Title: Atomic Mass of *Candium*

Purpose:

- To use a *Candium* model to explain the concept of atomic mass.
- To analyze the isotopes of *Candium* and calculate its atomic mass.

Materials

- Sample of *Candium*
- Balance

Procedure

1. Obtain sample of *Candium*
2. Separate it into its 3 isotopes.
3. Determine the total mass or each isotope.
4. Count the numbers of each isotope.
5. Record data and calculations in the data chart
   (see data chart below for details)
    1. average mass of each isotope
    2. percent abundance of each isotope
    3. relative abundance of each isotope
    4. relative mass of each isotope
    5. average mass of all isotopes
    6. Class average for relative mass
    7. Percent error

Discussion:

1. Summarize what you did.
2. Define the term *isotope*.
3. Explain the difference between percent abundance and relative abundance.
   (Hints: What is the result when you total the individual percent abundance values for each isotope?
   What is the result when you total the individual relative abundance values for each isotope?)
4. Compare the total values for rows 3 and 6 in the data table. How does the average mass differ from the relative mass?
5. Compare your value for relative mass to that of the class.
6. Comment on your percent error, sources of error in the activity, and provide suggestions for improvement.
7. Comment on how the activity is a model for calculating atomic mass of *real* elements.

Conclusion: The relative mass of *Candium* is _____ ± _____ %

Reflection: Personal commentary on the lab activity.

Modified from activity in *Chemistry*, 5th edition, (Addison-Wesley), 2000

Isotope	M & M's	Skittles	Reeses' Pieces	Totals	
# (count)					
Mass (g)					
Average Mass (g)					
Relative Abundance $\frac{\text{\# of } candiums}{\text{Total \# } candiums}$					
Percent Abundance (Relative Abundance x 100)					
Relative Mass (Relative Abundance x Average Mass)					← *O*

Group	Relative Mass of *Candium*	
1		
2		
3		
4		
5		
6		
7		
8		
Average		← *A*
Percent Error $\frac{A - O}{A}$ X 100		