

How Many
and What
Color M&Ms
in a Bag?

PROBLEM

Are there the same amount of M&Ms in each pack, and are the same amount of colors in each pack?

PROBLEM

- Independent variable (*what I the experimenter changed*) - Bags of peanut butter M&Ms
- Dependent variable (*what changes*) - numbers of M&Ms in each bag and the color Ms in the bag
- Constants (*what stays the same*) - Size, type and weight of the M&Ms bags

HYPOTHESIS

I think there about the same number of M&Ms will be in each bag (within 1 or two) and about the same number of colors



PROCEDURE

Step 1

- My parents bought a box of 24 bags, 46.2 grams packs, of peanut butter M&Ms to use for this investigation.



PROCEDURE

Step 2

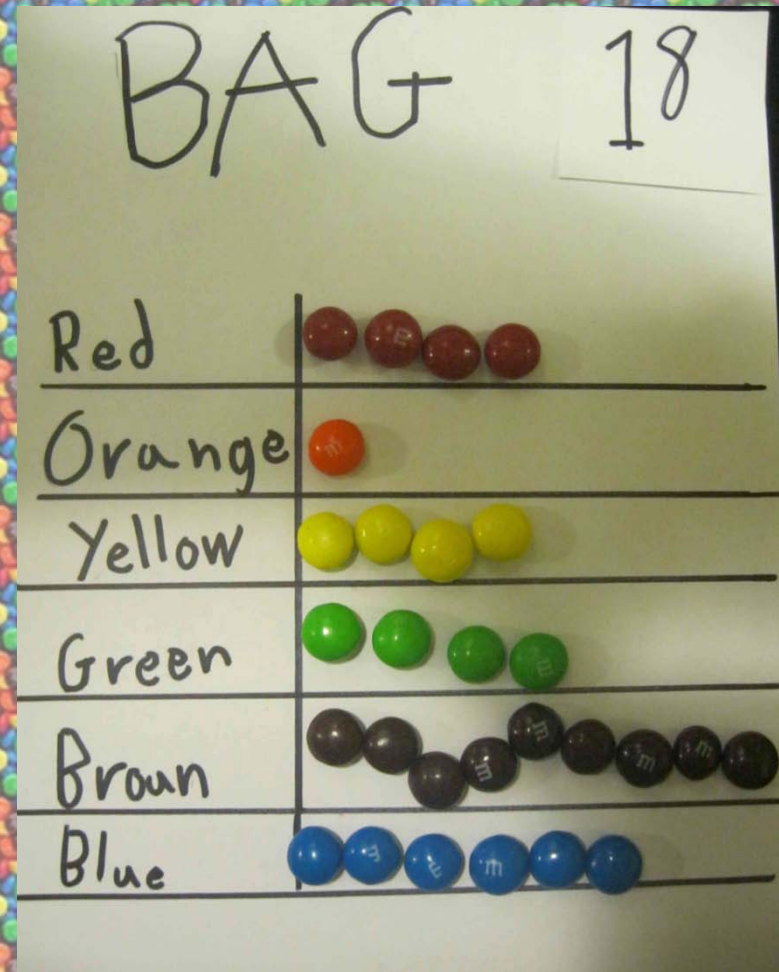
- I counted by hand the colors of each M&M bag, recorded the results in my notebook and added up the totals.



PROCEDURE

Step 3

- I made a blank graph so that when I placed the M&Ms on the graph they formed a color bar graph of each bag. I took a picture of each bar graph (see Trials and Samples section).



BACKGROUND INFORMATION

I chose this experiment because I like M&Ms and wanted to see if I get the same amount as my sister when we get share bags. Another goal was to see if I get more red than brown (my favorite color is red and my least favorite is brown).

