Lab Safety

1. Basic safety (General safety).
2. Personal Safety.
3. Glassware Safety.
4. Chemical safety.
5. Heating Safety.
6. First Aid.

Science lab is a place of doing experiments and learning, but you must be stay safe and alert at all times because there are many hazards in lab.
So the basic safety rules include:



- **1.** Never run in the lab or engage practical jokes.
- 2. Never eat, drink, or smoke while working in the lab.



- 3. Never work or touch anything in the lab without the supervision of an instructor.
- 4. Listen to or read instructions carefully before attempting to do anything.
- 5. Keep your work area Tidy (Take to the lab station only what is necessary) and
  - clean it at the end of experiment.
- 6. Keep bags away from burners

Personal Safety



- When you working in a science lab, you must always:

1. Wear a lab coat, gloves, mask and goggles.
    1. Goggles: to protect your eyes from chemicals, heated materials and things that might be able to shatter.
    2. Lab coat: to protect you from chemical spills. Must be worn properly.
    3. Gloves: to protect your hands when handling chemicals (using any hazardous or toxic agents)
2. Note: Disposable gloves should be used to be removed before leaving the lab

Glassware Safety

- 1. Do not use chipped or cracked glassware and show it to the instructor
- 2. If a piece of glassware gets broken, do not try to clean it up by yourself. Notify the instructor.
- 3. Do not place hot glassware in water. Rapid cooling may make it shatter
- 4. When pouring liquids into glassware, make sure the container is not at the edge of the table.
- 5. Broken glassware should be disposed in a special glass disposal container.

Chemical Safety

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- 1. Must Always know the chemicals that you are working with and the hazards may be causing. Material Safety Data Sheets (MSDS) must be on file and available for each
- **MSDS** lists for chemical in the lab**.** :
  - **Product Identity**
  - **Hazardous Ingredients**
  - **Physical Data**
  - **Fire & Explosion Hazard Data**
  - **Reactivity Data**
  - **Health Hazard Data**
  - **Precautions for Safe Handling & Use Control Measures**

Chemical Safety

- 2. Follow your instructor directions when using chemicals.
- 3. During lab work, keep your hands away from your face.
- 4. Never mix chemicals without your instructor telling to do.
- 5. Never put anything into your mouth during a lab experiment. (Never taste any chemicals).
- 6. Never suck pipe with mouth.

Chemical Safety

- 7. If you need to smell the odor of chemicals, do not put your nose over the container to inhale the fumes.
- 8. When diluting acids avoid adding water to concentrated acid (causing an explosion) which can splash acid on you). Therefore, you must add acid slowly to water.
- 9. Notify your instructor if any spills or accidents happen
- 10.Store chemicals on shelves with labeling the chemicals and solutions

Chemical Safety





- 11.Storage of flammable should not be open. They must be in a container labeled with warning.



- 12.Storage of corrosives like strong acids and bases should not be open.
- 13. After handling chemicals, always wash your hands with soap and water.
- **14.All chemical waste must be collected properly labeled and sent for appropriate disposal**

Heating Safety

- 1. When heating a solution in a test tube it is very important to tilt it away from you to avoid inhaling fumes that coming from the solution.
- 2. Use tongs or protective gloves to handle hot objects.
- 3. When heating a test tube, move it around slowly over the flame to distribute the heat evenly.
- 4. Only thoroughly dry glasswareshould be heated.
- 5. **Make sure no flammable solvents in the surrounding area when lighting a flame.**
- 6. **Turn off all heating apparatus, gas valves, and water faucets when not in use**

First Aid

- ❖ It is important to know the correct way to act if an emergency does occur.
- ❖ the location of safety equipment must be known, and available in the lab,







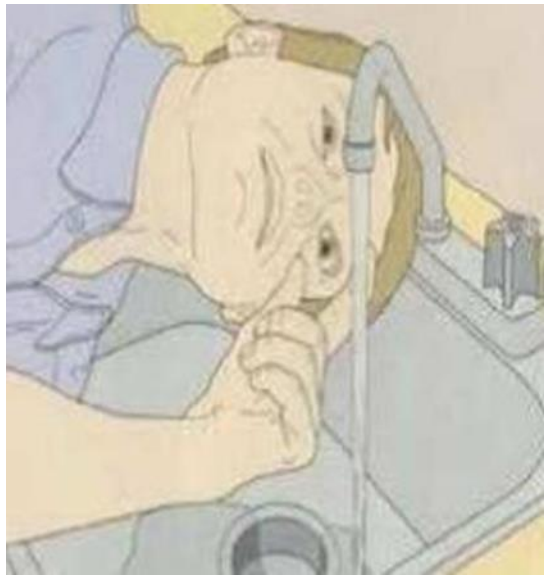
- including the fire extinguisher, eyewash station and fire blanket

Type of Injuries

- ❖ Burns:
- immediately flush with cold water until burning sensation is lessened.
- ❖ Cuts, bruises
- do not touch an open wound without safety gloves. Pressing directly on minor cuts will
- stop bleeding in a few minutes. Apply a cold compress to bruises to reduce swelling

Type of Injuries

- The Eyes



- ❖ flush eyes immediately with plenty of water for several minutes. If a foreign object entered into the eye, do not allow the eye to be rubbed

Some of Hazard Signs

