

Safety in the Laboratory

Working in the laboratory is an interesting and rewarding experience. During your labs, you will be actively involved from beginning to end - from setting some change in motion to drawing some conclusion. In the laboratory, you will be working with equipment and materials that can cause injury if they are not handled properly. However, the laboratory is a safe place to work if you are careful. Accidents do not just happen. They are caused-by carelessness, haste, and disregard of safety rules and practices. Safety rules to be followed in the laboratory are listed below. Before beginning any lab work, read these rules, learn them, and follow them carefully.

General

1. Be prepared to work when you arrive at the laboratory. Familiarize yourself with the lab procedures before beginning the lab.
2. Perform only those lab activities assigned by your teacher. Never do anything in the laboratory that is not called for in the laboratory procedure or by your teacher. Never work alone in the lab. Do not engage in any horseplay.
3. Work areas should be kept clean and tidy at all times. Only lab manuals and notebooks should be brought to the work area. Other books, purses, brief cases, etc. should be left at your desk or placed in a designated storage area
4. Clothing should be appropriate for working in the lab. Jackets, ties, and other loose garments should be removed. Open shoes should not be worn.
5. Long hair should be tied back or covered, especially in the vicinity of open flame.
6. Jewelry that might present a safety hazard, such as dangling necklaces, chains, medal lions, or bracelets should not be worn in the lab.
7. Follow all instructions, both written and oral, carefully.
8. Safety goggles and lab aprons should be
9. Set up apparatus as described manual or by your teacher. Never use makeshift
10. Always use the prescribed instrument (tongs, test tube holder, forceps, etc.) for handling apparatus or equipment
11. Keep all combustible materials away from open flames.
12. Never touch any substance in the lab unless specifically instructed to do so by your
13. Never put your face near the mouth of a container that is holding chemicals
14. Never smell any chemicals unless instructed to do so by your teacher. When testing for odors, use a wafting motion to direct the odors to your nose.
15. Any activity involving poisonous vapors should be conducted in the fume hood
16. Dispose of waste materials as instructed by your teacher.
17. Clean up all spills immediately.
18. Clean and wipe dry all work surfaces at the end of class. Wash your hands thoroughly.
19. Know the location of emergency equipment (First aid kit, fire extinguisher, fire shower, fire blanket, etc.) and how to use them.
20. Report all accidents to the teacher immediately.
21. Read and double check labels on reagent bottles before removing any reagent. Take only as much reagent as you need.
22. Do not return unused reagent to stock bottles.
23. When transferring chemical reagents from one container to another, hold the containers out away from your body.
24. When mixing an acid and water, always add the acid to the water.
25. Avoid touching chemicals with your hands. If chemicals do come in contact with your hands, wash them immediately.
26. Notify your teacher if you have any medical problems that might relate to lab work, such as allergies or asthma
27. If you will be working with chemicals in the lab, avoid wearing contact lenses. Change to glasses, if possible, or notify the teacher.

Handling Glassware

28. Glass tubing, especially long pieces, should be carried in a vertical position to minimize the likelihood of breakage and to avoid stabbing anyone
29. Never handle broken glass with your bare hands. Use a brush and dustpan to clean up broken glass. Dispose of the glass as directed by your teacher.

30. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) with water or glycerine before attempting to insert it into a rubber stopper.
31. Never apply force when inserting or re-moving glassware from a stopper. Use a twisting motion. If a piece of glassware becomes "frozen" in a stopper, take it to your teacher.
32. Do not place hot glassware directly on the lab table. Always use an insulating pad of some sort.
33. Allow plenty of time for hot glass to cool before touching it. Hot glass can cause painful burns. (Remember: Hot glass looks cool.)

Heating Substances

34. Exercise extreme caution- when using a gas burner. Keep your head and clothing away from the flame.
35. Always turn the burner off when it is not in use.
36. Do not bring any substance into contact with a flame unless instructed to do so.
37. Never heat anything without being instructed to do so.
38. Never look into a container that is being heated.
39. When heating a substance in a test tube, make sure that the mouth of the tube is not pointed at yourself or anyone else.
40. Never leave unattended anything that is being heated or is visibly reacting.