TRIALS AND SAMPLES

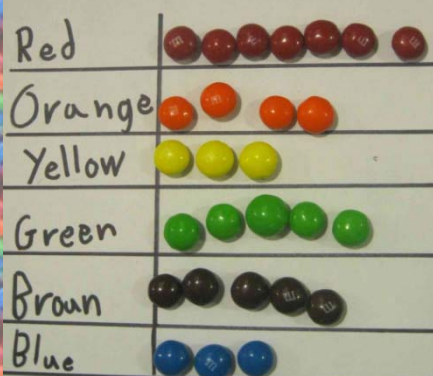
BAG 1



BAG 2



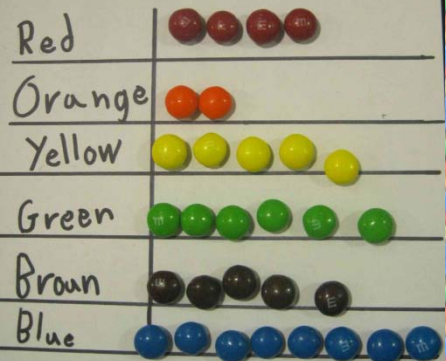
BAG 3



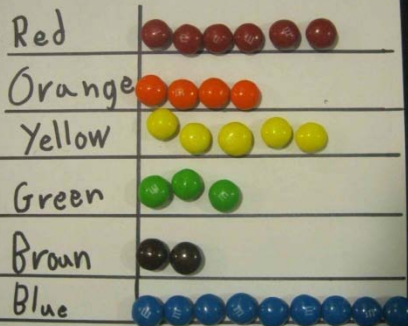
BAG 4



BAG 5



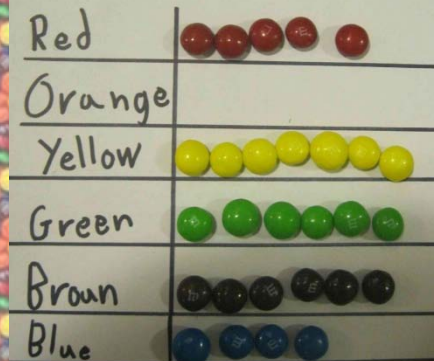
BAG 6



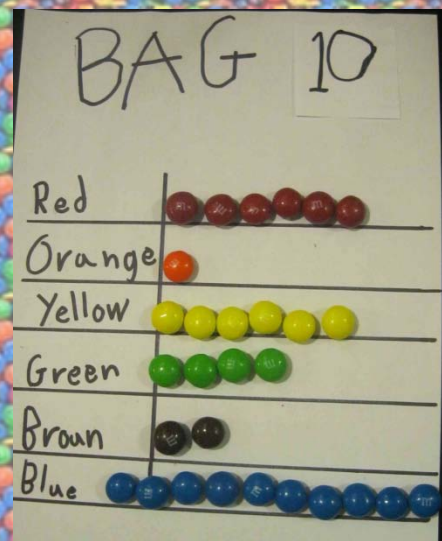
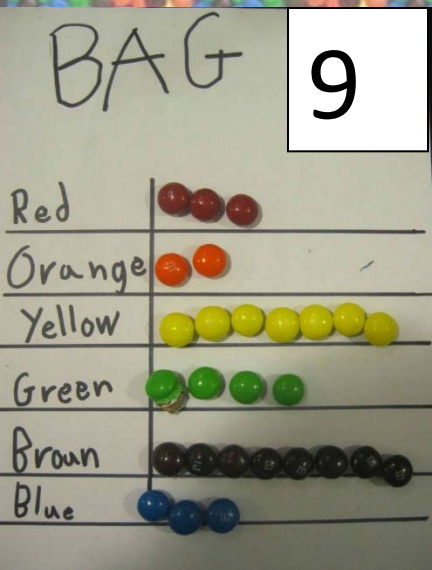
BAG 7



