

Lab Safety presentation and contract

first day of lab

know the locations of everything in your lab

no student can participate in class without signed contract

Lab inspections

Safety Office will be randomly inspecting your labs

be sure to use your safety check list (end of presentation)

Chemical control and MSDS

implementation of new MSDS practices

Training - some is required of everybody

some on line, some live

you will receive notification

Essentials of Laboratory Safety

Before Lab Work, Get to Know:

- ❑ Hazards of materials & agents and their prescribed safety procedures
- ❑ Emergency spill procedures, use of adsorbents and disinfectants
- ❑ Designated escape route and alternate
- ❑ Location of fire ext., eye wash, shower, first aid, and spill kits
- ❑ Emergency telephone numbers and reporting procedures

EMERGENCY CONTACT NUMBERS

EMERGENCY

911

(CAMPUS PHONE)

5111

(CAMPUS PHONE)

903-886-5111

(CELL PHONE)

NON-EMERGENCY GUIDELINES

Minor First Aid

- Notify Supervisor
- Do Not Attempt to Administer First Aid If Not Trained
- Report ANY First Aid Kit Supplies Used
- Notify UPD if Necessary

Minor Chemical Spill

- If trained, contain spill
- Notify surrounding individuals and evacuate
- Contact Supervisor/Professor/Dept. Head
- Contact the Safety Office

Unsafe Condition

- Notify surrounding individuals
- Contact Supervisor/Professor/Dept. Head
- Contact the Safety Office and UPD

Environmental Concern

- Contact Supervisor/Professor/Dept. Head
- Contact the Safety Office

General Concern

- Contact Supervisor/Professor/Dept. Head
- Contact the Safety Office

Non-Emergency Contact Numbers

Safety Office 903-468-8781 **UPD** 903 886 5868 **Facilities** 903-886-5761

Department of

Put incident
report here –
or somewhere

While Working in the Lab:

- 6 Shoes with full coverage and good grip soles
- 6 Restrain long hair, loose clothing and jewelry
- 6 Use appropriate eye, skin, and hand protection

Eye protection

- ✘ Protects against risk of flying objects or dust particles, splashes of hazardous materials or harmful rays

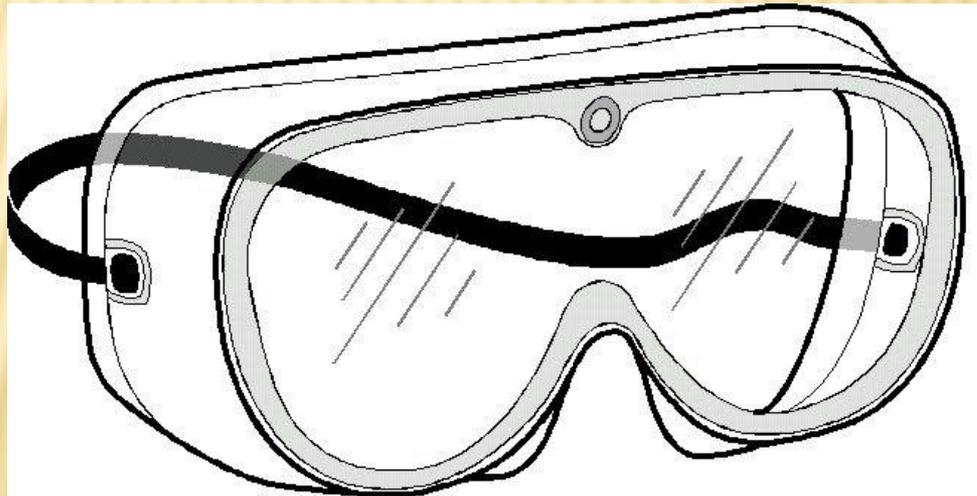
Safety Glasses

- ✘ Unbreakable lenses of plastic or tempered glass
- ✘ For light-to-moderate work
- ✘ Can be prescription lenses
- ✘ Do not interfere with contact lenses



Goggles

- ✘ Work with significant risk of splash of chemicals or projectiles
- ✘ Can be worn over prescription glasses



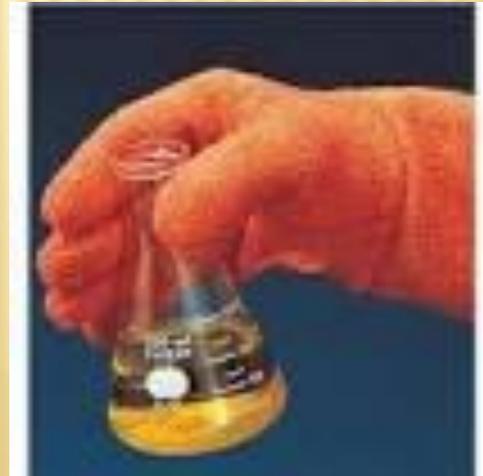
Face Shield

- ✘ Work with significant risk of splash on face or possible explosion
- ✘ Face shield protects face adequately but not eyes



Hand Protection

- Protects against risk of cuts, abrasions, burns, or exposure to hazardous materials.
- Requires selection of the **appropriate** chemical resistant gloves
- When not sure WEAR GLOVES!



While Working in the Lab:



✘ Handle volatiles in a chemical fume hood

✘ Use mechanical transfer devices



✘ Follow **universal precautions**

+ **Handle unknowns as if they were hazardous**

✘ Contain bioaerosols in a biological safety cabinet



While Working in the Lab:

- 6 Authorized persons only
- 6 Identify EVERYTHING!
- 6 No food, beverages, tobacco products, or application of cosmetics

BEHAVIOR



- ✘ No horseplay (pushing, shoving, pranks, etc...)



- **No cosmetic use, food, drinks, or gum**
- **Always be aware of hazards & act cautiously**

While Working in the Lab:

Report **all**:

b Accidents

b Injuries

b Fires

b Spills

b Close calls

Before Leaving the Lab:

Turn off:

- 6 Gas
- 6 Water
- 6 Power supplies
- 6 Vacuum lines
- 6 Compression lines
- 6 Heating apparatus

Before Leaving the Lab:

- 6 Identify and package waste, dispose properly
- 6 Lock/out and tag/out defective equipment
- 6 Decontaminate work surfaces and equipment
- 6 Return unused equipment, apparatus, etc.
- 6 Leave lab coat in the lab
- 6 Wash
- 6 Close and lock door

Evaluating Lab Hazards

- ✘ Regular review of the types of hazards:
 - ✘ chemical
 - ✘ physical
 - ✘ biological
 - ✘ ergonomic
 - ✘ mechanical

Weekly Lab Checks

- ✘ Eye wash (purge)
- ✘ Fire extinguisher
- ✘ First Aid Kit
- ✘ Fume Hood
- ✘ Tubing, pressurized connections
- ✘ Chemical storage

I. GENERAL SAFETY RULES

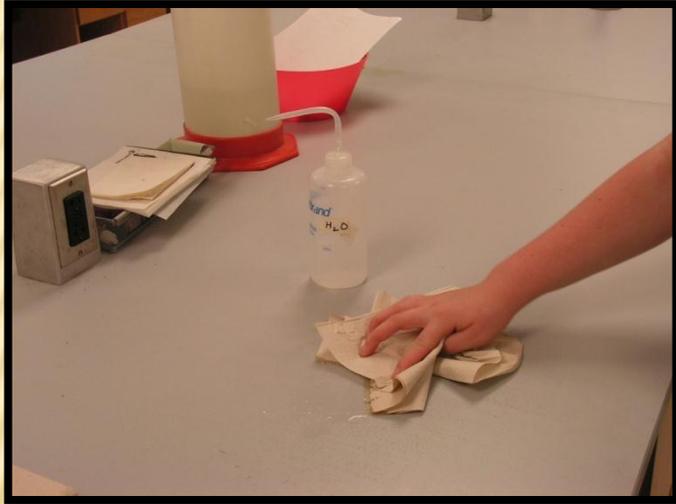
1. Read the exercise long BEFORE coming to class. Take note of the inclusion of chemicals and solutions, sharps, glassware, biological hazards, or anything else that might pose a safety concern. Don't overlook little things.

