

## THE ATOMIC MASS OF CANDIUM

**Purpose:** To analyze the isotopes of candium and to calculate its atomic mass.

**Materials:**    Sample of candium    Pencil  
                    Balance                      Paper

**Procedure:** Obtain a sample of candium. Separate the three isotopes (m&m's, Skittles, and Hot Tamales) and measure the mass of each isotope. Count the number of each type of candy and record it in your data table.

1. Calculate the average mass of each isotope by dividing its total mass by the number of particles of that isotope.
2. Calculate the percent abundance of each isotope by dividing its number of particles by the total number of particles and multiplying by 100.
3. Calculate the relative abundance of each isotope by dividing the percent abundance from Step 2 by 100.
4. Calculate the relative mass of each isotope by multiplying its relative abundance from Step 3 by its average mass.
5. Calculate the average mass of all candium particles by adding the relative masses. This average mass is the atomic mass of candium.
6. Explain the difference between percent abundance and relative abundance. What is the result when you total the individual percent abundances? The individual relative abundances?
7. The percent abundance of each kind of candy tells you how much of each kind of candy there are in every 100 particles. What does the relative abundance tell you?
8. Compare the total values in row three and row six in the table. Why can't atomic mass in row 6 be calculated the way the total for row three is calculated?
9. Explain the difference between the atomic mass of your candium sample and that of your neighbor. Explain why the difference would be smaller if the samples used were larger.