The Atomic Mass of Candium

Purpose:

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

Materials:

sample of candium balance

Procedure:

1. Obtain a sample of candium
2. Separate the three isotopes (m & m’s, Skittles, and Reese’s pieces).
3. Count the number of m & m’s. Record in data table.
4. Count the number of Skittles. Record in data table.
5. Count the number of Reese’s pieces. Record in data table.
6. Measure the mass of all the m & m’s. Record in data table.
7. Measure the mass of all the Skittles. Record in data table.
8. Measure the mass of all the Reese’s pieces. Record in data table.

Data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | m & m’s | Skittles | Reese’s pieces | Totals |
| Number |  |  |  |  |
| Total mass (g) |  |  |  |  |

Analysis & Conclusion: **SHOW ALL WORK**

1. Calculate the average mass of each isotope by dividing its total mass by the number of particles of that isotope.
2. Calculate the relative abundance of each isotope by dividing its number of particles by the total number of particles.
3. Calculate the relative mass of each isotope by multiplying its relative abundance (answer from #2) by its average mass (answer from #1).
4. Calculate the average atomic mass of all the candium particles by adding the relative masses (answer from #3) of all the isotopes together.
5. Will every group have the same atomic mass? Explain why or why not.