2. Under most circumstances in your biology instructional labs eye protection is not necessary. However, there are times when you should wear safety glasses.



Wear safety glasses to protect your eyes from chemicals, heated materials, or things that might be able to shatter.

3. Clean up spills as soon as they happen. Report the spill to your lab instructor. If the spill is only water, clean it up with paper towels. You may find yourself doing this often around lab bench sinks.



Wash your hands

(3. continued) Large spills should be cleaned up with the spill kit. The kit has a dam to contain the spill and absorbent towels to clean it up with. There is also a plastic bag to put everything in after the spill is cleaned up.



**Wear gloves when
Cleaning up a spill**

Wash your hands

4. After handling chemicals, always wash your hands with soap and water.
5. During lab work, keep your hands away from your face.
6. Tie back long hair.
7. Roll up loose sleeves.
8. It is suggested that you wear glasses rather than contact lenses. Contact lenses can trap any chemical powders, aerosols, gases or solutions that come in contact with your eyes.



9. Know the location of the fire extinguisher, eyewash station, and first aid kit.

10. Keep your work area uncluttered. Take to the lab station only what is necessary.

11. Never put anything into your mouth during a lab experiment unless specifically told to do so by your instructor.



12. Clean up your lab area at the conclusion of the laboratory period.



13. Never “horse around” or play practical jokes in the laboratory.



14. Dispose of animal waste in autoclavable biohazard bags.



15. Dispose of sharps (needles, scalpel blades, etc) in the sharps container.



Never place petri dishes, gloves or trash in these containers.

16. Dispose of paper waste and other trash in the regular trash container.



17. Shorts and open toed/top shoes are not allowed in lab. You will be asked to leave class if you wear these items to lab. Boots, tennis shoes, or other hard soled shoes are desirable. Long pants or jeans or long dresses are required. Long hair should be tied back.



18. Wash your hands often. In lab and out.



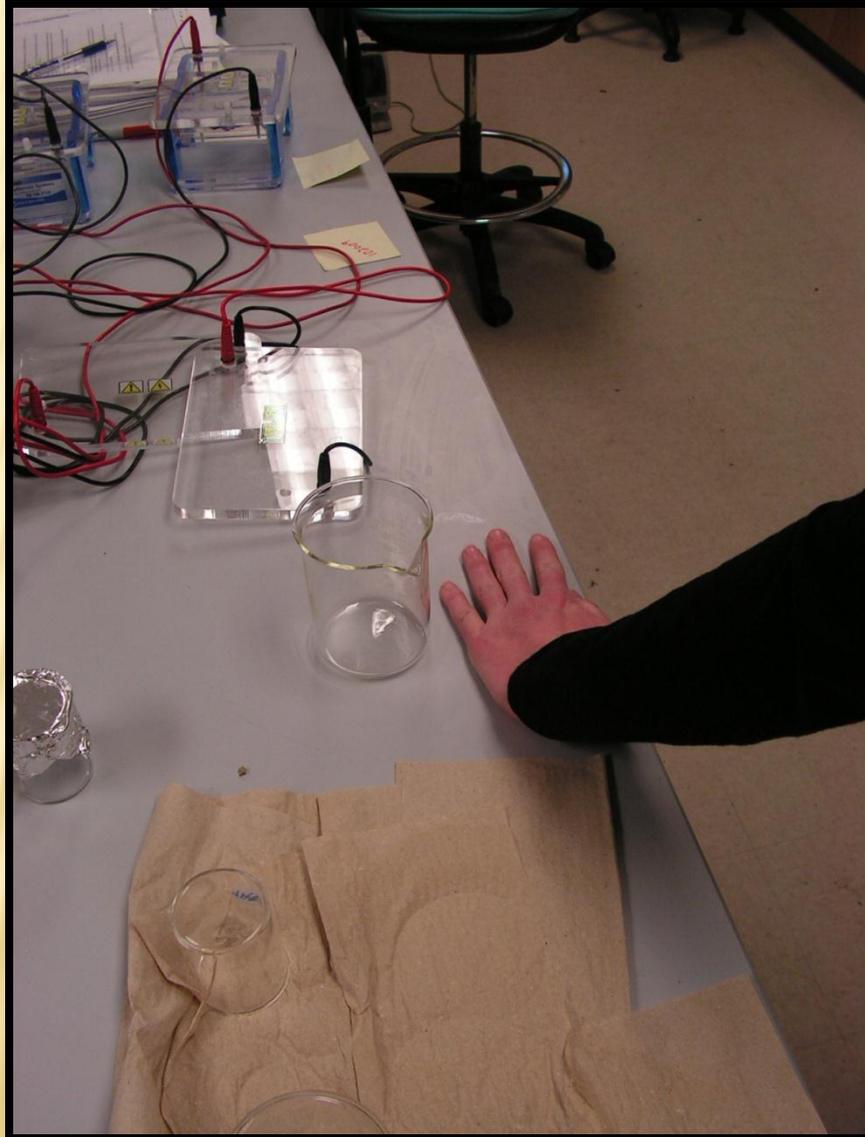
B. GLASSWARE SAFETY

1. Chipped or cracked glassware should not be used. Show it to the teacher.
2. Broken glassware should not be disposed of in a classroom trashcan. There is a special glass disposal container for broken glassware and use microscope slides.



Never place petri dishes, gloves or trash in these boxes.

3. When pouring liquids into glassware, make sure the container you are pouring into is resting on a table at least a hand's breadth from the edge.



