

Laboratory Skills 1

Recognizing Laboratory Safety

Introduction

An important part of your study of biology will be working in a laboratory. In the laboratory, you and your classmates will learn biology by actively conducting and observing experiments. Working directly with living things will provide opportunities for you to better understand the principles of biology discussed in your textbook or talked about in class.

Most of the laboratory work you will do is quite safe. However, some laboratory equipment, chemicals, and specimens can be dangerous if handled improperly. Laboratory accidents do not just happen. They are caused by carelessness, improper handling of equipment and specimens, or inappropriate behavior.

In this investigation, you will learn how to prevent accidents and thus work safely in a laboratory. You will review some safety guidelines and become acquainted with the location and proper use of safety equipment in your classroom laboratory.

Problem

What are the proper practices for working safely in a biology laboratory?

Pre-Lab Discussion

Read the entire investigation. Then, work with a partner to answer the following questions.

1. Why might eating or drinking in the laboratory be dangerous?

2. How can reading through the entire laboratory before beginning the Procedure help prevent accidents?

3. Look around the room. What safety equipment do you recognize?

4. What safety procedures should you follow when cleaning up at the end of a lab?

5. Can minor safety procedures be skipped in order to finish the lab before the bell rings?

Materials (per group)

Biology textbook

Laboratory safety equipment (for demonstration)

Procedure

1. Carefully read the list of laboratory safety rules listed in Appendix B of your textbook.
2. Special symbols are used throughout this laboratory manual to call attention to investigations that require extra caution. Use Appendix B in your textbook as a reference to describe what each symbol printed below means.



1. _____



2. _____



3. _____



4. _____



5. _____



6. _____



7. _____

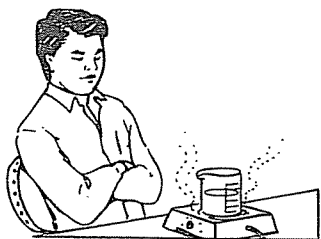


8. _____

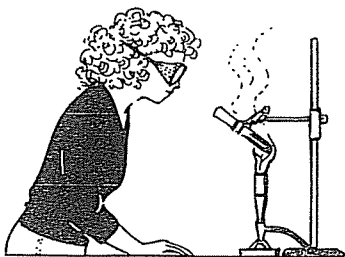
3. Your teacher will point out the location of the safety equipment in your classroom laboratory. Pay special attention to instructions for using such equipment as fire extinguishers, eyewash fountains, fire blankets, safety showers, and items in first-aid kits. Use the space provided below to list the location of all safety equipment in your laboratory.

Analysis and Conclusions

Observing Look at each of the following drawings and explain why the laboratory activities pictured are unsafe.



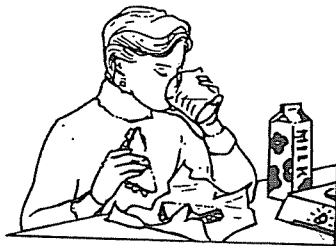
1. _____



2. _____



3. _____



4. _____

Going Further

Many houseplants and some plants found in biology laboratories are poisonous. Use appropriate library resources to do research on several common poisonous plants. Share your research with your classmates. You may prepare a booklet describing common poisonous plants. Use drawings or photographs to illustrate your booklet.

School Name _____

Teacher _____

PURPOSE

Science is a hands-on laboratory class. However, science activities may have potential hazards. We will use some equipment and animals that may be dangerous if not handled properly. Safety in the science classroom is an important part of the scientific process. To ensure a safe classroom, a list of rules has been developed and is called the Science Safety Contract. These rules must be followed at all times. Additional safety instructions will be given for each activity.

No science student will be allowed to participate in science activities until this contract has been signed by both the student and a parent or guardian.

SAFETY RULES

1. Conduct yourself in a responsible manner at all times in the science room. Horseplay, practical jokes, and pranks will not be tolerated.
2. Follow all written and verbal instructions carefully. Ask your teacher questions if you do not understand the instructions.
3. Do not touch any equipment, supplies, animals, or other materials in the science room without permission from the teacher.
4. Perform only authorized and approved experiments. Do not conduct any experiments when the teacher is out of the room.
5. Never eat, drink, chew gum, or taste anything in the science room.
6. Keep hands away from face, eyes, and mouth while using science materials or when working with either chemicals or animals. Wash your hands with soap and water before leaving the science room.
7. Wear safety glasses or goggles when instructed. Never remove safety glasses or goggles during an experiment. There will be no exceptions to this rule!
8. Keep your work area and the science room neat and clean. Bring only your laboratory instructions, worksheets, and writing instruments to the work area.
9. Clean all work areas and equipment at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
10. Follow your teacher's instructions to dispose of any waste materials generated in an experiment.
11. Report any accident (fire, spill, breakage, etc.), injury (cut, burn, etc.), or hazardous condition (broken equipment, etc.) to the teacher immediately.
12. Consider all chemicals used in the science room to be dangerous. Do not touch or smell any chemicals unless specifically instructed to do so.
13. Handle all animals with care and respect.
 - a. Open animal cages only with permission.
 - b. Never handle any animals when the teacher is out of the room.
 - c. Do not take animals out of the science room.
 - d. Do not tease or handle animals roughly.
 - e. Keep animals away from students' faces.
 - f. Wear gloves when handling animals.
 - g. Report any animal bite or scratch to the teacher immediately.
14. Always carry a microscope with both hands. Hold the arm with one hand; place the other hand under the base.
15. Treat all preserved specimens and dissecting supplies with care and respect.
 - a. Do not remove preserved specimens from the science room.
 - b. Use scalpels, scissors, and other sharp instruments only as instructed.
 - c. Never cut any material towards you—always cut away from your body.
 - d. Report any cut or scratch from sharp instruments to the teacher immediately.
16. Never open storage cabinets or enter the prep/storage room without permission from the teacher.
17. Do not remove chemicals, equipment, supplies, or animals from the science room without permission from the teacher.
18. Handle all glassware with care. Never pick up hot or broken glassware with your bare hands.
19. Use extreme caution when using matches, a burner, or hot plate. Only light burners when instructed and do not put anything into a flame unless specifically instructed to do so. Do not leave a lit burner unattended.
20. Dress properly—long hair must be tied back, no dangling jewelry, and no loose or baggy clothing. Wear aprons when instructed.
21. Learn where the safety equipment is located and how to use it. Know where the exits are located and what to do in case of an emergency or fire drill.

AGREEMENT

I, _____, (student's name) have read and understand each of the above safety rules set forth in this contract. I agree to follow them to ensure not only my own safety but also the safety of others in the science classroom or laboratory. I also agree to follow the general rules of appropriate behavior for a classroom at all times to avoid accidents and to provide a safe learning environment for everyone. I understand that if I do not follow all the rules and safety precautions, I will not be allowed to participate in science activities.

Student Signature

Date

Dear Parent or Guardian:

We feel that you should be informed of the school's effort to create and maintain a safe science classroom/laboratory environment. Please read the list of safety rules. No student will be permitted to perform science activities unless this contract is signed by both the student and parent/guardian and is on file with the teacher. Your signature on this contract indicates that you have read this Science Safety Contract, reviewed it with your child, and are aware of the measures taken to ensure the safety of your son/daughter in the science classroom.

Parent/Guardian Signature

Date

Important questions:

Does your child wear contact lenses?

Y or N

Is your child color blind?

Y or N

Does your child have any allergies?

Y or N

If so, please list: