

Name: _____

Date: _____

Life Science

Period: _____

Scientific Method: M&M Lab



The **scientific method** is a way to think about problems and a way to solve them. Scientists do not always follow the steps of the scientific method in order. However, after a problem is solved, a scientist can use the scientific method to explain how the solution was reached.

The **scientific method** can be broken down into the following parts:

1. State the problem.
2. Gather information on the topic.
3. Form a hypothesis.
4. Experiment!
5. Record and analyze data.
6. State a conclusion.

INTRODUCTION

In this activity, you will follow the steps of the **scientific method** to discover how many candies of each color are in one bag of M&Ms. It will show you how scientists record **data** on charts, make graphs, and draw **conclusions**. Do not eat any of the candies until you are permitted, because it will affect your results. Do not open the bag until you are instructed to do so.

2. **Gather information.** It is unlikely that you will find any information about colored candies in the library. Most likely, your best sources of information are experts, people who have experience with colored candies. Look around, and you will find some experts. In fact, you may be an expert yourself!

What colors of candies are found in these bags?

Which color do you think is most common? _____

MATERIALS

- 1 "fun-size" bag of M&Ms
- Colored pencils to match M&M colors
- Pencil

DIRECTIONS

1. State the problem: (Hint – What are you trying to find out?)

Hypothesis:

1. How many total M&M's do you think are in your bag? _____

2. List all of the <u>colors</u> of M&M's you think will be in your bag.	3. List <u>how many</u> of M&M's of each color you think there are in the bag.
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Data/Results: (Actual numbers/colors of M&M's):

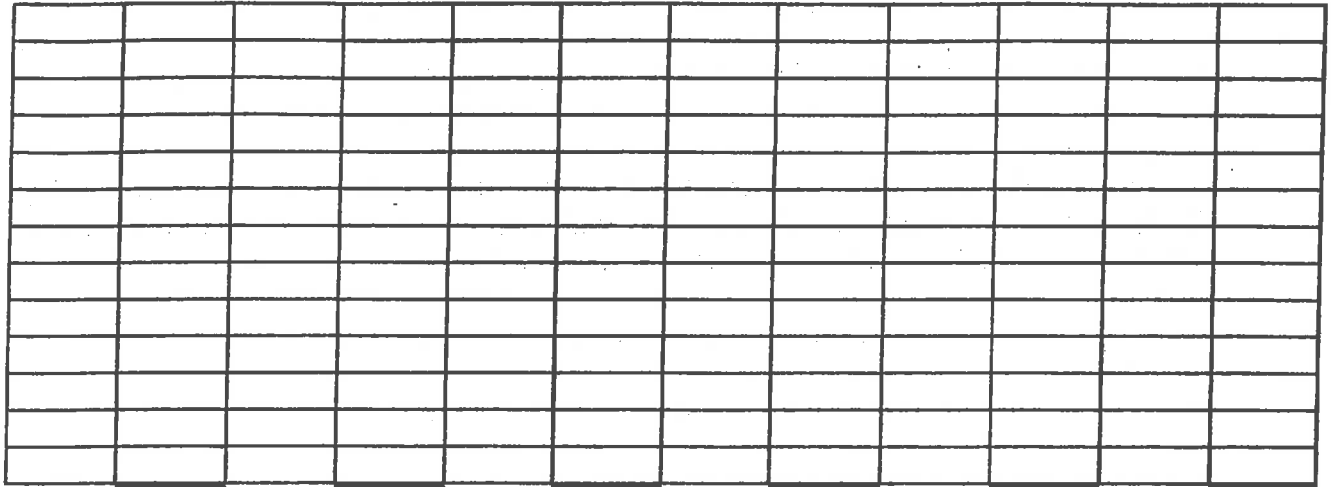
Total number of M&M's actually in the bag? _____

Data Table:

List each color	Color 1:	Color 2:	Color 3:	Color 4:	Color 5:	Color 6:	Color 7:
List the quantity of each color							

- e. Use the data that you entered to make a bar graph below.
- Label the horizontal axis with the colors of the candies.
 - Label the vertical axis with the numbers from 1 to 12.
 - Color the bars the same colors as the candies.
 - Give your bar graph an appropriate title.

Title: _____



Analysis (Calculations):

Show the fraction of each color in the bag:

Show the decimal of each color in the bag:

Show the percentage of each color in the bag:

Analysis (Questions): / Conclusion

1. What was the difference between your hypothesis of the number of M&M's in the bag to the actual number?
2. What color is the most common in your bag? _____
3. In your opinion, how does this activity relate to scientists conducting experiments?
(3-5 sentences)