4. If a piece of glassware gets broken, do not try to clean it up by yourself. Notify the lab instructor.
5. Handle hot glassware with autoclave gloves



6. Handle hot test tubes with test tube holders.



**7. Do not place hot glassware in water.
Rapid cooling may make it shatter.**

8. Wash glassware with dish soap when the exercise is complete and triple rinse the glassware.



C. CHEMICAL SAFETY

- 1. Wear protective goggles and a lab apron whenever heating or pouring hazardous chemicals.**
- 2. Never mix chemicals together unless you are told to do so (and then only in the manner specified).**
- 3. Never taste any chemicals (you should never taste anything in the lab unless you are specifically told to do so by the lab instructor.).**

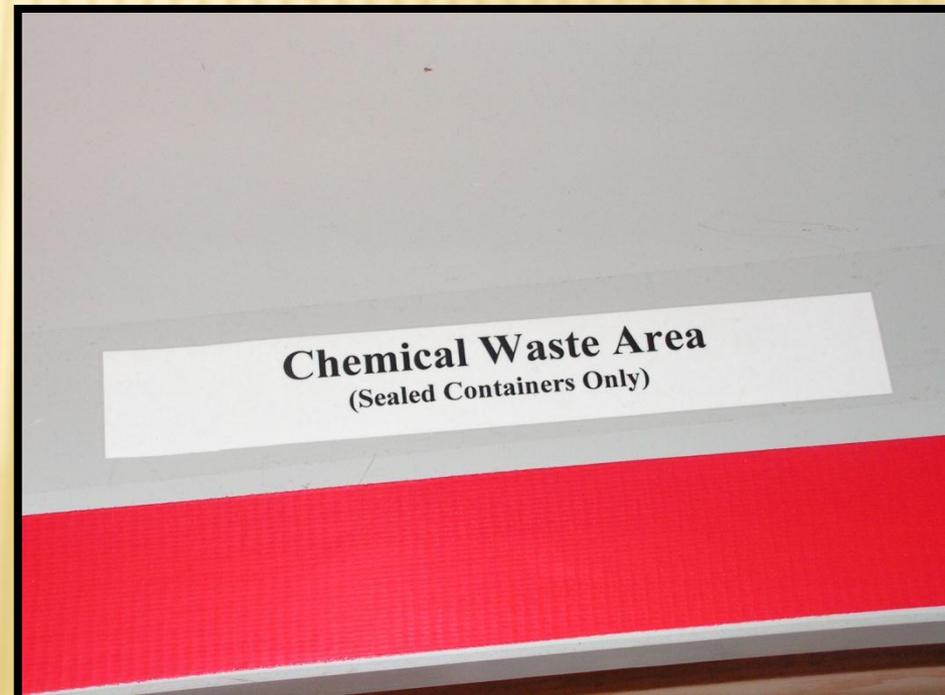
4. If you need to smell the odor of a chemical, waft the fumes toward your nose with one hand. Do not put your nose over the container and inhale the fumes.



5. Never pour water into a concentrated acid.

Acid should be poured slowly into water.

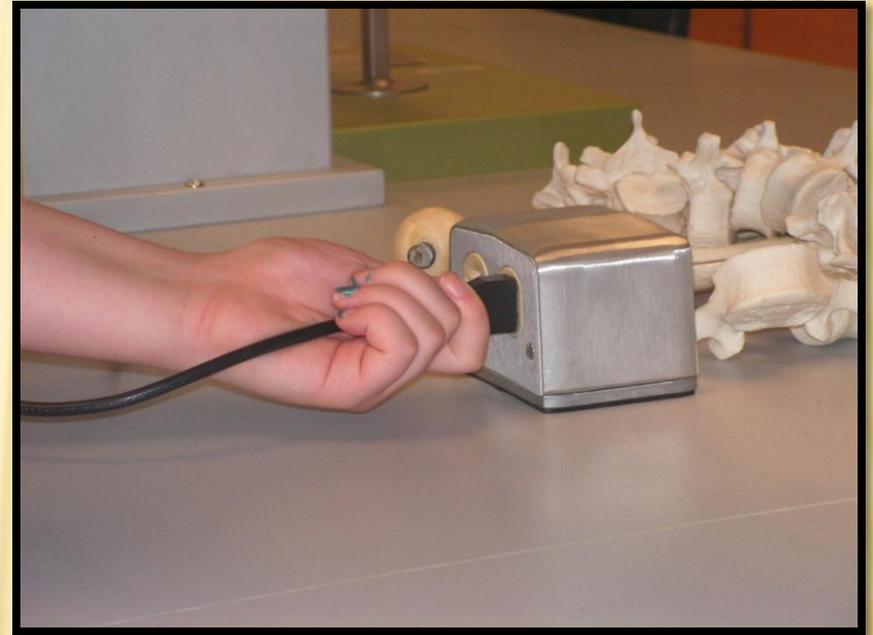
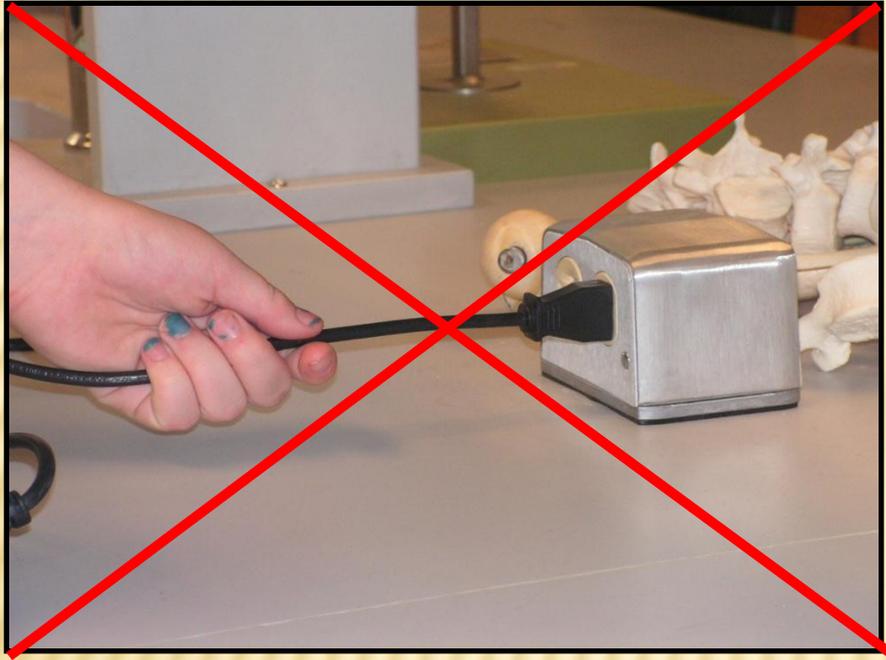
6. Follow the instructions of your lab instructor when disposing of all chemicals. All labs have a specific area designated for chemical waste.
7. Wash your hands after handling any chemicals.



D. ELECTRICAL SAFETY

- 1. Lay electrical cords where no one can trip on them or get caught in them.**
- 2. Be sure your hands and your lab area are dry before using electrical equipment.**
- 3. Never poke anything into electrical outlets.**

4. Unplug cords by pulling the plug and not the cord.



5. Unplug all electrical equipment at the end of the lab period.

E. HEATING SAFETY

- 1. Let burners and hotplates cool down before touching them. Test to see if they are cool enough by bringing the back of your hand close to them.**
- 2. Use tongs and/or protective gloves to handle hot objects.**
- 3. Never reach across an open flame or burner.**

- 4. The only type of glassware that may safely be heated is either Kimax or Pyrex.**
- 5. Always point the top ends of test tubes that are being heated away from people.**
- 6. When heating a test tube, move it around slowly over the flame to distribute the heat evenly.**



7. Do not heat glassware unless required by the exercise.

8. Heat glassware by placing it on a wire gauze platform on a ringstand or use an electric hotplate. Do not hold it in your hand.



- 9. When lighting a burner, wait until a match is struck or the striker is in place before you turn on the gas.**
- 10. The amount of air can be adjusted by the air supply valve below the tube of the burner. This regulates the flame temperature and color.**
- 11. Never leave a burner or hotplate unattended.**



FIRST AID

Injury: Burns

To do: Immediately flush with cold water until burning sensation is lessened.



