LAD F1 (pg 1 of 1) Pennies as a Model of Isotopes

Name_____Per___

We will use pennies to represent an imaginary element named "coinium". From the weighings made as a class demo, you have just learned that coinium exists as two isotopes.

1. What are the individual masses of each isotope? (The two values from our class measurements.)

   Pre ‘1982 _____ Post 1982 _____

2. What is different about the two sets of pennies that is actually causing the different in the masses?

Procedure

- Pick up your random sample of coinium - DO NOT OPEN THE CONTAINER. Weight the closed cannister with pennies.

3. Determine the average mass of element coinium in your container. (The mass of the empty container is listed on the outside of the container − subtract the container from the measured mass, and then divide the mass of the pennies by 10, since there are 10 pennies in the container. This will give you the average mass of pennies in the container.)

4. Now calculate the percentage of each isotope. Use your knowledge of the masses of the individual isotopes (two types of pennies) from question #1 to compute the percentage of each isotope. Show your set up in the space below. Round your percentage to the nearest 10% (since there at 10 pennies in the container and no partial pennies.) to indicate the number of each type of isotope in the container.

5. Open the container and count the number of each of the two isotopes. Was your calculation correct?

6. What factors might cause your percent abundance to have error (not exactly at a 10% interval) ?

7. Repeat at least one more trial using a different film canister. Show your set up and result for your second trial in the space below.