Day 1.5: Penny Composition

1. Using the data in the table below, calculate the percentage of zinc in a post-1982 penny.

Mass of Empty Beaker	140.28 g
Mass of Beaker with Pennies before reacting with HCl	190.33 g
Mass of Beaker with Pennies after reacting with HCl	180.05 g

mass of Zn = 190.33 g - 180.05 g = 10.28 g Zn

$$\%\ Zn = \frac{\text{mass Zn}}{\text{total mass}} \times 100 = \frac{10.28\text{ g Zn}}{190.33 - 140.28\text{ g}} \times 100$$

$$= 20.54\%\ Zn$$

2. If the accepted value of zinc in a post-1982 penny is 97.5%, calculate the percent error for this experiment.

$$\%\ error = \left| \frac{Accepted - Experimental}{Accepted} \right| \times 100$$

$$\%\ error = \left| \frac{97.5 - 20.54}{97.5} \right| \times 100 = 78.9\%$$