FIRST AID

Injury: Cuts, bruises

To do: Do not touch an open wound without safety gloves. Pressing directly on minor cuts will stop bleeding in a few minutes. Apply cold compress to bruises to reduce swelling.



FIRST AID

Injury: Fainting

To do: Provide fresh air and have the person recline so that their head is lower than the rest of their body.



FIRST AID

Injury: The eyes

To do: Flush eyes immediately with plenty of water for several minutes. If a foreign object is lodged in the eye, do not allow the eye to be rubbed.



FIRST AID

Injury: Poisoning

To do: Find out what substance was responsible for the poisoning and alert the Lab Instructor immediately.



FIRST AID

Injury: Spills on the skin

To do: Flush with large quantities of water for at least one minute.



FIRST AID

Injury: Electrical shock

To do: Shut off the current at the source.

Remove wire with rubber gloves. Alert the Lab Instructor immediately.



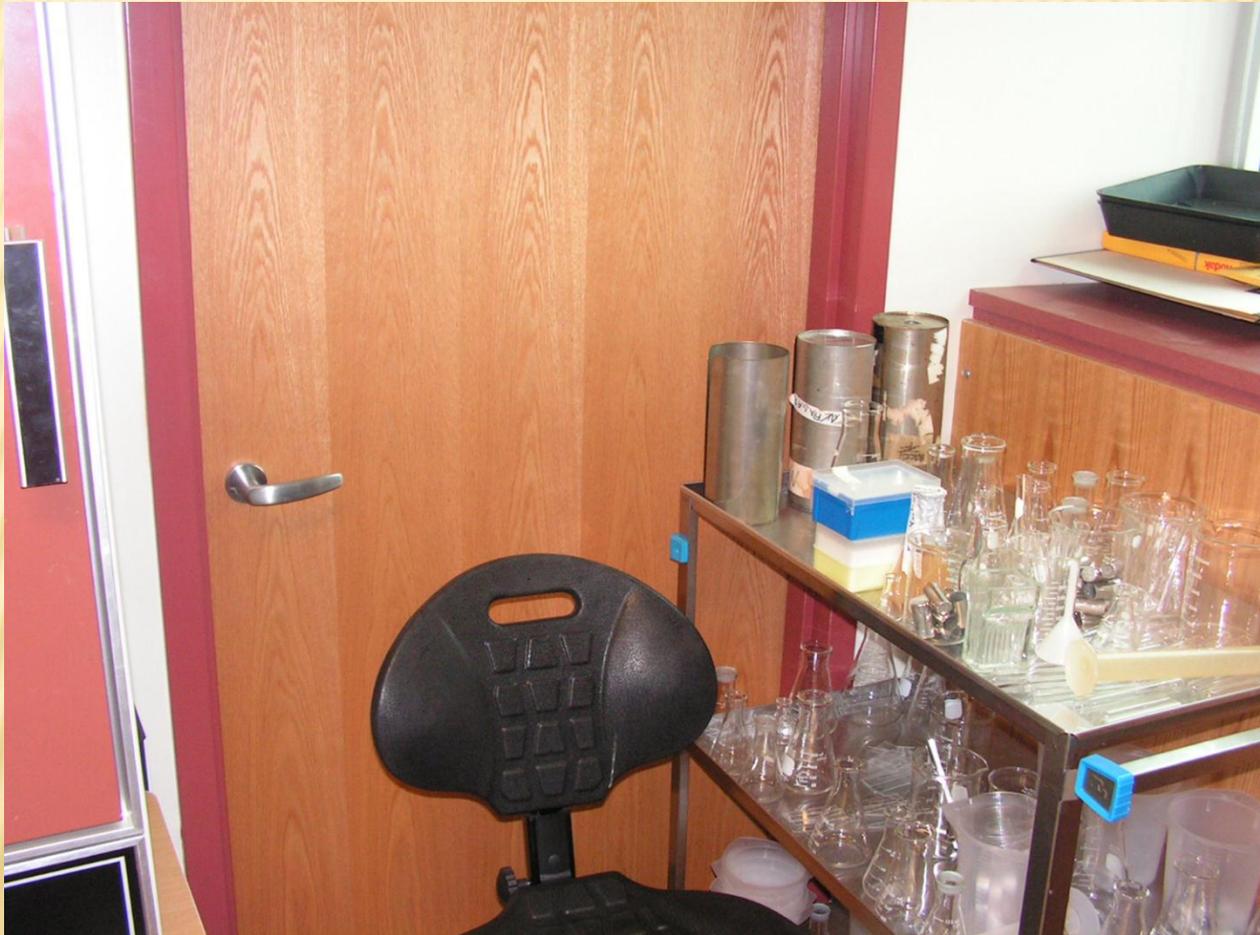
Things to find around the instructional lab:

- 1. Fire extinguisher**
- 2. First Aid kit**
- 3. Eye wash**
- 4. Breaker box**
- 5. Spill kit**
- 6. Soap**
- 7. Table top cleaners**
- 8. Paper towels**

What's wrong with this picture?



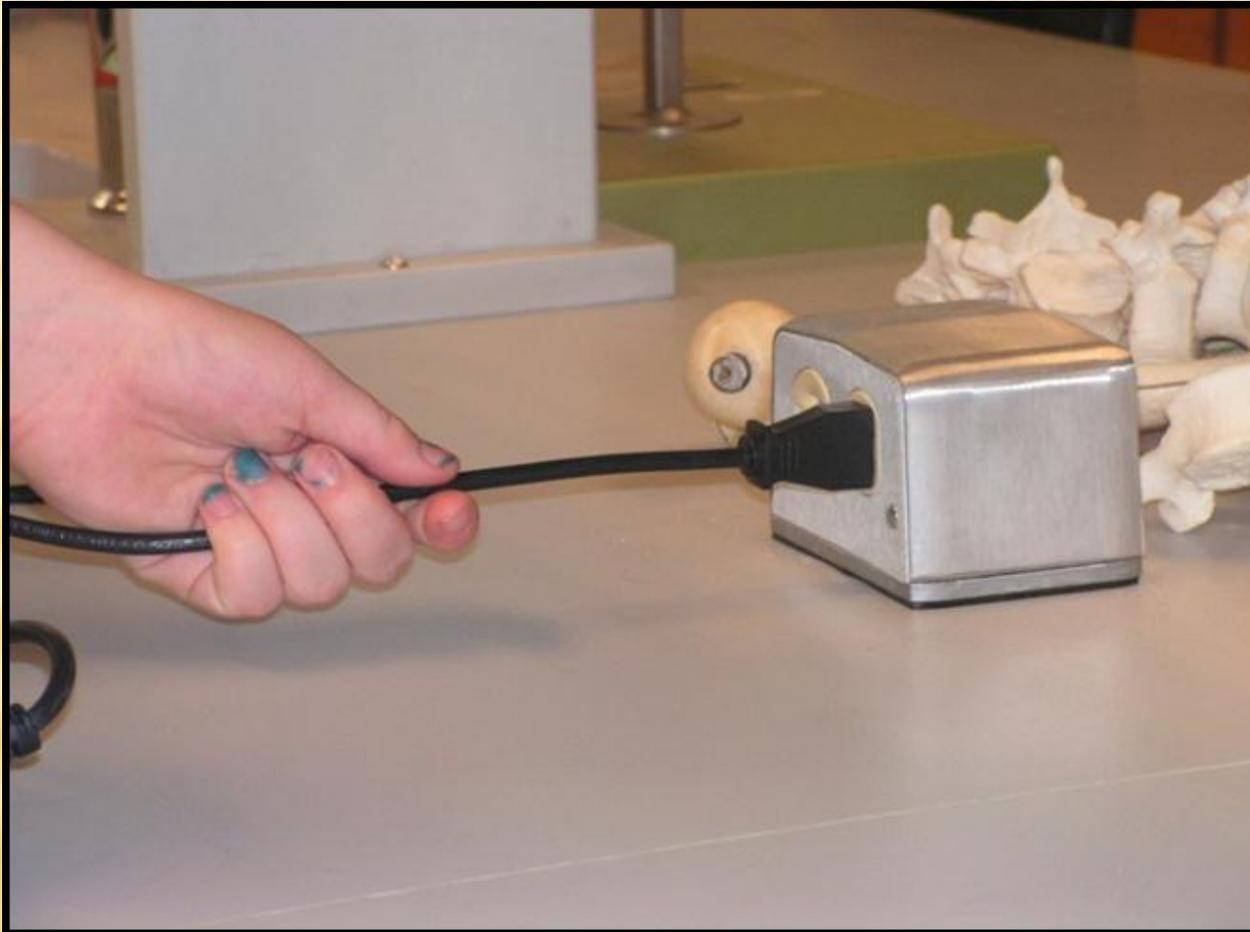
Overloaded cart blocking the door – accident waiting to happen



