 5 yellow, so the fraction is $\frac{5}{15}$, which would reduce to $\frac{1}{3}$.

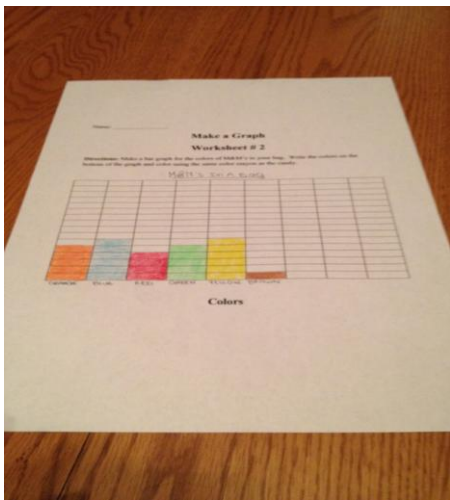
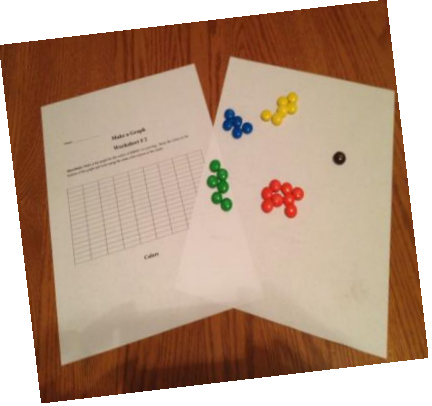
- **Percents**

- Parts per 100
- To find the percentage of yellow M&M's in the bag:
 1. Divide the numerator by the denominator to get a decimal.
 $3 \sqrt{1.0} = (.33 \text{ repeating})$
 2. Move the decimal point two places to the right or multiply times 100 to get the percentage, which is 33%.



Making a Bar Graph

- A bar graph is a visual display used to compare the amounts of different characteristics of data.
- Count each color M&M in your bag.
- Make a bar graph for the different colors of candies in your bag.
- Label your bar graph title and axes.
- Write the colors on the bottom of the graph and color using the same color crayon as the candy.



Estimate, Predict, Actual Amount!

Estimating: calculating something approximately

Actual Amount: the accurate measurement of something

- Think you know how many M&M's are in your bag??
- **Without** opening your bag of candy, take a guess at how many total M&M's are inside!
- Then, without counting, write down each color M&M in your bag and guess how many of each color you have.
- Now open up your bags and count how many of each color you have.
- What was the actual amount of your total number of M&M's?



Mean, Median, Mode and Range

- **Mean**
 - The average of the numbers
 - Add up all the numbers and divide by the amount of numbers
- **Median**
 - Middle value
 - Must first put the numbers in order from least to greatest.
 - Then, find the middle number.
 - If there is an even amount of numbers, add the two middle numbers and divide by 2.
- **Mode- "Most"**
 - The number that is repeated more often than any other number
 - If two numbers are repeated the same amount of times, then there are two modes.
 - If all of the numbers only show up once, there is no mode.
- **Range**
 - The difference between the largest and smallest values

Probability With Replacement



She is putting the M&M's back in the bag.

- 1. Count the number of yellow M&M's in your bag and find the total number. What is the chance of selecting two yellow M&M's **with replacement**.
- For example, if I have 6 yellow M&M's in my bag and 18 M&M's all together, then the chance of me selecting one yellow is $6/18$ or $1/3$ after reducing. Since I am putting the M&M back in, I have the same chance of getting a yellow M&M on the 2nd pull from the bag. So I multiply $1/3 \times 1/3$, which gives me $1/9$.

Probability Without Replacement

- Now **without replacement**, what is the probability of selecting two yellow M&M's?
- Using the same bag if I select 1 M&M, the chance of it being yellow is $6/18$ or $1/3$.
- Since I am not replacing it, I now only have 17 M&M's and 5 yellow, so I have $5/17$ of a chance.
- Then, I multiply $1/3 \times 5/17$ to get $5/51$.

