•Activity

# STATISTICS WITH "M&M'S"®

"M&M's"® Plain Chocolate Candies come in six colors: brown, green, orange, red, blue, and yellow. *Before* you take a sample from the bag of "M&M's"®, answer the following questions:

for the whole Class.

1. Predict which color of "M&M's"® will occur most ~~in the bag~~. _____
   In your sample. _____ Why did you predict these colors?

for the whole Class.

2. Predict which color of "M&M's"® will occur least ~~in the bag~~. _____
   In your sample. _____ Why did you predict these colors?

Take a sample of "M&M's"® by dipping the measuring spoon into the bag of candy and removing a spoonful. *CAUTION, do not eat any of the "M&M's"®!*

Statistical data are often displayed graphically. Using a graph rather than simply presenting the data as a set of numbers makes it easier to study relationships in the data.

Arrange the "M&M's"® in your sample on Graph 1 on the next page. This type of graph is often called a *real graph* because the statistical data are displayed using the actual objects whose frequencies are being compared.

3. Record the total number of "M&M's"® and the number of each color of "M&M's"® in your sample.

   Total: _____ Brown: _____ Orange: _____ Blue: _____

   Green: _____ Red: _____ Yellow: _____

4. a. Which color occurs most often in your sample? _____

   b. Did you guess the color correctly in problem 1? _____

   c. Which color occurs least often in your sample? _____

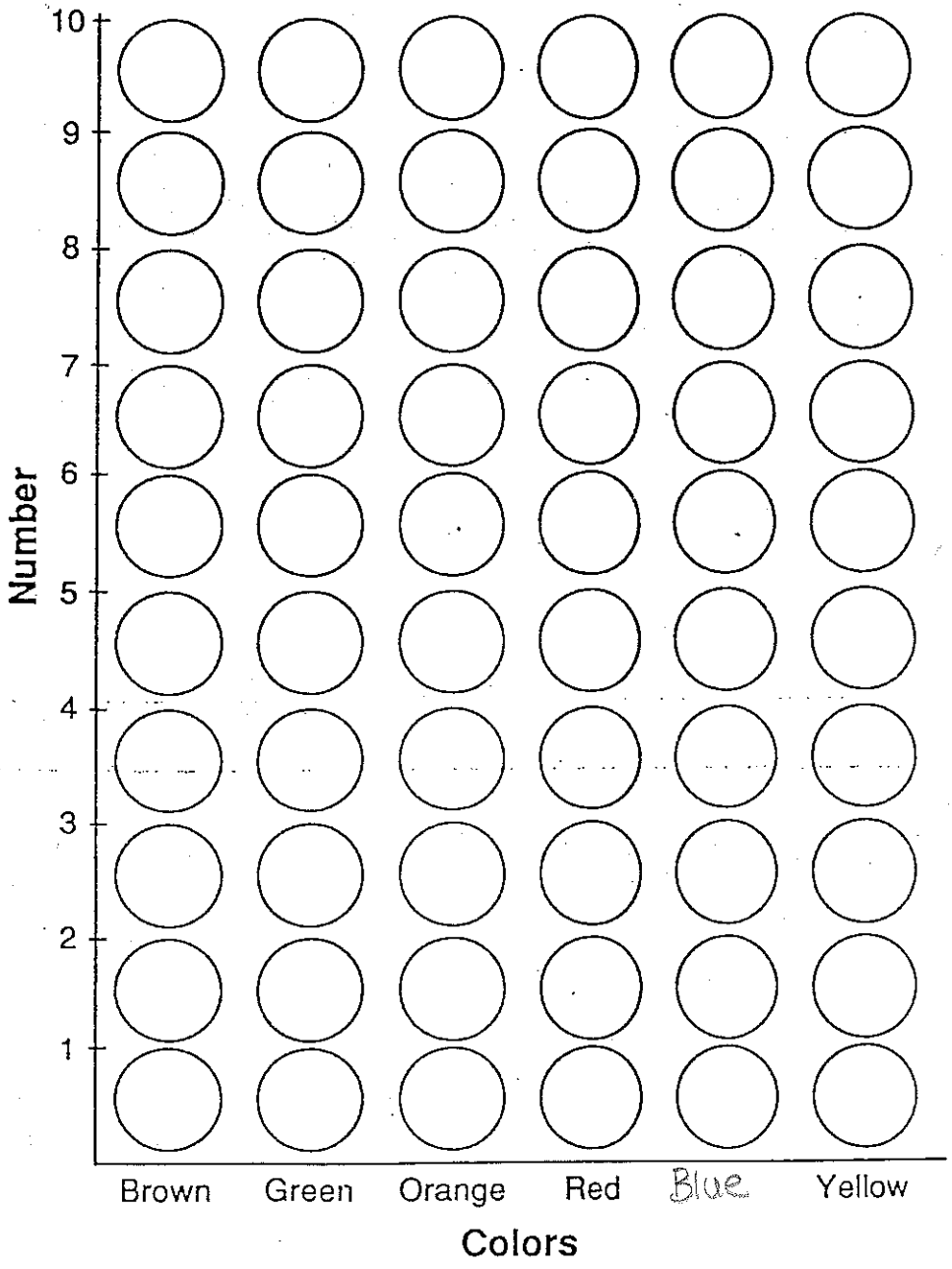
   d. Did you guess the color correctly in problem 2? _____

As you remove each candy from the graph, shade in the circle it covered.