**DO NOT POUR CHEMICALS
DOWN THE SINK!**



UNPLUG CORDS BY PULLING THE PLUG NOT THE CORD.



LEGS NOT COVERED, FEET NOT COVERED, DRINKING IN THE LAB, OH MY!



IS THIS THE PROPER WAY TO HANDLE A HOT TEST TUBE?



YES use a test tube holder

NO FOOD OR DRINKS IN LAB.



Clutter everywhere, wires, no hand span, chemicals left out, waste bottle out, unlabeled chemicals...



NO "HORSE PLAY" OR PRACTICAL JOKES IN LAB.



WHAT GOES IN AN AREA MARKED OFF WITH RED OR BLUE TAPE?



**Chemical Waste
“Satellite Storage Area”**

NO COSMETIC USE IN LAB.





100 ml
50

TWIRL • CHEER

SWTA
THE HOT COMPETITION

MODELING • GYMNASTICS

STATE & SOUTH/EAST

This is the proper way to hold glassware

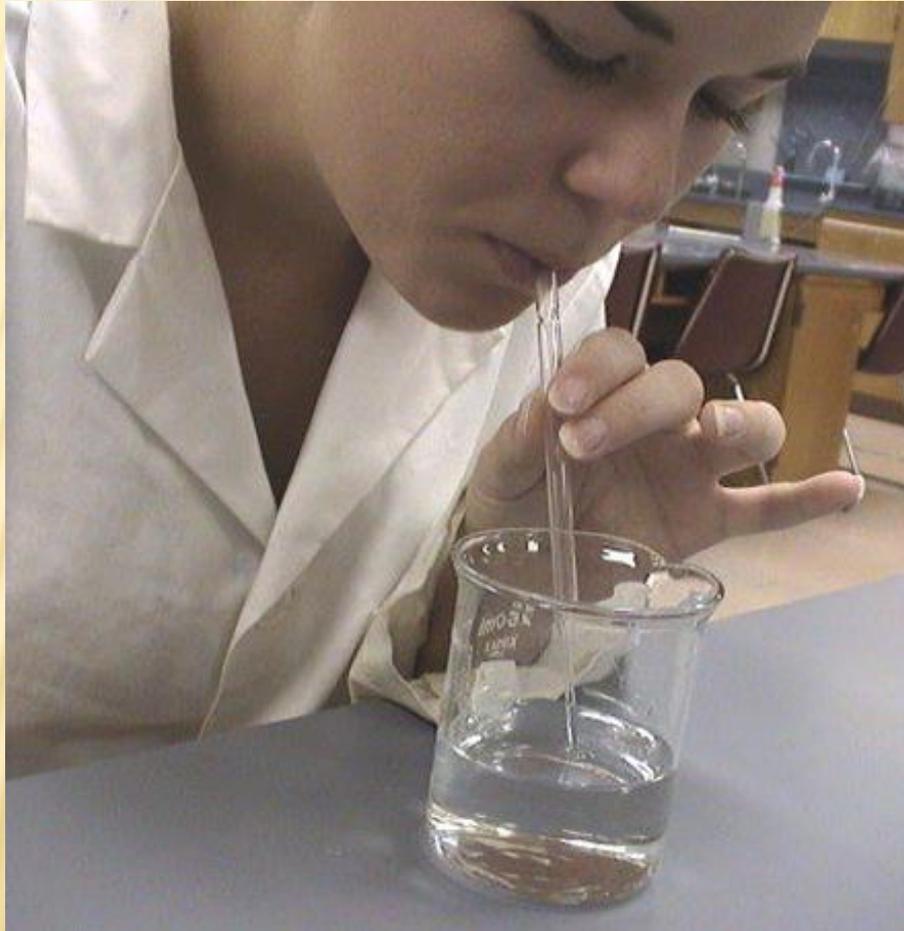


IS THIS THE PROPER WAY TO HANDLE HOT GLASS?



YES use autoclave gloves

**DO NOT PIPETTE BY MOUTH USE THE
APPROPRIATE EQUIPMENT.**



NEVER BLOCK A FIRE EXTINGUISHER



WHAT GOES IN EACH OF THESE?

uncontaminated trash
(gloves & paper towels)



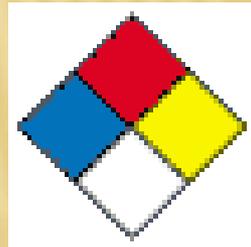
Metal sharps; scalpels,
needles, only
**NO PETRI DISHES OR
TRASH**

broken glass ONLY!



Dispose of
contaminated waste in
the appropriate
biohazard container –
with the red biohazard
symbol

Dispose of chemicals
in the appropriately
labeled waste bottle
located in the
chemical satellite area