First Aid in the Laboratory Classroom

Accidents do not often happen in well-equipped chemistry laboratories if students understand safe laboratory procedures and are careful in following them. When an occasional accident does occur, it is likely to be a minor one. The school nurse is responsible for treating injuries. However, for some types of injuries, you must take action immediately, before the nurse takes over. The following information will be helpful to you if an accident occurs.

1. **Shock.** People who are suffering from any severe injury (for example, a bad burn or major loss of blood) may be in a state of shock. A person in shock is usually pale and faint. The person may be sweating, with cold, moist skin and a weak, rapid pulse.

Shock is a serious medical condition. Do not allow a person in shock to walk anywhere--even to the nurse's office. While emergency help is being summoned, place the victim face up in a horizontal position, with the feet raised about 30 centimeters. Loosen any tightly fitting clothing and keep him or her warm.

2. **Chemicals in the Eyes.** Getting any kind of a chemical into the eyes is undesirable, but certain chemicals are especially harmful. They can destroy eyesight in a matter of seconds. Because you will be wearing safety goggles at all times in the lab, the likelihood of this kind of accident is remote. However, if it does happen, flush your eyes with water immediately. Do not attempt to go to the nurse's office before flushing your eyes. It is important that flushing with water be continued for a prolonged time--about 15 minutes. While flushing is continuing, the school nurse should be informed.

3. **Clothing or Hair on Fire.** A person whose clothing or hair catches on fire will often run around hysterically in an unsuccessful effort to get away from the fire. This only provides the fire with more oxygen and makes it burn faster. For clothing fires, throw yourself to the ground and roll around to extinguish the flames. For hair fires, use a fire blanket to smother the flames. Notify the nurse immediately.

4. **Bleeding from a Cut.** Most cuts that occur in the chemistry laboratory are minor. For minor cuts, apply pressure to the wound with a sterile gauze, and take the victim to the school nurse. If the victim is bleeding badly, raise the bleeding part, if possible, and apply pressure to the wound with a piece of sterile gauze. While first aid is being given, someone else should notify the school nurse.

5. **Chemicals in the Mouth.** Many chemicals are poisonous to varying degrees. Any chemical taken into the mouth should be spat out and the mouth rinsed thoroughly with water. Note the name of the chemical and notify the nurse immediately. If the victim swallows a chemical, note the name of the chemical and notify the nurse immediately. If necessary, the nurse will contact the Poison Control Center, a hospital emergency room, or a physician for instructions.

6. **Acid or Base Spilled on the Skin.** Flush the skin with water for about 16 minutes. Take the victim to the school nurse.

7. **Breathing Smoke or Chemical Fumes.** All experiments that give off smoke or noxious gases should be conducted in a well-ventilated fume hood. This will make an accident of this kind unlikely. If smoke or chemical fumes are present in the laboratory, all persons--even those who do not feel ill--should leave the laboratory immediately. Make certain that all doors to the laboratory are closed after the last person has left. Since smoke rises, stay low while evacuating a smoke-filled room. Notify the nurse immediately. Thoroughly ventilate the room before going back to work.

Laboratory Safety Agreement

I have read and understood the attached document on safety and first aid in the laboratory. _____
(Date)

The office of the school nurse is located:

(State location)

The nearest fire alarm to the chemistry laboratory is located:

(State location)

The laboratory's fire blanket is located:

(State location)

The nearest telephone to the chemistry laboratory is located

(State location)

I have read and understood the attached document on safety and first aid in the laboratory and agree to abide by the rules and procedures described in within. I will also abide by any other rules and regulations provided by my chemistry teacher.

(Name - Please print clearly) (Date)

(Signature)

I have read and understand the attached rules and procedure and pledge my support in encouraging my son/daughter to follow them.

(Parent's name - Please print clearly) (Date)

(Signature)