The type of graph you constructed is called a *pictograph* because the data are displayed using parallel columns (or rows) of pictures in which each picture represents one or more of the objects being compared.

*CAUTION, do not eat any of the "M&M's"® yet!*

Graph 1. **Frequencies of "M&M's"®**




5. Compare your graph with the graphs of the other members of your group.

   a. In what ways are the graphs alike?

   b. How are they different?

6. On the basis of your sample, do you think you can accurately predict the number of each color of candy in a one-pound bag of "M&M's"® ? _____
   Why or why not?

Combine the data for your sample with the data for the other members of your group. Enter the group totals for each color of "M&M's"® in the Group Data table at the right.

Use the data to compare the number of each color with the total, and complete the Fractional Part, Decimal Part, and Percent columns in the table.

Your [redacted] Data

| Color | Number | Fractional Part | Decimal Part | Percent |
|---|---|---|---|---|
| Brown | | | | |
| Green | | | | |
| Orange | | | | |
| Red | | | | |
| Blue | | | | |
| Yellow | | | | |
| TOTAL | | | | |

7. Use the my [redacted] totals to predict the number of each color of "M&M's"® you would expect to find in a one-pound bag of "M&M's"®.

Brown: _____ Orange: _____ Blue. _____

Green: _____ Red: _____ Yellow: _____

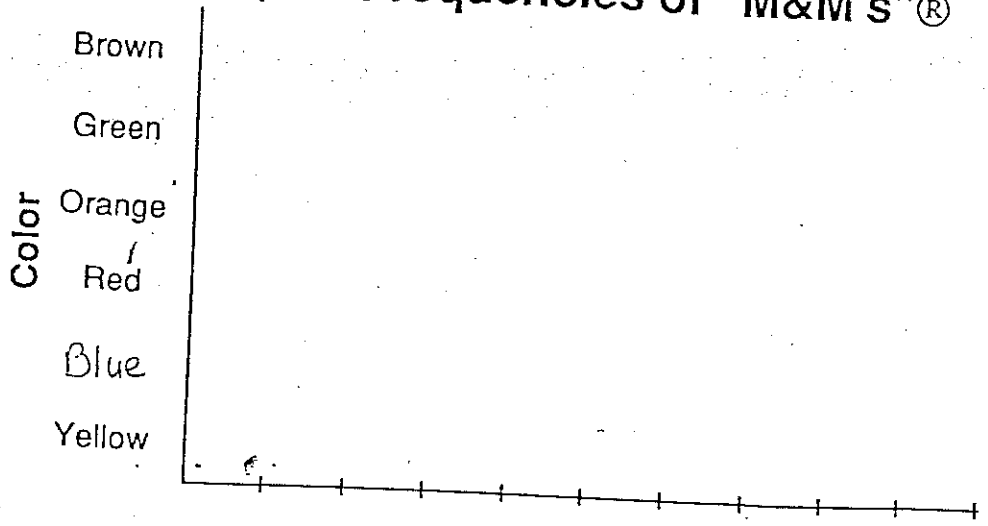
Describe the procedure you used to make your predictions.

*Now you may eat the "M&M's"® in your sample.*

8. What is your favorite color of "M&M's"® ? _____

Construct a bar graph for the group totals of each color of "M&M's"® in Graph 2. Label the divisions on the horizontal axis.

Graph 2. **Frequencies of "M&M's"®**



Enter the class totals for each color of "M&M's"® in the table at the right. Use the data to complete the Fractional Part, Decimal Part, and Percent columns in the table.

