

# **SAFETY IN THE LABORATORY**

## **General**

1. Be prepared to work when you arrive at the laboratory. If instructed to do so by your teacher, 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.
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, briefcases, 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. Long sleeves should be rolled up or secured in some manner.
5. Long hair must 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, medallions, or bracelets should not be worn in labs.
7. Follow all instructions, both written and oral, carefully.
8. Safety goggles and lab aprons must be worn at all times, unless instructed otherwise by the teacher.
9. Set up apparatus as described in the lab manual or by your teacher. Never use makeshift arrangements. (Equipment having glass components must be carefully supported.)
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 or taste any substance in the lab unless specifically instructed to do so by your teacher.
13. Never put your face near the mouth of a container that is holding chemicals.
14. 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. Know the location of emergency equipment (first aid kit, fire extinguisher, fire shower, fire blanket, etc.) and how to use them.
19. Report all accidents to the teacher immediately.
20. Laboratory work must never be done by a person who is alone.
21. If gas is detected in a room, do not light a match or flip the electric switch. Open all windows and doors.
22. Absolutely no food is to be taken into the laboratory area.
23. Shoes and not sandals must be worn in the lab at all times, unless otherwise instructed by the teacher.
24. All equipment must be inspected for defects before use.

### **Handling Chemicals**

25. Read and double check labels on reagent bottles before removing any reagent. Take only as much reagents as you need.
26. Do not return unused reagents to stock bottles.
27. When transferring chemical reagents from one container to another, hold the containers out away from your body.
28. When mixing an acid and water, always add the acid to the water.
29. Avoid touching chemicals with your hands. If chemicals do come in contact with your hands, wash them immediately. For strong acids, use baking soda. For strong base, use dilute vinegar.

## Handling Glassware

30. Glass tubing, especially long pieces, should be carried in a vertical position to minimize the likelihood of breakage and to avoid stabbing anyone.
31. 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.
32. All glassware that is cut **must be fire polished**.
33. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) with water or glycerin before attempting to insert it in a stopper.
34. Never apply force when inserting or removing glassware from a stopper. Use a twisting motion. If a piece of glassware becomes frozen in a stopper, take it to your teacher.
35. Do not place hot glassware directly on the table. Always use an insulating pad of some sort.
36. Allow plenty of time for the glass to cool before touching it. Hot glass can cause painful burns. (Remember: Hot glass looks cool.)
37. Exercise extreme caution when using a gas burner. Keep your head and clothing away from flame.
38. Always turn the burner off when it is not in use.
39. Do not bring any substance into contact with a flame unless directed to do so.
40. Never heat anything without being instructed to do so.
41. Never look into a container that is being heated.
42. When heating a substance in a test tube, make sure that the mouth of the tube is not pointed at you or anyone else.
43. Never leave unattended anything that is being heated or is visibly reacting.

## Life Science Laboratory Safety

44. All microorganisms should be handled as if they were pathogenic.
45. Always sterilize pipettes and inoculating loops immediately after use.
46. Never open culture dishes or in anyway test microorganisms unless instructed to do so by the teacher.
47. All plants used, should be thoroughly researched concerning their toxicity, as different parts

of the same plant may exhibit different properties.

48. When working with any plant, always wash your hands thoroughly afterwards.
49. No animals are to be brought into the classroom without first consulting the teacher and department supervisor.
50. When dissecting always pin your specimen to the wax tray when appropriate and make your incisions in a downward motion.
51. Keep hands away from your eyes during dissection.
52. Always clean up dissection equipment. Be careful not to cut yourself.

### **Physics and Physical Science Laboratory Safety**

53. **Electrical** equipment should only be handled with **dry hands**.
54. No electrical equipment should be turned on before getting **explicit permission from the teacher**.
55. When working with electrical circuits, the **current should be turned off before adjustments are made**.
56. Battery safety: Never connect terminals to each other.