

Name _____
Date _____ Hour _____

Atomic Mass and Isotopes Lab

M&M[®] Isotopes

Introduction

In this lab you will study the isotopes of the rare element, Oregonium, (symbol Or) which occurs in M&M[®]'s. The specific isotope is indicated by the color of the M&M[®]. Below is a list of all the known isotopes of Oregonium along with the corresponding M&M[®] color.

<u>M&M[®] Color</u>	<u>Isotope Symbol</u>	<u>Mass Number</u>
Brown	Or-33	33
Purple	Or-34	34
Yellow	Or-35	35
Red	Or-36	36
Orange	Or-37	37
Tan	Or-38	38
Green	Or-39	39
Blue	Or-40	40

Materials:

1 bag of isotope samples (M&M[®]'s)
Calculator

Procedure:

1. Open your bag of M&M[®]'s. Separate them by color. Count how many of each color and enter this into your data table.
2. Calculate the percent (%) of each isotope.

$$\frac{\text{\# of M\&M}^{\text{\textcircled{R}}}\text{'s of one color}}{\text{Total \# of M\&M}^{\text{\textcircled{R}}}\text{'s}} \times 100$$

3. Calculate the weighted mass for each isotope by multiplying your percents from #2 by the Mass Number of the isotope (see chart above). Then, divide by 100.

$$\frac{\text{Percent} \times \text{Mass Number}}{100}$$

4. Repeat for each isotope.
5. To find the atomic mass of Oregonium, add up the weighted masses for all the isotopes.

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Data Table:

M&M [®] Color	Isotope Symbol	Mass Number	# in bag	%	Weighted Mass
Brown	Or-33	33			
Purple	Or-34	34			
Yellow	Or-35	35			
Red	Or-36	36			
Orange	Or-37	37			
Tan	Or-38	38			
Green	Or-39	39			
Blue	Or-40	40			
Total in bag:					
			Atomic Mass of Oregonium=		

Questions:

1. How does your atomic mass for Oregonium compare to that of other groups? Why would there be a difference in your numbers?
2. Does any single isotope of Oregonium have a mass exactly equal to the mass of the element?
3. Did you find any Or-34 (purple M&M[®]'s)? Why not? What type of isotopes do the purple M&M[®]'s represent?