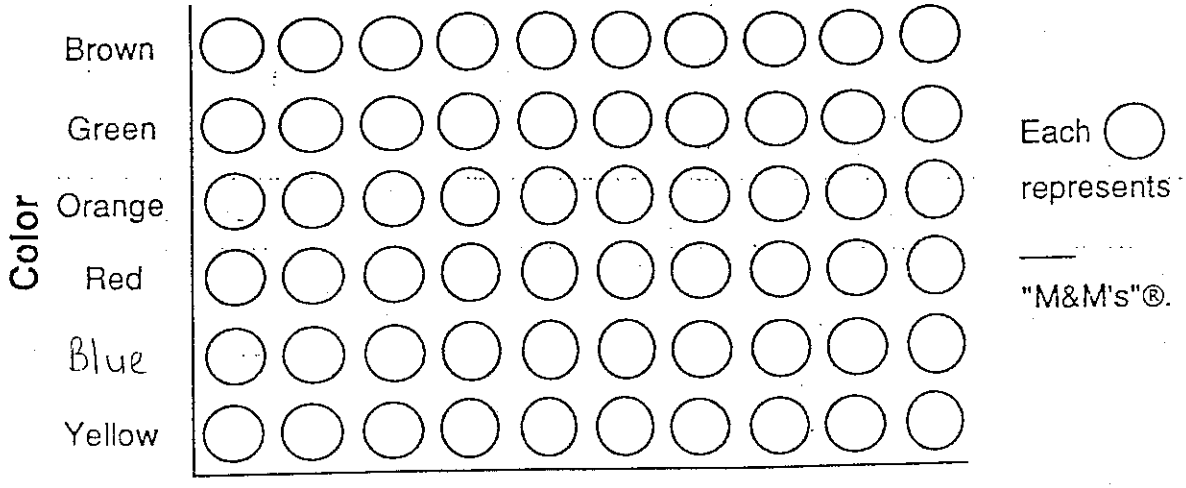
Construct a pictograph for the number of each color of "M&M's"® on Graph 3 below. Hint: Let each circle represent more than one "M&M's"®.

Construct a bar graph for the number of each color of "M&M's"® on Graph 4, and label the divisions on the horizontal axis.

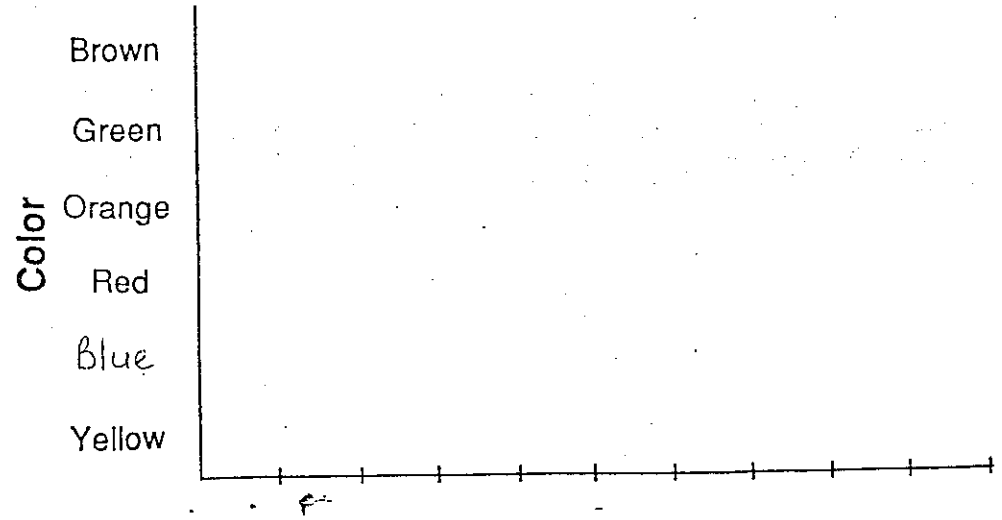
## Class Data

| Color | Number | Fractional Part | Decimal Part | Percent |
|---|---|---|---|---|
| Brown | | | | |
| Green | | | | |
| Orange | | | | |
| Red | | | | |
| Blue | | | | |
| Yellow | | | | |
| TOTAL | | | | |

## Graph 3. Frequencies of "M&M's"®




## Graph 4. Frequencies of "M&M's"®



10. a. Which graph, the pictograph or the bar graph, was easier to construct? _____ Why?

b. Which graph is easier to read? _____ Why?

11. If you bought a one-pound bag of "M&M's"® Plain Chocolate Candies, how many of each color would you expect to find in it?

Brown: _____ Orange: _____ Blue: _____

Green: _____ Red: _____ Yellow: _____

How do these totals compare with your answers to problem 7?

12. Help your classmates count the "M&M's"® remaining in the bag. What was the total number of each color of "M&M's"® in the bag?

Brown: _____ Orange: _____ Blue: _____

Green: _____ Red: _____ Yellow: _____

How do these totals compare with the predictions you made in problem 11?

Use the class totals for favorite colors to complete the table at the right.

13. If you were the manufacturer of "M&M's"®, how might you use the data in the Favorite Color table?

| FAVORITE COLOR | | |
|---|---|---|
| Color | Number | Percent |
| Brown | | |
| Green | | |
| Orange | | |
| Red | | |
| Blue | | |
| Yellow | | |
| Total | | |