

Name: _____ Date: _____ Class Period: _____

Percent Error



In today's lesson, we will determine whether or not the **Mars Company** is accurate in their production of M&M candies. We will be collecting data and comparing it to the company's information. Percent error will be used to measure the accuracy of the company's packaging.



SETUP:

Each person in your group will be assigned a role in this activity. Although these are your assigned roles, **all of you are responsible** for the completion of this activity. The roles are as follows:

-Supply Runner:

Get supplies, assist the counter/checker, assist in gathering and analyzing data

-Researcher:

Reads over the directions to the group, finds necessary information from the notes, assist in gathering and analyzing data

-Counter/Checker:

Sorts, checks, & counts the candies, assists in gathering and analyzing data

















-Mathematician:

Oversees the calculations, sets up formulas, assists in gathering and analyzing data



OBSERVATIONS:

Our lab begins with making observations. First, the Lab Manager should get the bag of M&M candies that will be used for the groups' data. Everyone will write down observations regarding your bag of candies in the chart below. **DO NOT OPEN YET!** Remember, try to use *all of your senses as well as doing quantitative and qualitative observations.*

OBSERVATION		
		
		
		
		
		
		
		



EXPERIMENT PART I:

Open up your bag of candies and spread them out on the table. Count each piece. Measure and record the actual total below. Since each bag **should** have 100 M&M's, you can now calculate the percentage of error.

CALCULATION	% Error= $\frac{\text{measured} - \text{accepted}}{\text{accepted}} \times 100$
	Measured: _____
	Accepted: 100 candies

m EXPERIMENT PART II:

- **MAKE SURE YOU HAVE 100 CANDIES EXACTLY FOR THIS PART.** Now sort and count each color and mark the data in the table below. Enter your results in the column called the “MEASURED” value.

According to the Mars Company, each color constitutes a specific percentage of the bag.

	Red	Orange	Yellow	Green	Blue	Brown
Percentage	13%	20%	14%	16%	24%	13%

- Since there are now one hundred candies exactly, record each percentage as a whole number in the table where it says “ACCEPTED.” (For example 13% = 13 candies)
- Calculate the error by finding the difference between the “MEASURED” and “ACCEPTED” values.*
- Using the formula for percent error, calculate and enter your results in the last column.

COLOR	Measured	Accepted (Mars Co.)	Error (difference)	% Error
Red				
Orange				
Yellow				
Green				
Blue				
Brown				

m Graph:

Draw a bar graph depicting the percent error for each color. Use the matching colored pencil for each M&M.

Percent Error

Red	Orange	Yellow	Green	Blue	Brown						