Name:_____ **Calculating Average Atomic Mass Lab** Period:_____

What an exciting time….. yes, it is exciting! We have just discovered an unknown element and have named it m&m-ium. One of the next steps in the process is to determine the isotopic composition of our newly discovered element. In order to do this we need to determine the relative abundance of the different isotopes and use that information to calculate the average atomic mass of the element. Please follow the instructions below and use the isotopic composition to calculate the average atomic mass of the element.

Step 1: Determine relative abundance of the different isotopes.

1. Open the bag of m&m's. DO NOT EAT ANY RIGHT NOW! Separate all of the different colors into groups. You will need to count the total number of pieces as well as the number of each color. Fill the information into the data table below.
2. Determine the relative abundance of each isotope (Percent = $\frac{\#\ of\ each\ color}{Total\ \#\ of\ peices} \times 100\%$)

Color of m&m's	Number of pieces	Relative abundance(to hundredth's)
1. Red		
2. Blue		
3. Orange		
4. Brown		
5. Yellow		
6. Green		
	Total pieces:	**Total Abundance: 100%**

Step 2: Use the isotopic composition to calculate average atomic mass

1. Perform the calculations to determine the average atomic mass of the new element based on the isotopic composition you calculated above. You will need to know the mass of each isotope which can be found below (you may not need all of the colors):

   a. Red-155 = 154.654 amu

   b. Blue-156 = 156.443 amu

   c. Orange-150 = 150.043 amu

   d. Brown -152 = 152.001 amu

   e. Yellow-151 = 151.054 amu

   f. Green-157 = 157.423 amu

Average atomic mass of your new element:_____

A. The average atomic mass is nearest to which color? Could you have predicted that before any calculations?

B. If given information that red-155 has a mass of 154.654 amu which mass do you use in your calculations for average atomic mass? What does the 155 stand for?

C. You may eat the m&m's after you have finished!