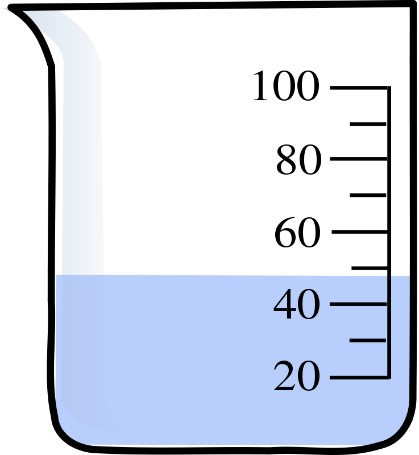
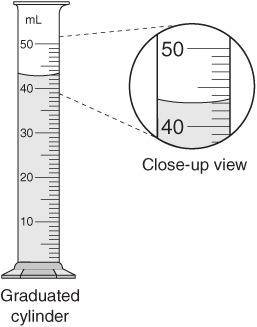
**Chemistry**

**Study Guide – Unit One**

1. For each of the following, underline the independent variable, circle the dependent variable, and put a square around any controlled variables
   * A study was done to find if different tire treads affect the braking distance of a car.
   * The amount of pollution produced by cars was measured for cars using gasoline containing different amounts of lead.
   * Four groups of rats are first massed and then fed identical diets except for the amount of vitamin A they receive. Each group gets a different amount. After 3 weeks on the diet, the rats’ masses are measured again to see if there has been a decrease.
2. In the following observations, circle the qualitative measurements:
   * 29 degrees Celsius
   * Water rose a bit
   * The solution turned pink
   * 37.5 mL
3. Write the following numbers in scientific notation, or as normal numbers.
   * 0.00384
   * 38,000
   * 1.69x103
   * 8.03X10-5
4. A liquid has a mass of 2.50 grams and a volume of 1.93 mL.
   * What is it’s density?
   * Will it sink or float on water?
5. In the space to the right, draw a scenario of
   * Both accurate and precise
   * Precise but not accurate
   * Neither accurate nor precise
6. Make the following metric conversions:
   * 390 km → m
   * 0.05 cg → mg
   * 1.49 mL→ L
7. Count the number of significant figures in the following values:
   * 130
   * 13.02
   * 0.0035
   * 0.00890

1. Carry out the following calculations to the correct number of significant figures.
   * 15.9 + 2.703
   * 30 x 4.5
   * 16.0 – 0.07
   * 25 / 38.9
2. Read the following pieces of lab equipment with the correct number of valid digits:  
     
     
3. Write the SI units for the following:
   * Temperature
   * Mass
   * Length
   * Volume
   * Time
4. Describe the difference between chemical and physical properties in your own words.

1. Which of the following are chemical changes:
   * Rusting
   * Changing shape
   * Melting
   * Reacting with an acid
   * Spoiling
   * Condensing
2. Write two indicators that a chemical reaction has taken place:
3. What physical property does distillation use to separate mixtures?
4. What physical property does filtration use to separate mixtures?
5. Other things you should know:
   * Know the parts of the scientific method.
   * Know the difference between heterogeneous and homogeneous mixtures.
   * Be able to describe pure substances, elements, mixtures, and compounds.