

SAFETY GUIDELINES

BIOLOGY LABORATORY

The experiments that you will be performing in your biology labs can be both interesting and rewarding. Some labs will provide you with the opportunity to experience firsthand some of the things described in your textbook. Other labs will provide additional information and insights on topics related to those presented in the text. Laboratory work is an integral part of your biology course, and will give you the chance to develop new and valuable analytical and technical skills.

In the course of your lab work, you will be handling strong chemicals, sharp instruments, and expensive pieces of equipment. Accidents in the lab do not just happen—they are caused by carelessness, haste, and disregard for safety rules. Safety rules to be followed in the laboratory are listed below. Your teacher or school may have additional rules with which you should also become familiar. Learn these rules and follow them faithfully. It would also be wise to review all applicable safety guidelines before beginning each activity.

General

1. Know the location of emergency equipment (first-aid kit, fire extinguisher, fire shower, fire blankets, etc.) and how to use them. However, in general you should not use any of this equipment without direct instructions from the teacher.
2. Be familiar with laboratory evacuation procedures to be used in the event of a laboratory emergency.
3. Be prepared to work when you arrive in the laboratory. Read the description of the lab activity in your lab manual before arrival at the lab, so that you know what you will be doing.
4. Do not bring any food or drink into the biology laboratory.

Personal

5. Notify your teacher of any medical problems you have that may relate to lab work, such as allergies, asthma, or unusual sensitivity to irritants.
6. Clothing should be appropriate for working in the lab. Jackets, ties, and other loose garments should be removed or secured. Long sleeves should be rolled up. Jewelry that might present a safety hazard, such as necklaces, chains, medallions, or bracelets, should not be worn in the laboratory.
7. Long hair should be tied back or covered.

8. Wearing contact lenses in the laboratory presents particular hazards to their users. Students who normally wear contact lenses should change to regular eyeglasses, if possible. Notify the teacher if you have to wear contact lenses in the lab.

Lab Preparation and Procedure

9. Be sure that you understand the procedure to be employed in any laboratory activity and the possible hazards intrinsic to that lab.
10. Perform only those lab activities assigned by your teacher. Never do anything that is not called for in the laboratory procedure or by your teacher.
11. Follow all instructions, both written and oral, carefully.
12. Set up apparatus as described in the lab manual or by your teacher. Never use makeshift arrangements.
13. Always use the prescribed instruments (tongs, test tube holder, forceps, etc.) for handling apparatus or equipment.
14. Safety glasses, protective gloves, and a lab apron should be worn when you are heating substances, working with chemicals, doing dissections, or handling living or preserved specimens.
15. Work areas should be kept clean and neat at all times. Only lab manuals and notebooks should be in the work area.
16. Keep all combustible materials away from open flames.
17. Never touch or taste any substance unless specifically instructed to do so by your teacher.
18. Never put your face near the mouth of a container that is holding chemicals.
19. Any activity involving poisonous vapors should be conducted in the fume hood.
20. Dispose of waste materials as instructed by your teacher.
21. Clean and wipe dry all work surfaces at the end of class. Allow yourself adequate time at the end of each lab session for proper and adequate clean-up. Wash your hands thoroughly.
22. Report all accidents to the teacher immediately.

Handling Chemicals

23. Read and double check labels on bottles of chemicals before taking any.
24. Do not return unused or leftover chemicals to stock bottles.

25. When transferring chemicals from one container to another, hold the containers out away from your body.
26. When mixing an acid and water, *always add the acid to the water.*
27. Avoid touching chemicals with your hands. If chemicals do come in contact with your hands, wash them immediately.
28. When labeling the contents of a container, label the empty container first; then add the corresponding material to the labeled container. This procedure avoids the chance of a spill during the labeling process.

Handling Glassware

29. Do not use cracked, chipped, scored, or badly scratched glassware.
30. Never handle broken glass with your bare hands. Clean up the broken glass and dispose of it as directed by the teacher.
31. Always lubricate glassware (tubing, thermometers, etc.) with water or glycerin before attempting to insert it into a stopper. Never apply force when inserting or removing glassware from a stopper. Use a twisting motion.
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. Remember that hot glass shows no visible signs of its temperature, and it can cause painful burns.

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. Never heat anything without being instructed to do so.
37. Never look into a container that is being heated.
38. Do not bring any substance into contact with a flame unless instructed to do so.

39. When heating a substance in a test tube, make sure that the mouth of the tube is not pointed at yourself or at anyone else.
40. Never leave unattended anything that is being heated.

Handling Dissecting Instruments and Preserved Specimens

41. Preserved specimens showing any signs of decay should not be used for any type of lab observation or dissection.
42. Dissecting instruments, such as scissors and scalpels, are very sharp. Always use a cutting motion directed away from yourself.
43. In performing a dissection, make sure the specimen is pinned down firmly in a dissecting tray before beginning work.
44. Use your instruments with care. In general, very little force is necessary for making incisions. Excess force will most likely damage delicate tissues.
45. Never touch your eyes while handling preserved specimens. Always wash your hands thoroughly with soap and water after working with specimens.

Handling Living Specimens

46. In some labs you will be using live specimens. In these labs, it is particularly important that you understand clearly the purpose and procedure of the activity before you begin work. If you have any questions, consult your teacher.
47. Animals should be handled gently so as not to produce undue excitement or trauma.
48. Avoid subjecting specimens to stressful conditions such as exhaustive exercise or painful stimuli.
49. When working with cultures of microorganisms, it is best to assume that harmful organisms are present. Avoid skin contact with the culture. Wash hands thoroughly with soap and water after working with cultures.