BAG 8



TRIALS AND SAMPLES



TRIALS AND SAMPLES

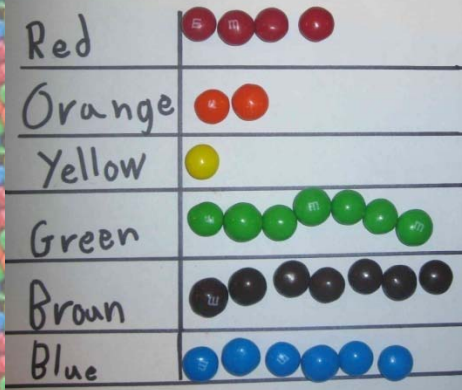
BAG 17



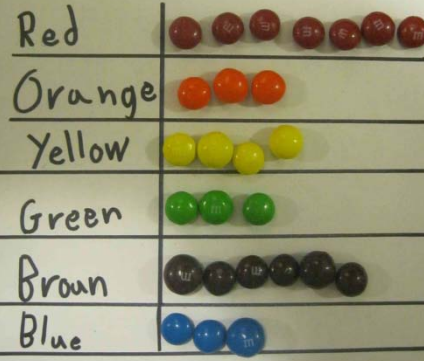
BAG 18



BAG 19



BAG 20



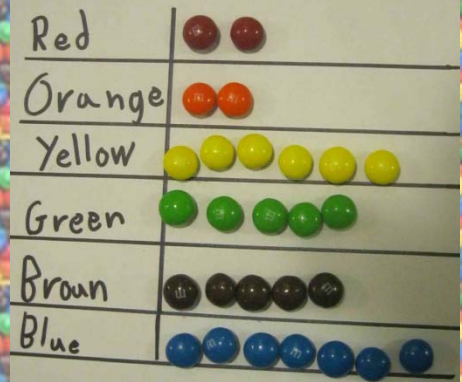
BAG 21



BAG 22



BAG 23



BAG 24



DATA/GRAPH

	Bag 1	Bag 2	Bag 3	Bag 4	Bag 5	Bag 6	Bag 7	Bag 8	Bag 9	Bag 10	Bag 11	Bag 12
Red	5	7	7	4	4	6	2	5	3	6	5	5
Orange	3	2	4	1	2	4	2	0	2	1	2	2
Yellow	8	7	3	7	5	5	6	7	7	6	4	4
Green	9	5	5	5	6	3	5	6	4 ½	4	6	5
Brown	3	6	5	6	5	2	7	6	8	2	7	4
Blue	0	3	3	5	8	9	8	4	3	10	5	8
Total	28	30	27	28	30	29	30	28	27.5	29	29	28

	Bag 13	Bag 14	Bag 15	Bag 16	Bag 17	Bag 18	Bag 19	Bag 20	Bag 21	Bag 22	Bag 23	Bag 24
Red	7	4	9	3	3	4	4	7	3	3	2	3
Orange	1	0	2	4	4	1	2	3	0	0	2	2
Yellow	1	9	7	9	9	4	1	4	3	3	6	6
Green	7	7	6	2	2	4	7	3	8	7	5	4
Brown	6	1	4	4	4	9	7	6	7	7	5	8
Blue	7	6	2	7	7	6	6	3	3	7	7	5
Total	29	27	30	29	29	28	27	26	24	27	27	28

DATA SUMMARY

Totals	Percentage	Averages	Minimum	Maximum
Red—108	17%	4.6	2	9
Orange—44	7%	1.9	0	4
Yellow—125	19%	5.5	1	9
Green—122	19%	5.2	2	9
Brown—121	19%	5.4	1	9
Blue—127	20%	5.5	0	10
All—647	100%	28.1	24	30

CONCLUSIONS

- No, there are not the same number or colors of M&Ms in each bag.
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- The bag with the least M&Ms had 24 in it and the bag with the most M&Ms had 30 in it. The average number of peanut butter M&Ms in a 46.2 gram bag is 28.1,
- On average, there are about the same number of yellow, green, brown and blue M&Ms in each bag: 5—5½. There are slightly fewer red M&Ms in each bag at 4½ and only about 2 orange ones in each bag.

CONCLUSIONS

- Some times there are not any or zero M&Ms of one color in each bag (orange and blue).
- The most of any one color of M&Ms in each bag was 9—10 which happened for all colors except orange, which had at most 4 in one bag.
- The least common color is orange.
- Another experiment to try in the future is to switch the type of M&Ms to “plain” to see if that changes the results because those Ms are more uniform in size than the peanut butter kind.