LONG HAIR SHOULD BE PULLED BACK NEVER LEAN OVER A BUNSEN BURNER

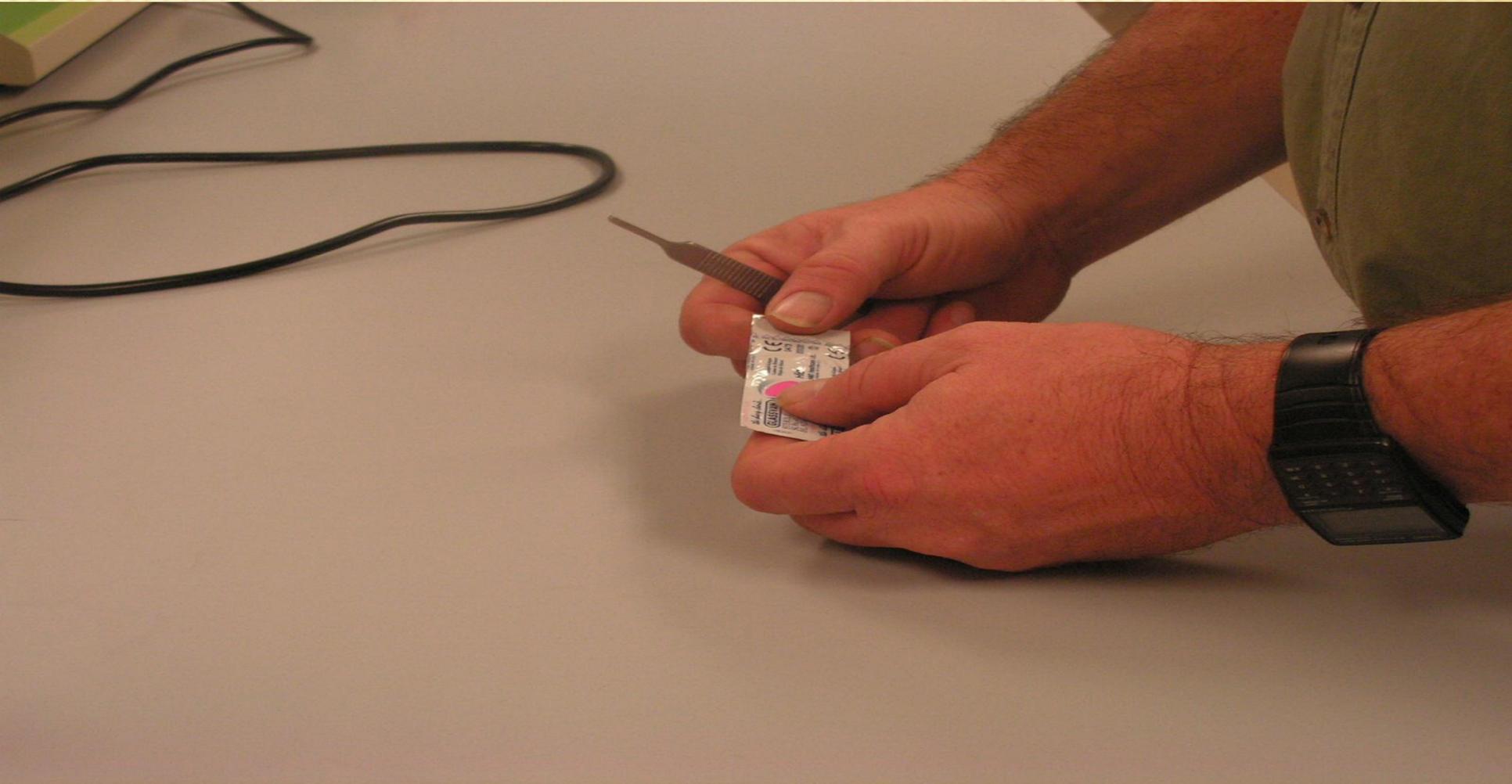


STOW PERSONAL ITEMS IN THE DESK TO PREVENT TRIPPING HAZARD & CROSS-CONTAMINATION. YOU DON'T WANT TO TAKE MICROBES HOME DO YOU?

