Teaching Laboratories Safety Workshop

Work with a buddy or two to find this information - share what you learn with others

In what room does your lab class meet?  York ______  NSB ______
Where is the evacuation assembly location for YOUR LAB CLASS?

Each lab will be different. Draw a plan of this lab room. Use symbols to show the following items; if item is not present, say so.

- Doors: location & direction of opening
- Chemical hood
- Telephone, if any [T]
- Safety shower-eyewash station
- First Aid Kit
- Fire Blanket
- Spill Kit
- Broken Glass Box
- Waste Collection Area
- G

PERSONAL PROTECTIVE EQUIPMENT

What differences can be seen between safety glasses and splash goggles?

For what activity are goggles always needed?

What is the minimum personal protection necessary to work in the teaching labs?

Is a Lab Supervisor (Instructor) permitted to make a safety rule which is stricter than a campus safety rule?

When should you wear protective gloves in lab?

Give an example of an activity where safety glasses would be appropriate, if permitted.

What might happen to a student who arrives unprepared or inappropriately equipped for a lab class?

Do hazardous chemicals used at home or in a hobby shop require protective measures? Gloves? Glasses or goggles? Sturdy shoes? Why/why not?

LABORATORY PRACTICES

Why are ALL food, drink, chewing gum, and smoking materials prohibited in the labs?

What difference can be seen between hot (100C or 212F) and room-temperature (20C or 68F) glass?

To avoid a burn, you wish to check the temperature of an oven-dried beaker. Which technique(s) will be useful?

- look at the appearance
- grab the glass
- ask TA
- hold hand near glass
- look for condensation
- none of the above
LABORATORY SAFETY EQUIPMENT
How should you use a chemical hood? Whose permission do you need to use the safety shower? Who should use the lab fire extinguisher?
How does a chemical hood protect you? Does it make any real difference if lab doors are left open? Identify parts of a chemical hood: sash, windows, bypass vents, airfoil.

HAZARDOUS MATERIALS MANAGEMENT...Hazardous materials storage choices are affected by which of the following factors? Which is most/least important?
Chemical compatibility Safety of workers who will handle containers later
Earthquake safety Regulatory mandate

Convenience

Why are you instructed to always set down a bottle cap with the open side up?

HAZARD COMMUNICATION
Safety Data Sheets (SDS; also called Material Safety Data Sheets, MSDS) are supplied by manufacturers of hazardous materials to deliver information on hazards to workers & emergency responders:
- Where can students find Safety Data Sheets (SDS)?
- When is a student permitted to access the University’s Safety Data Sheets (SDS) files?

What is the best way to warn others working around you about the hazards of YOUR materials?

What information should be included on a student’s bottle label?
- chemical name
- date
- chemical abbreviation
- concentration of solution
- TA’s name
- volume of contents
- student’s name
- hazard of chemical

WASTE MANAGEMENT & SPILL CLEANUP
What should you do with a hazardous waste in the Teaching Labs?

Suggest a cleaning/disposal plan for each of the following:
- Broken glass at home.
- Gloves used to clean a small acid spill.
- Sponge used to clean a small acid spill.
- A broken knife blade or sharp tool.
- A toxic solid dried on filter paper.
- Lab coat contaminated with toxic, corrosive solution.
- A mixture of liquids including acid, water, and metal ions.
- An excess (< 5g) of toxic solid reagent left over from measuring the portion you need.
- Drips on the outside of a bottle of concentrated acid.

Draw a tray
Draw a bottle in the tray.
Add a tight, leak-proof cap.
Label the bottle “Hazardous Waste”
Mark a “full” line on the bottle at 80 – 90% of bottle capacity.
Add today’s date as the “start date.”
EMERGENCY RESPONSE: Circle the appropriate action(s) for each situation:

__You feel an earthquake...

- Trap injured person in emergency/fire blanket.
- Help injured person to eyewash, shower, or sink.
- Respond with any help requested by TA.
- Notify others about spilled chemicals.
- Test surfaces for remaining corrosive.
- Absorb the spilled liquids.
- Help fill out accident report.
- Notify TA of situation.
- Evacuate the room.
- Shelter against a solid wall.

__For a fire in the lab – with no injury:

- Trap injured person in emergency/fire blanket.
- Help injured person to eyewash, shower, or sink.
- Respond with any help requested by TA.
- Notify others about spilled chemicals.
- Test surfaces for remaining corrosive.
- Absorb the spilled liquids.
- Help fill out accident report.
- Notify TA of situation.
- Evacuate the room.
- Shelter against a solid wall.

__You see a co-worker’s clothing on fire:

- Trap injured person in emergency/fire blanket.
- Help injured person to eyewash, shower, or sink.
- Respond with any help requested by TA.
- Notify others about spilled chemicals.
- Test surfaces for remaining corrosive.
- Absorb the spilled liquids.
- Help fill out accident report.
- Notify TA of situation.
- Evacuate the room.
- Shelter against a solid wall.

__You spill a small volume (<10 mL) of corrosive liquid (no personal exposure)?

- Trap injured person in emergency/fire blanket.
- Help injured person to eyewash, shower, or sink.
- Respond with any help requested by TA.
- Notify others about spilled chemicals.
- Test surfaces for remaining corrosive.
- Absorb the spilled liquids.
- Help fill out accident report.
- Notify TA of situation.
- Evacuate the room.
- Shelter against a solid wall.

__You see another person injured (chemical splash or burn):

- Trap injured person in emergency/fire blanket.
- Help injured person to eyewash, shower, or sink.
- Respond with any help requested by TA.
- Notify others about spilled chemicals.
- Test surfaces for remaining corrosive.
- Absorb the spilled liquids.
- Help fill out accident report.
- Notify TA of situation.
- Evacuate the room.
- Shelter against a solid wall.

__Your TA instructs you to evacuate due to a chemical spill or fire?

- Trap injured person in emergency/fire blanket.
- Help injured person to eyewash, shower, or sink.
- Respond with any help requested by TA.
- Notify others about spilled chemicals.
- Test surfaces for remaining corrosive.
- Absorb the spilled liquids.
- Help fill out accident report.
- Notify TA of situation.
- Evacuate the room.
- Shelter against a solid wall.

Homework assignment: Safety Data Sheet (SDS, also called Materials Safety Data Sheets, MSDS). Before you open the safety exam, learn the procedure for finding the information you’ll need. DO NOT attempt to memorize the information you find.

- Open the SDS search page [http://blink.ucsd.edu/go/msds] & follow the link to ChemWatch, the primary SDS source at UC San Diego. Bookmark ChemWatch; it will automatically recognize a UC-affiliated computer.
- In the search engine find the following information for hydrogen peroxide (30%):
  - Hazards: Health / Physical / Environmental
  - Precautions
  - Incompatible materials
  - First Aid Measures
- Repeat for sulfuric acid, sodium hydroxide, potassium permanganate (solid), and acetone.
There are more than 50 errors in the "What Not to Do Laboratory." How many can you identify?