Lab cleanup — are we done yet?

Ending Lab with the Safety Dozen!

SAFE SCI: Be Protected!

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It does not matter if it is a biology, chemistry, Earth/space science or physics academic science laboratory.

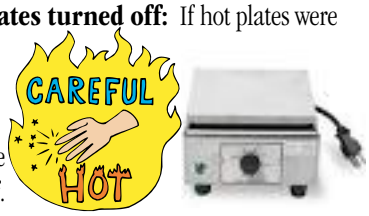
Ending the laboratory activity is just as important as the preparation for starting the activity safety-wise. Yet how many times do students hear the following statement from their instructor: *"Oh – sorry students but time has gotten away from us and the class is over. Try putting things away before you leave."* Recently a fire in a high school chemistry lab resulted from students improperly dumping chemical reaction products into the wrong waste containers while rushing out the door. The mixing of the reactants served as new products for another reaction which burst into flames.

Improper and rushed clean-ups are unsafe and can lead to potential hazards such as fire, explosions, theft, etc. Teachers need to include clean-up time in their lesson planning for laboratory work. The following safety dozen for the end of lab are a good place to start:

1. **Time Check**: Always keep an eye on the clock and let students know that they have about 10 minutes prior to clean-up. Also allow for approximately 10 minutes of time for the actual clean-up activity. Depending on the activity, amount of equipment and lab ware used, etc., more or less time may be appropriate.

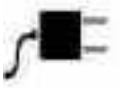
2. **All activities stopped and finalized:** Make it the standard operating procedure that as clean-up begins, all laboratory activities are to be finalized and stopped. However, personal protective equipment is to remain on all laboratory occupants until the teacher indicates it can be removed.

3. **Hot plates turned off:** If hot plates were used, make sure they are shut off. It might also be a good idea to use signage indicating the plate is hot if unattended.



4. **Gas shut down:** If gas was used, make sure the master gas control is shut down and all burners are cooled, cleaned off and put away.

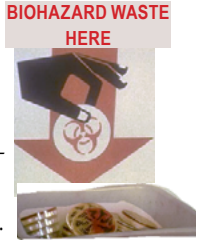
5. **Electrical Equipment:** If any electrical equipment was used, make sure it is unplugged and stored appropriately. This would include items like microscopes with powered lights, lasers, centrifuges, ripple tan motors and lights, etc. Make sure all cords are wound up and there are no trip/fall hazards on the floor.



6. **Chemicals put away & secured:** One of the most important things is to make sure all chemicals are accounted for and put away. Chemicals can be placed on a cart in preparation for placement back in the secured chemical storage room or cabinets once students leave the laboratory. Also inspect containers to make sure they are sealed and properly labeled.

7. **Chemical waste disposal jars:** Chemical waste products need to be appropriately disposed of in assigned and labeled chemical waste jars. Remind students where the specific chemical products go – waste jar, recycled, etc.

8. **Biologicals ready for sterilization:** In cases of micro-organism use, have trays labeled and ready for placement of bacteria cultures to be autoclaved for sterilization and disposal.



9. **Labware/glassware cleaned and away:** Make sure all glassware and other labware are cleaned, dried and put in appropriate storage areas.

10. **Counter tops cleaned and wiped off:** Once all laboratory biologicals, chemicals and physicals are put away, have students apply appropriate cleaners to work station counter top work areas and then wipe them dry. Also make sure all slip/fall and trip fall hazards, trash, etc. are removed from the floor area.

11. **PPE put away and sanitized**: When the teacher determines that the laboratory is cleaned up in total, he/she can then have students remove their personal protective equipment like chemical splash goggles, aprons and gloves. These items should also be cleaned as appropriate and stored. For example, safety glasses and splash goggles should either be washed with an appropriate cleaning solution and/or placed in a goggle sanitizer.

12. **Hands washed:** The final act before leaving the laboratory is to require students to wash their hands with soap and water.

In The End!

Again, the clean-up laboratory procedures need to become a ritual! This helps students to be more responsible as part of doing safer laboratory work. It also helps make for a safer working/learning environment when the next class of students coming in to the laboratory.

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