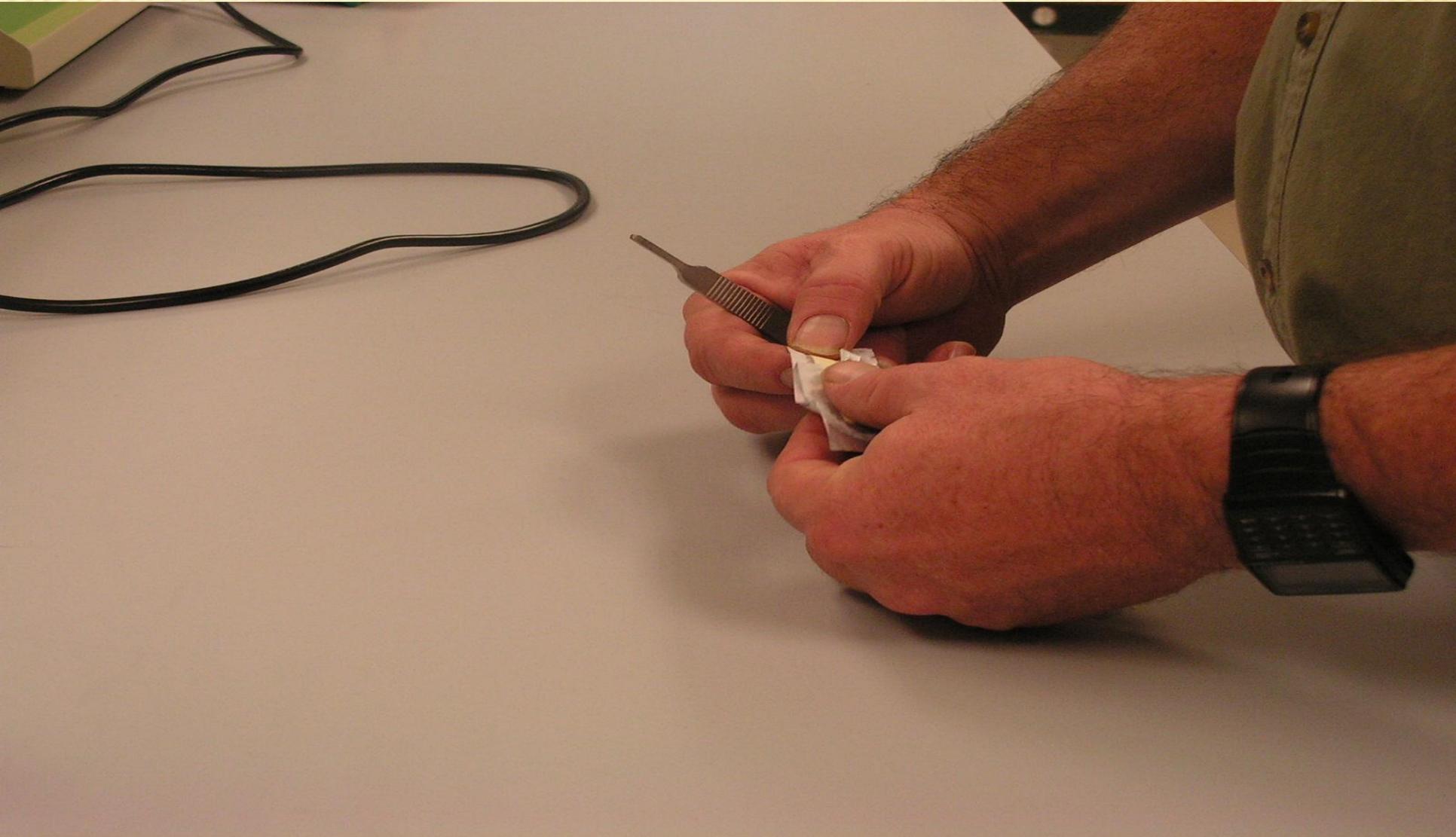




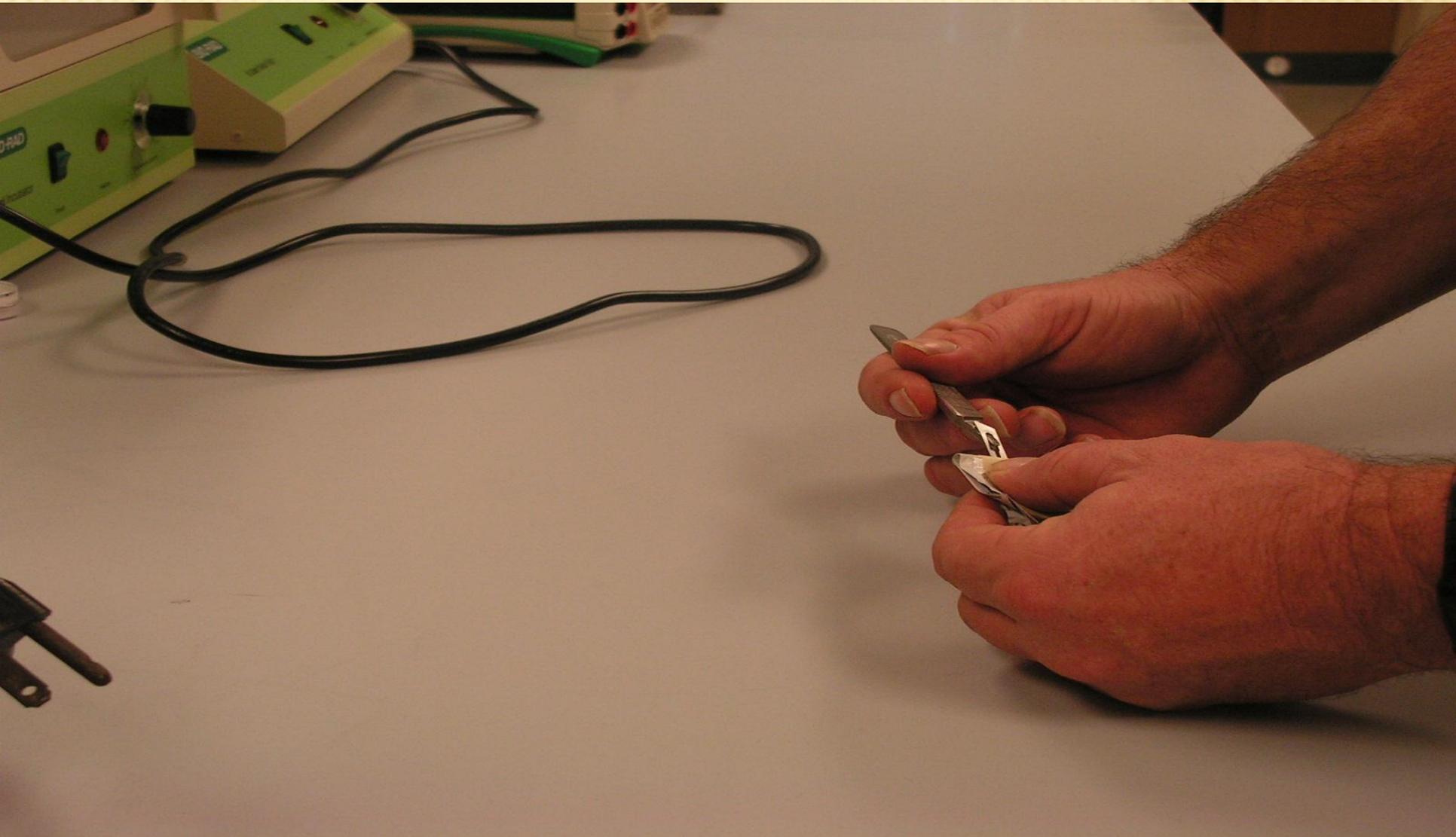
When putting on a scalpel blade be very careful. You can cause severe injury to yourself with this thing.



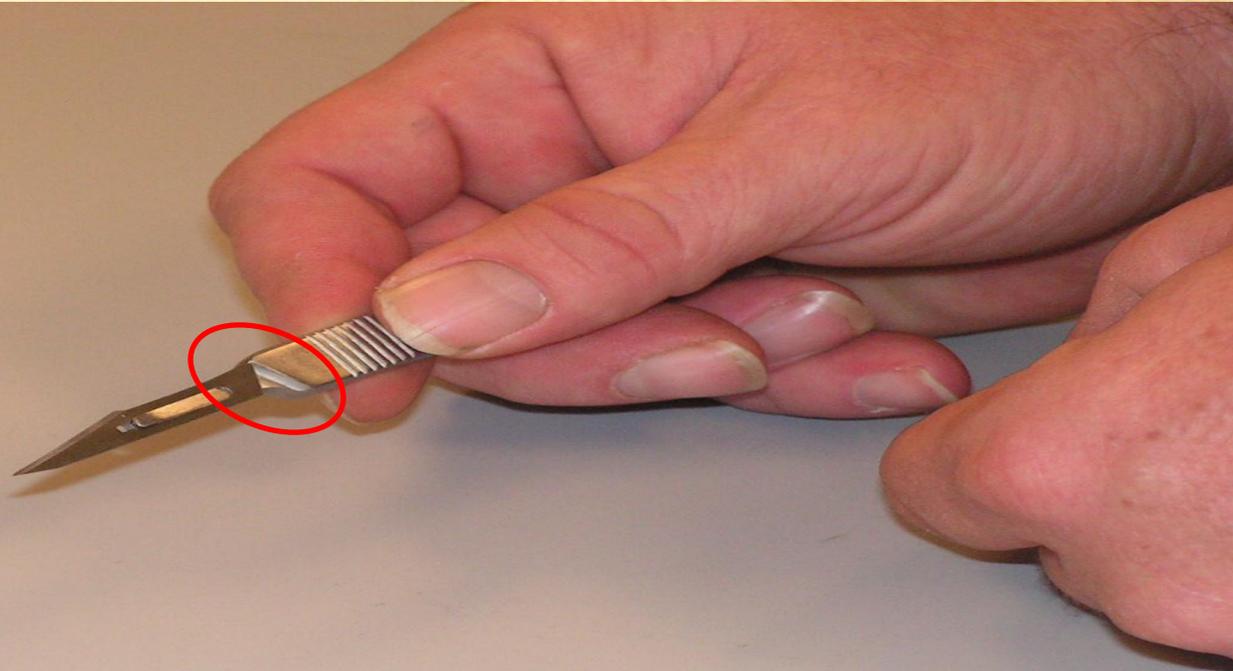
Open the blade package and bend the sides down to expose the bayonet end of the blade.



