

Discussion and Notes

The Chemical Hygiene Plan of the school should specify the requirements for regular inspection of all safety equipment and procedures for service and repair, if needed.

Many accidents have been reported due to explosions of unknown mixtures in chemical waste bottles. Always label the contents of each bottle and do not add additional waste chemicals or solutions without first checking the contents and chemical compatibility. Do not mix acids and bases, oxidizing and reducing agents, nitric acid and organic compounds, etc.

Housekeeping Is a Safety Issue

Maintaining a clean and well-organized laboratory with easy access to all safety equipment and exits is an important component of a safe lab environment. To achieve a neat, clean, and organized lab, both the teacher and students must actively work together and accept mutual responsibility.

Teacher's Roles and Responsibilities

Good housekeeping starts with the school and the instructor. The school has a legal obligation to provide a safe environment for the students to learn. The school must provide adequate space and appropriate safety equipment. The instructor must keep the laboratory and classroom neat and clean. Instructors must also ensure that the safety equipment is accessible and in good working order.

What are the most important features of good housekeeping in a laboratory? One very important aspect is neatness. Equipment, materials, chemicals, and supplies must be properly organized and stored. Nonessential papers, equipment, and supplies should not clutter up the laboratory. Closely related to neatness is cleanliness. Laboratories must be kept clean at all times. Spills require immediate cleanup.

Teachers have the following housekeeping responsibilities to maintain a safe lab.

1. The laboratory should be kept clean, organized, and free from clutter.
2. Fire extinguishers, eyewashes, safety showers, and other safety equipment must never be blocked or obstructed. All safety equipment must be clearly labeled with placards and easily accessible.
3. Aisles and exits must be kept clear of furniture, boxes, and other obstacles. Chairs should be under the desks when not in use. All occupants of a laboratory must be able to exit the lab quickly in an emergency.
4. Instruct students to bring only their laboratory instructions, worksheets, and calculators to their work areas. Other materials (books, purses, backpacks, etc.) should be left in the classroom seating area. In an emergency, items on the floor could block an exit or prevent access to safety equipment.
5. At the completion of each experiment, equipment should be cleaned and properly stored. Dirty equipment and glassware should not be allowed to pile up on the benchtop, around or in the sink, or in a hood.
6. Return all chemicals to the storeroom and promptly treat or dispose of all leftover materials at the conclusion of each lab activity. If waste materials must be stored, carefully label the contents of each bottle and place in the storeroom until disposal.
7. Clean up all spills immediately, no matter how harmless the material spilled (including water). *Areas around balances and sinks are particularly likely to become messy and hazardous as repeated spills accumulate and generate dangerous conditions.*
8. Keep a dustpan and broom available to sweep up broken glass or spilled chemicals.
9. Do not allow electrical cords to trail across aisles or lab benches. All cords should be securely taped to the floor to avoid trip hazards.
10. Do not use the fume hood as a storage area for chemicals, glassware or equipment.

Discussion and Notes

11. Laboratories should not be storage areas for old textbooks, catalogs, papers, journals, or newspapers. Determine what is needed in the laboratory and store everything else in an office, the library, or a classroom.
12. Have labeled containers for broken glass.
13. Maintain soap, detergent, and other cleaning supplies to wash hands, countertops, and glassware. Keep a large supply of paper towels on hand.

Students' Roles and Responsibilities

Students should expect to find their work areas clean and organized when they enter the laboratory. Students are expected to leave all work areas in the same condition for the next class. While the Flinn Student Safety Contract covers general rules relating to housekeeping, it is always helpful to review specific housekeeping responsibilities with your students.

1. Students are responsible for keeping their work areas clean and uncluttered.
2. If the work space becomes messy, clean it up as quickly as possible. Use downtimes during the procedure to rinse glassware, clean equipment, and put away extra materials.
3. All work spaces and storage areas should be kept clear of broken glassware, leftover chemicals, and excess paper.
4. If a spill occurs, immediately notify the instructor and then clean it up as directed by the instructor.
5. Return all chemicals to dispensing areas. Do not store chemicals in or around desks or lab benches. **Never remove chemicals from the laboratory!**
6. Do not store materials or lab equipment, especially chemicals, on the floor, even temporarily.
7. Keep balances, shared equipment, sinks, and the areas around them clean.
8. Avoid unnecessary hazards by keeping drawers and cabinets closed while working.
9. Keep aisles free of obstructions such as chairs, backpacks, books, and garbage cans.
10. Avoid slipping hazards by keeping the floor clear of ice, stoppers, small items, and spilled liquids.
11. Clean glassware at the laboratory sink and place on a drying rack to dry. If instructed, put glassware away after drying.
12. Avoid accumulating too many articles in the cleanup area or around the sinks. Usually the work space around a sink is limited and piling up dirty or clean glassware leads to breakage.
13. Wash hands thoroughly with soap and water before leaving the laboratory.

Summary

Keeping a clean, neat, and organized laboratory is often overlooked as a means of improving safety in a laboratory. The cleanliness and neatness of a lab is almost always related to the emphasis the instructor places on good housekeeping. Keep your areas clean and then involve students in keeping the laboratory clean and organized. Provide enough time and instruction for students to clean up after all lab activities. A clean, neat, and well-organized lab will create a more productive and professional learning environment.

Flinn Scientific Values Your Support

Flinn Scientific has provided these Science Department Safety Training Notes. Without your orders, the safety training notes and the indispensable *Flinn Scientific Catalog/Reference Manual* would not be possible. Please continue to support our efforts to improve safety in school science labs by sending Flinn Scientific your valuable orders.

Next Month's Topic

Preventing Chemical Spills

Housekeeping Is a Safety Issue

Maintaining a clean and well-organized laboratory with easy access to all safety equipment and exits is an important component of a safe lab environment. To achieve a neat, clean, and organized lab, both the teacher and students must work together and accept mutual responsibility. Here is our list of the general housekeeping rules and responsibilities you and your students should follow to maintain a safe lab.

The safety meeting should take 6–8 minutes to present. The discussion period will vary depending on the issues that need to be addressed.

It is important to keep a copy of these safety training notes and a signed attendance sheet to verify that regular safety training meetings were held. The sign-up sheet is almost as important as the training notes and is usually the first thing that is requested and reviewed by regulatory inspectors. A copy of the sign-up sheet that we suggest using may be found at www.flinnsci.com/Sections/Safety/SNotes/signup.pdf.

Materials (one per staff member)

- ◆ Flinn Scientific Science Department Safety Training Notes, Volume 9–6
- ◆ Sign-up Sheet (one for group)

Questions for Discussion

1. Many teachers share labs. Discuss any concerns related to shared housekeeping responsibilities and how improvements may be made.
2. Does the custodial staff understand its role in keeping our labs clean and safe?
3. Any suggestions on how to improve the organization or storage conditions of our prep room or chemical storeroom?
4. Many teachers may feel pressed for time and thus neglect cleaning and organizing the lab. Share time-saving tips and strategies for keeping labs neat.
5. Should we schedule a classroom, lab or prep room cleanup day this year?

We Welcome Your Comments

Are the Science Department Safety Training Notes useful to you? Are they working for you and your department? Do you have any suggestions for topics that you would like to see covered or for how we can improve these notes? We really want to hear from you! Please e-mail us with your comments and suggestions. Our e-mail address is flinn@flinnsci.com.