April 05, 2015

M & M Math...

Answer the following questions in your M & M Probability packet. Then discuss the answers with your partner.

Do you think that every bag of M & M's has the same number of candies? Is this fair? Why or why not?

Do you think that each one of your group members will have the same chance of picking out your favorite colour of M & M? Why or why not?

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Tell your partner what you learned about probability yesterday

Today we will learn:

Task: To discover how M & M's can be used to show both experimental and theoretical probability

Tomorrow we will practice and apply what we learn about experimental and theoretical probability

How do you think M & M's can be used to show the difference between theoretical and experimental probability?

With your partner discuss the following:

Tell your partner what probability is.

Tell your partner what theoretical probability is

Tell your partner what experimental probability is

Tell your partner what you think the difference between theoretical and experimental probability is.

How do you think we can discover what theoretical an experimental probability are?

Ma 6 Name: _____#___

M&M Math Part 1: Tallies and Totals

1. With out opening or touching your bag of candy, estimate how many are inside total and of each colour in the chart below.
2. Open your bag of M&M's and tally how many of each colour, write the number and find the total amount.
3. Put your M&M's in the baggie provided. DO NOT EAT ANY!

Colour	Estimate	Actual Amount	
		Tally (in 5's)	Number
Blue			
Brown			
Green			
Orange			
Red			
Yellow			
Total			

Don't forget to enter your data into the google doc form.

Some things you will need to remember:

Fractions: writing your M & M's as a fraction you will use the total number of each colour as your numerator and the total number of M & M's in your package as your denominator ex. 5 blue M & M's and a total of 18 M & M's in your package is 5/18

Percent to find the percent of M & M's that are blue, write the ratio as a fraction then divide the numerator by the denominator and multiply by 100

Ratio: a way to compare to numbers... can be written as a fraction, with a : or to

5 blue to 18 total M & M's

5/18, 5:18

Enter your percentage data into the google doc form.

M&M Math Part 2: Actual Percentages

1. Write the totals in the chart below for the different colours.
2. Find the fraction for each colour and record it on the chart.
3. Find the percentages of each colour and record it on the chart.
4. Compare your information with the actual data from the company given to you.
5. Find out how many M&M's should be in your bag given the percentages from the data analysis.

Colour	Actual Number	Fraction	Percentage	Data %	Your M&M's	Class %
Blue						
Brown						
Green						
Orange						
Red						
Yellow						
Total						

What was the difference between your percentages and the data calculated for each colour? Show your work.

Blue_____

Brown_____

Green_____

Orange_____

Red_____

Yellow_____

What is your conclusion about this data difference between the actual, class and your M&M's?_____

_____

Probability

Probability is all about chances. What are the chances of you picking out a certain colour from all the M & M's in your bag. To find the probability we will need to first represent the total as a fraction.

Ma 6 Name: _____#___

M&M Math Part 3: Probability

Which M&M color are you most likely to get? What color would you least likely get? Would your results be the same if you opened a bag of Peanut, Almond, Peanut Butter, Crispy, or Mini M&M's? Whenever you start to use the words "most likely" or "least likely", you are talking about probability.

I. Conducting the Experiment

Because we are not able to count all the different colors of M&M's that were created or will be created, we are not able to calculate the theoretical probability. So instead, we will find the experimental probability.

Part A

Using the information that you have already gathered (the numbers of M & M etc).

1. Which colour has the largest quantity? _____
2. Which colour has the least quantity? _____
3. If you were to close your eyes and pick a colour out of the bag, which colour do you think you would pick (explain why). _____

_____

_____

Part B Trial 1: Keeping out the M&M

1. Close your eyes.
2. Pick an M & M out of your baggie. Place the M & M on your desk (don't put it back in the baggie).
3. Record your colour in the chart below.
4. Repeat steps 1-3, four more times.
5. To complete the probability look below to the calculations section.

	Pick 1	Pick 2	Pick 3	Pick 4	Pick 5
Colour					
Probability Ratio					
Probability Fraction					
Probability Percent					

Part C Trial 2: Replacing the M&M

1. Close your eyes.
2. Pick an M&M out of your baggie. **Put the M&M back in bag.**
3. Record your colour in the chart below.
4. Repeat steps 1-3, four more times.
5. To complete the probability, look to the calculations section.

	Pick 1	Pick 2	Pick 3	Pick 4	Pick 5
Colour					
Probability Ratio					
Probability Fraction					
Probability Percent					

The company that makes M & M's actually creates a certain amount of each colour of M & M's Let's see if our numbers probability is the same as what they claim.

The Colors in the Bag: M&M's Plain

A bag of M&M's Plain candy has the following color mix:

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

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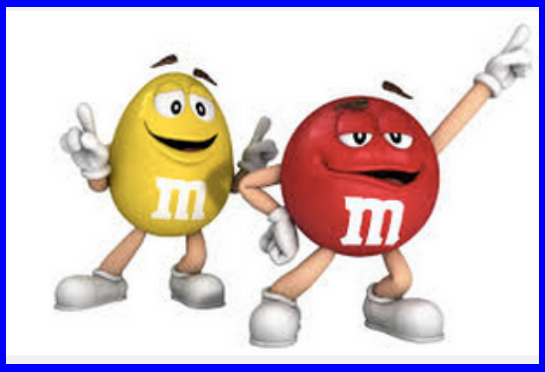
Class Statistics for M & M's



Click on M & M's to get individual colour data

Click on M & M's to get to class percentage data

Reflection:

Write down the answers to the following questions in your M & M Probability Packet.

What is the most important thing you have learned about experimental and theoretical probability? Why is this important?

What is the difference between theoretical and experimental probability?

How does what you learned today relate to what you already knew about probability?

How do you think what you learned today will relate to what we will learn tomorrow?

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M & M Images found on the official M & M website. www.mms.com