

Lesson 5

# SMALL-SCALE LAB: The Atomic Mass of Candium

Laboratory Recordsheet

Use with Section 4.3

## PURPOSE

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

## MATERIALS

- sample of "candium"
- balance
- pencil
- paper

## PROCEDURE

Obtain a sample of "candium" that contains three different brands of round, coated candy. Treat each brand of candy as an isotope of candium. Separate the three isotopes into groups labeled A, B, and C, and measure the mass of each isotope. Count the number of atoms in each sample. Make a table similar to the one below to record your measured and calculated data.

	A	B	C	Totals
Total mass (grams)				
Number				
Average mass (grams)				
Relative abundance				
Percent abundance				
Relative mass				

Figure A

## ANALYSIS

Using the experimental data, record the answers to the following questions.

1. Calculate the average mass of each isotope by dividing its total mass by the number of particles of that isotope. Record your data in Figure A.
2. Calculate the relative abundance of each isotope by dividing its number of particles by the total number of particles.
3. Calculate the percent abundance of each isotope by multiplying the relative abundance from Step 2 by 100.
4. Calculate the relative mass of each isotope by multiplying its relative abundance from Step 2 by its average mass.
5. Calculate the weighted average mass of all cadmium particles by adding the relative masses. This weighted average mass is the atomic mass of cadmium.
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?

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