Lab Members:       Date:       Score:      /17

**Purpose**:

*The purpose of this lab is to illustrate the growth and reproduction of bacterial cells. In this modeling lab one M&M represents one bacterium cell. If the M&M lands “M” up, the cell divides into two cells. You will add one M&M to show the division.*

**Procedure:**

1. Do NOT EAT the M&M’s. Select one person to be each of the following jobs: Data & Question Recorder, Grapher, Reader, and Materials Manager.
2. Reader: Read through all the Procedure out loud prior to starting the lab.
3. Materials Manager, wash your hands, get 1 clean paper towel piece and M&M’s.
4. Pour all the M&M’s in your cup into a large pile on the edge of your paper towel.
5. Now, place two M&M’s in the cup. This is “# in your population of M&M’s at Generation 0”.
6. Shake the M&M’s gently in the cup and pour on the paper towel.
7. For every M&M with an “M” showing face up on the table add one more M&M to you population.
8. Count all the M&M’s and Record in the next generation. Grapher can be graphing the data at the same time.
9. Put the M&M’s back in the cup and continue this process until you complete 12 generations - OR- you run out of M&M’s.
10. When you are done clean up your table get your data checked, clean up the table and complete the questions below.

**Data Table:** (3)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Generation** | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |  |
| **# of M&M’s****(population)** | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Analysis**:

Graph your data with the generation number on the x-axis and the number of M&M’s on the y-axis. Remember to label each axis and give the graph a title. (NOTE: Get a piece of graph paper from Mrs. Spence.) (6)

**Questions**:

1. What happened to the population of bacteria through the generations? Describe the trend in the graph. (2)
2. Why do you think the graph had this trend? (1)
3. How does this lab with M&M’s represent how bacteria cells reproduce? Be specific and use the vocabulary we talked about in class. (2)
4. Given what you have learned about how bacteria can reproduce, why would it be important for you to take your entire antibiotic when you have an infection? (1)
5. Predict: How many generations would it take for the population to reach 500? Justify your prediction. (NOTE: If your group members cannot agree you may have more than one prediction here, just identify the person making the prediction.) (2)