Calculations:

1. Calculate the number of pre- and post-1982 pennies inside the container. This is a rather simple algebraic exercise.
   a. First, determine the total mass of the pennies in the container.

   b. Second, let \( x \) = number of pre-1982 pennies. Then \( (10-x) \) = number of post-1982 pennies.

   c. Finally, solve for the equation below:

   \[
   \text{Total mass of pennies} = \text{mass of pre-1982 pennies} + \text{mass of post-1982 pennies}
   \]

   \[
   = (x)(\text{mass of pre-1982 penny}) + (10-x)(\text{mass of post-1982 penny})
   \]

2. Knowing the number of each type of penny and knowing the mass of each type of penny, calculate the percent by mass of each type of penny. Also determine the average mass of the 10 pennies.

3. Boron has an atomic mass of 10.81 amu. It is known that naturally occurring boron is composed of two isotopes, boron-10 (isotope mass = 10.01 amu) and boron-11 (isotope mass = 11.01 amu). Estimate the approximate percent of each isotope of boron.

4. Pennies have different masses because of different amounts of zinc in the penny. Explain what is the same and what is not in the different isotopes of an element.

5. Naturally occurring chlorine consists of Cl-35 and Cl-37. Look up the atomic mass of chlorine on the periodic table and decide which isotope is the most abundant. Explain your answer.