Lab Safety Pre-Quiz

I. Safety in the Laboratory:

The laboratory is a place for serious work. It can be a safe place to work only with the cooperation of every member of the class. Every student must be safety conscious. A safety conscious student does not take chances but tries to remove any possibility of an accident. Go through these three lists to verify that you are prepared for the SAFETY QUIZ. The following rules must be followed in the laboratory:

____1. Approved safety goggles MUST BE WORN AT ALL TIMES whenever any wet chemistry is being carried out in the lab, either by you or your classmates.
____2. DO NOT attempt any unauthorized experiments; students doing so will be subject to immediate dismissal from the class.
____3. Report any accident involving injury to your instructor at once. Ice water or cold water can keep burns from blistering if first aid is begun immediately. For any chemical spilled or splashed on the skin, flush the area liberally with cold water for at least 15 minutes or unless directed otherwise.
____4. During the first laboratory period familiarize yourself with the location of the safety features of the lab. Learn where the first aid supplies, eyewash, safety shower, fire blanket, and fire extinguishers are located. Also note where the deionized (or distilled) water is located.
____5. It is optional to wear a laboratory apron or coat when doing experimental work in order to protect your clothing but covered shoes with closed heels and toes MUST be worn at all times in the laboratory. Wearing tank tops and shorts is not a good idea since chemicals can spray or splash onto your body. Wear clothing you are not particularly fond of to lab.
____6. Clean up chemical spills immediately. If a corrosive liquid, such as an acid, is spilled on the skin or clothing, flood immediately with water for at least 15 minutes and consult your instructor. Use sodium bicarbonate (baking soda) to neutralize small acid spills. For large spills, or if unsure how to proceed, ask the instructor or lab tech.
____7. When putting glass tubing (including thermometers, funnels, and thistle tubes) through a rubber stopper, first lubricate the tube and stopper with water, then hold the tubing with a cloth near the end to be inserted and push with a gentle twisting motion. If you twist a thistle tube by the funnel end, it is very likely to break; very bad cuts have resulted from using this procedure.
____8. Beware of hot glass. Glass cools very slowly, and hot glass looks exactly like cold glass.
____9. Do not point your test tube at your neighbor or yourself when heating substances in it. Suddenly formed bubbles of vapor may eject the contents violently (this is called "bumping"). Hold the tube with a test tube holder.
___10. Never taste a chemical. When observing the odor of a liquid, do not place your face directly over the liquid, but fan a little of the vapor toward you by sweeping your hand over the top of the container.
___11. Confine long hair - it can catch on fire.
___12. No smoking, eating or drinking in the laboratory.
___13. Wash your hands thoroughly after each lab period.
___14. If using the Bunsen burner to heat ANYTHING (even water), never leave it unattended. If you must leave, turn off the Bunsen burner.

II. General Laboratory Rules and Manipulations

____1. Leave your glassware clean and dry at the end of each laboratory period.
____2. Wash and wipe the desktop, leaving it clean and dry at the end of each laboratory period.
____3. Put all waste material in the appropriate labeled waste container. Waste containers will generally be located in the hood.
____4. Never throw matches, litmus paper, or any solid, insoluble chemicals into the sink. Clear liquids should be poured into an appropriate waste container.
____5. Do not take the reagent bottles from the hoods to your desk. Take an appropriate container to the hood and obtain what you need. Carry liquids in clean test tubes, beakers, or graduates; carry solids in clean beakers, watch glasses, or plastic weighing boats.

____6. Never weigh any chemical directly on the balance pan or on paper. Use a glass container (beaker or a watch glass) or use a weighing boat. Do not leave excess chemicals by the balances. Ask your instructor for the proper disposal technique.
____7. Read the label twice before taking anything from a bottle to be sure you have the right substance. Serious accidents can occur in a few instances if the wrong chemical is used. A good rule of thumb is, "READ THE LABEL TWICE; DO THE EXPERIMENT ONCE."
____8. Use as little reagent as is necessary to perform your experiment. Any chemical removed from a container is considered waste after it is removed. Do not put excess chemicals back into the reagent bottle. It may contaminate the stock.
____9. Use deionized (distilled) water sparingly - it's expensive.
___10. Never return unused chemicals to the stock bottles.
___11. Do not insert pipettes or medicine droppers into reagent bottles. Pour out the solution or liquid into a clean dry beaker instead.
___12. Do not lay the stopper of a bottle down in such a way that impurities can be picked up and contaminate the solution. Your instructor will demonstrate the proper techniques for the various types of stoppers. After removing the chemical you need, replace the top properly and put the bottle back in its proper place.
___13. Test tubes may break if heated above the level of liquid in them. Evaporating dishes and crucibles may be heated red hot if necessary but should not be heated too suddenly. Do not add water to any hot piece of apparatus; wait until it has cooled.
___14. Never weigh any object that is wet or hot.
___15. If disagreeable gases are given off during an experiment, the experiment must be performed in the fume hood.
___16. Do not "shake down" thermometers or use it as a stirring rod. Thermometers break easily. You must ask for help in cleaning up broken thermometers in order to prevent mercury contamination in the lab.
___17. Never pour water into acid. Always pour the acid slowly into the water in a beaker while stirring constantly. Remember it as A & W - add acid to water.
___18. Never heat calibrated glassware such as graduated cylinders, volumetric pipettes or volumetric flasks. All glassware breaks easily, even if it is made of Pyrex.
___19. If you break any glassware, do not attempt to pick up any pieces, large or small with your hands. Use the broom and dustpan in the lab to pick up all broken glassware. Place the broken glassware in the correct container specifically for glassware.
___20. Use a narrow mouth Erlenmeyer flask for swirling (mixing) a solution not a wide mouth beaker. Solutions are more likely to splash during mixing from a wide mouth than a narrow mouth container.

III. How to Use the Laboratory for Maximize Benefit

The following instructions and suggestions will help you use your laboratory time efficiently, helping you to learn chemistry by using as little total time as possible.

____1. ALL EXPERIMENTS ARE TO BE PERFORMED INDIVIDUALLY UNLESS OTHERWISE DESIGNATED BY THE INSTRUCTOR.
____2. Read the experiment and understand what you are going to do, and why, before you come to the laboratory. Note any extra equipment needed from the stockroom, and obtain all of required equipment before starting the experiment.
____3. Use common sense and thought. Although laboratory directions are quite specific, there is always opportunity for logical and imaginative thinking.
____4. Become acquainted with the introductory literature of chemistry early in the course. Familiarize yourself with the handbook in the laboratory, reference books, and your textbook. Refer to these at any time that they may help you in understanding an experiment.
____5. Talk over the experiments with your classmates. However, be sure you contribute to the discussion and do not copy or become a parasite.
____6. Realize that the Report Sheets are not merely places to record data and write answers. They are intended as a stimulus and guide to your thinking. Keep your Report Sheets neat and readable. If required, use a notebook for preliminary notations and arithmetic. After the Report Sheets have been returned to you by

your instructor, review them and keep them in order; they become an important part of your study of chemistry.

____7. If required, prepare your pre-lab assignment in your notebook before attending class. Have a table of contents and all of the pages numbered by the first week. Have the date, title, purpose, and procedure of each experiment neatly written out before coming to class. Save enough room to write any observations, notes, and/or calculations that may be required by the experiment.