**Ms. Edwards Scientific Method Study Guide**

**Steps in the Scientific Method**

1)Identify a Problem

2) State Observations about the problem

3) Form a Hypothesis about the problem (if…then…)

4) Design an Experiment to test the hypothesis

5) Collect Data

6) Form a Conclusion

7) Retest

**Observations**

1. Gathered through your \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. A scientist notices something in their \_\_\_\_\_\_\_\_\_\_\_
3. An example of an observation might be noticing that many salamanders near a pond have curved, not straight, tails

**Hypothesis**

1. A suggested solution to the problem.
2. Must be \_\_\_\_\_\_\_\_\_
3. Sometimes written as If…Then… statements
4. \_\_\_\_\_\_\_\_\_ an outcome
5. An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ might be that the salamanders have curved tails due to a pollutant in the moist soil where they live.

**Experiment**

1. A procedure to \_\_\_\_\_\_\_ the hypothesis.
2. \_\_\_\_\_\_\_\_ – factor in the experiment that is being tested
3. A good or “valid” experiment will only have \_\_\_\_\_\_\_\_\_\_\_\_\_

**The Control Variable**

* The experimenter makes a special effort to keep \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so that they will not effect the outcome.

**What is the Purpose of a Control?**

* Controls are \_\_\_\_\_\_ being tested
* Controls are used for \_\_\_\_\_\_\_\_\_\_\_

**Other Variables**

* The factor that is \_\_\_\_\_\_\_\_ is known as the independent variable.
* The factor that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is called the dependent variable.

**Data**

1. \_\_\_\_\_\_\_\_\_ of the experiment
2. May be \_\_\_\_\_\_\_\_\_\_ (numbers) or \_\_\_\_\_\_\_\_
3. Must be \_\_\_\_\_\_\_\_\_\_
4. Can be organized into charts, tables, or graphs

**Conclusion**

The \_\_\_\_\_\_\_\_\_\_ to the hypothesis based on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Retest**

In order to \_\_\_\_\_\_\_\_\_\_\_\_\_, experiments must be retested.