Name _____
Period ___ Date ___/___/___

1 • Introduction to Chemistry

OBSERVATIONS, INFERENCES, & EXPERIMENTAL DESIGN

For each of the following statements tell whether it is an observation or an inference.

1. Grape juice causes stains on white fabric.
2. When grape juice is spilled on white fabric, a purple color appears on the fabric. The purple color is not removed by normal laundering.
3. The height of a plant is 21.3 cm.
4. Plant food makes plants grow taller.
5. A chemical reaction produces 5.1 mL of carbon dioxide in 3 minutes at 20 ˚C.
6. A chemical reaction produces 2.6 mL of carbon dioxide in 3 minutes at 15˚ C.
7. Heat speeds up chemical reactions.
8. A solution that is labeled copper (II) sulfate is blue.
9. The temperature of the water in the pond is 17 ˚C.
10. Pollution causes global warming.

For each of the following:

A. Tell whether you think the experiment described is a controlled experiment.
B. If it is not, tell how you would change it to make it a controlled experiment
C. If it is, tell what independent and dependent variables are being studied.

11. McDonald's restaurants want to know if their new banana milkshake is popular enough to add it to their regular menu. They count the number of banana shakes sold at 20 different restaurants over a 2 week period to decide.

12. A consumer advocate group wants to test whether a fertilizer company's claim that plants grow taller with their fertilizer is accurate. They perform the following experiment: Forty coleus plants are grown from clippings of a single plant. All of the plants are approximately the same height at the start of the experiment. Twenty of the plants receive the recommended amount of fertilizer with each watering. The remaining twenty plants receive the same amount of water with no fertilizer. All forty plants are grown at 25 ˚C with 10 hours of light daily. The height of each plant is recorded every 5 days for 2 months.