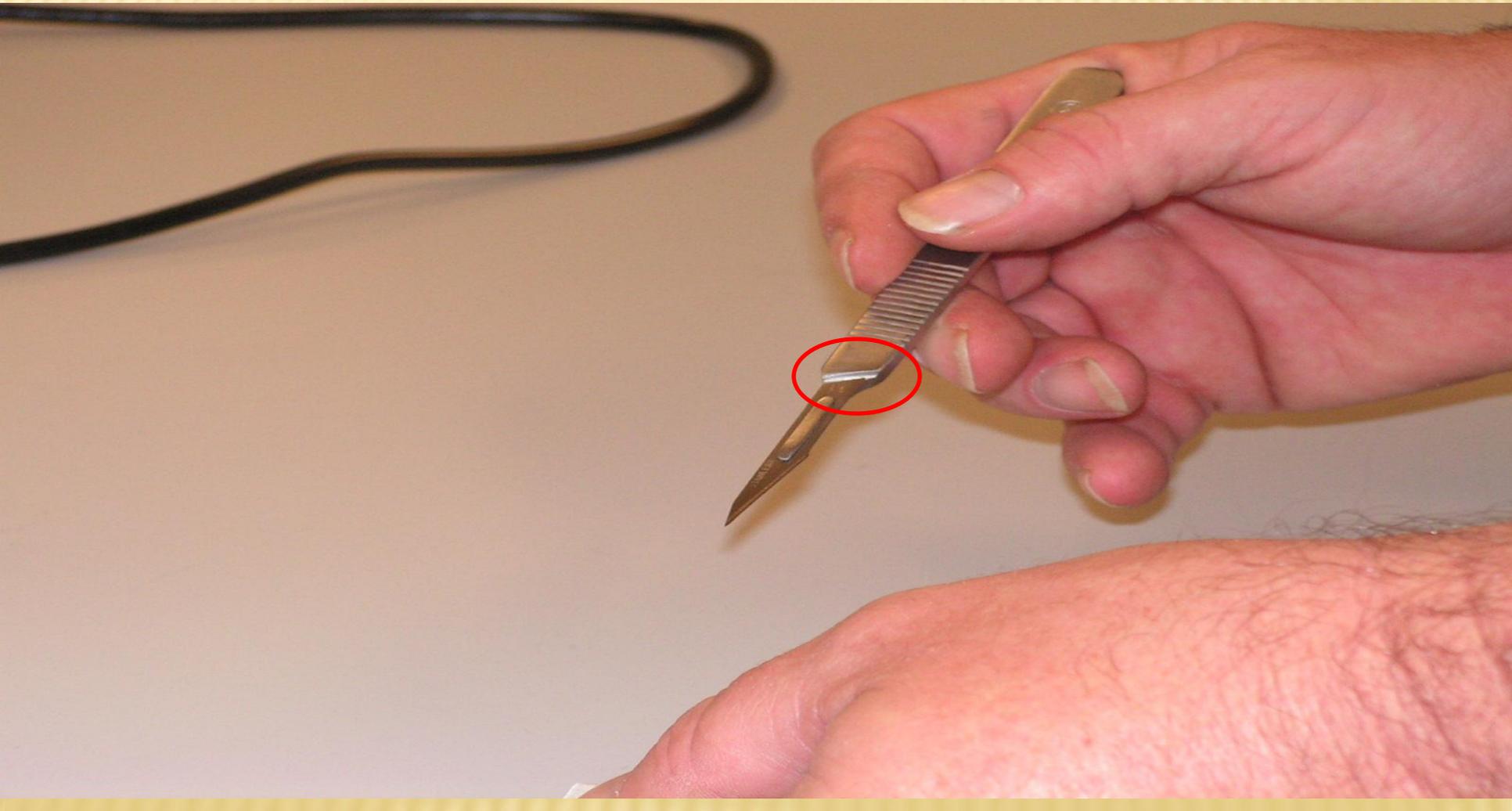
Slide the scalpel blade on to the handle.



Be sure to put the blade on in the proper direction – this is the **WRONG** way ...

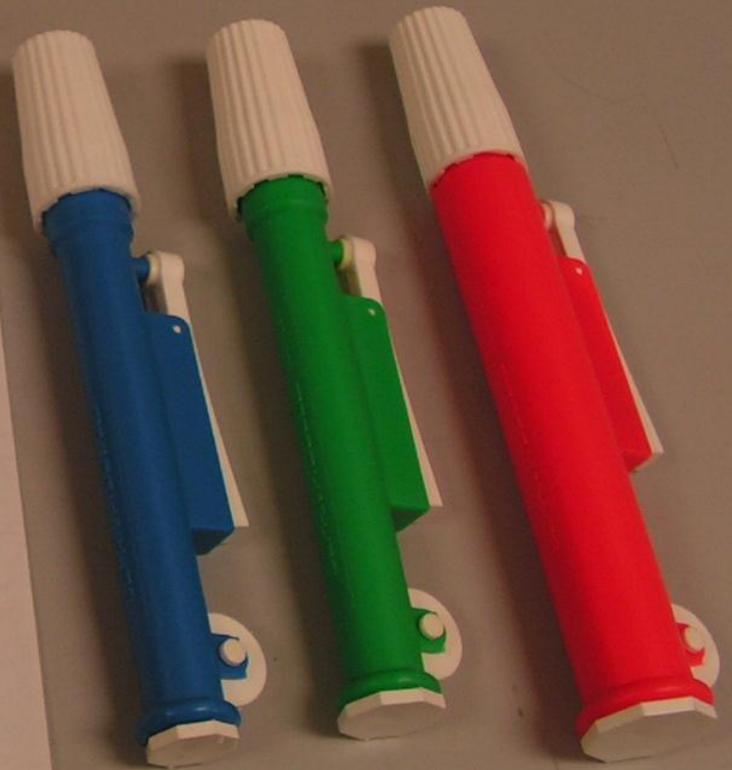


... this is the **RIGHT** way



Pipetters come in different volumes. Use the right one.

BLUE 1ML
GREEN 10ML
RED 20ML



Keeping a pipette in its wrapper until it is used will keep it sterile.



Use the roller to fill the pipette to the desired volume.



Dispense the contents by pressing the lever.



In the micro lab used pipettes need to be disposed of in the bench top containers.

In other labs they can be put in the broken glassware container.



Hand washing can't be stressed enough.

It's a sure way to reduce the transmission of disease and the accidental poisoning of students.



The eye wash can be used for several purposes; to flush skin,



... flush the eyes (remember 15 minutes for chemical exposure), ...



.. or flush skin after removing clothing. If you get a strong acid or base on your clothing it's no time to be modest.

A drop of strong hydrochloric, phosphoric, hydrofluoric, or sulfuric acid can kill skin cells very rapidly and result in third degree burns.



Room #: _____	Time: _____	Date: _____	DAILY LAB INSPECTIONS
Students:			
	Shoes and long pants		
	Hair, jewelry & clothing tied back		
	Goggles, or safety glasses as needed		
	Gloves as appropriate		
	Food, drinks, cosmetic use, tobacco		
	Horse play		

Inspection list

Chemical Storage area	
Cluttered	
Crowded	
Cylinders strapped or chained	
Door open	
Electric - surge protect overloaded	
Electric/gas shut off	
Electrical hazard potential on floor	
Emergency Phone	
Emergency Phone blocked	
Eye wash	
Eye wash blocked	
Fire blanket	
Fire extinguisher accessible & green	
First aid kit	
First aid kit filled	
Glass box	
Glass box contains other than glass	
Hand-span	
Hood cluttered	
Hood sashes down/closed	
Hood vents blocked	
Hood working	
Lens sanitizer	
MSDS available	
Sharps container	
Sharps container closed for disposal	
Shower	305 307 351 (circle closest)
Spill kit for containment only	
Spill kit with neutralizers	
Trash Can	
Waste Container capped	
Waste Container marked out & relabeled	
Waste containers tagged	
Waste containers in satellite area	