Chemistry of Our Environment
Trends in the Mass of Pennies – Application of the Scientific Method

Scientists do their work in a logical approach called the Scientific Method. Although the approach can vary depending on the particular observations and situation, there are some general parts that always appear. Based on current observations and previously known and accepted theories and data, scientists will try to explain new ideas with something called a Hypothesis, which tries to explain how and why the current observations are occurring. Hypotheses are tested by performing experiments. In today's experiment you will develop various hypotheses as to what happens to the mass of a penny as it gets older. Think about this problem before you come to class and as a class we will try to develop some hypotheses and then do experiments to test our hypotheses. The principal question we have is:

Is an older penny going to be heavier, lighter or the same mass as a new penny? Why?

Once we determine some hypotheses and decide on one or more experiments to test these hypotheses, we will collect the relevant data as a class and use a computer to help us analyze the data.

1. Look up the history of the composition of the penny through the years, using any available source. Explain your data based on this.

2. For extra credit, explain completely what happened during my demonstration using a penny and zinc powder in a NaOH solution and subsequent heating.

3. A graph of Mass vs. Year will be produced for everyone in the class. Include this graph with your report.

4. Using the graph and classroom discussion and teacher demo, which hypothesis (crud or erosion) seems to be supported?