

**AL-Mustansiriyah University**

**College of science**

**Biology Dept.**

**Zoology**

**4<sup>th</sup> class**

**Laboratory Technique LAB.**

**(1)**

**NAME :**

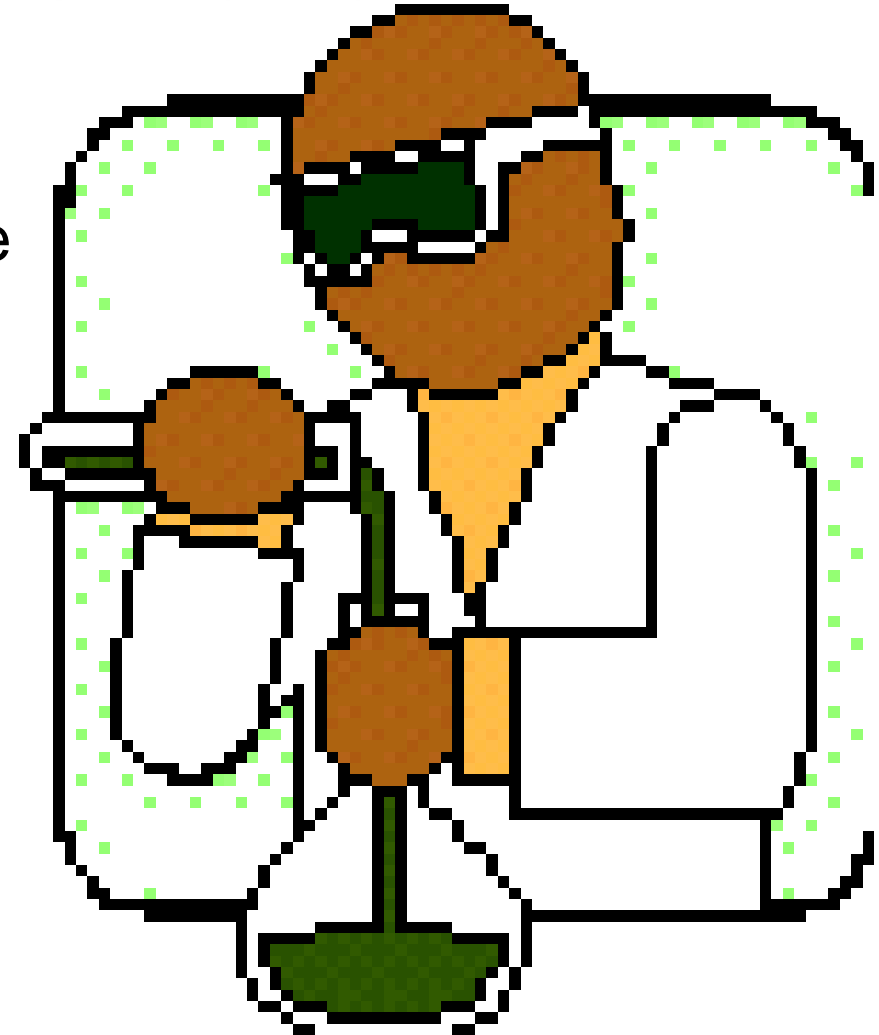
# Why does it matter?



- Safe working protects:
  - You
  - Other lab workers
  - Cleaners
  - Visitors
  - Your work

# How to do a Risk Assessment?

- 1) Determine **hazards** and evaluate **risks**
- 2) Use all relevant **available data**
- 3) Determine **controls** needed to reduce those risks
- 4) **Document** the assessment
- 5) **Agree** it with your supervisor
- 6) **Use** those control measures



# Control Measures (in order of preference)



1. Use a less risky substance
2. Use a safer form of that substance (eg solution instead of powder)

# Control Measures (in order of preference)

3. Totally enclose the process (eg a glove-box)
4. Ensure good general ventilation
6. Safe systems of work
7. Reduce exposure times, increase distance, reduce volumes
8. Personal protective equipment (as a last resort for primary protection)



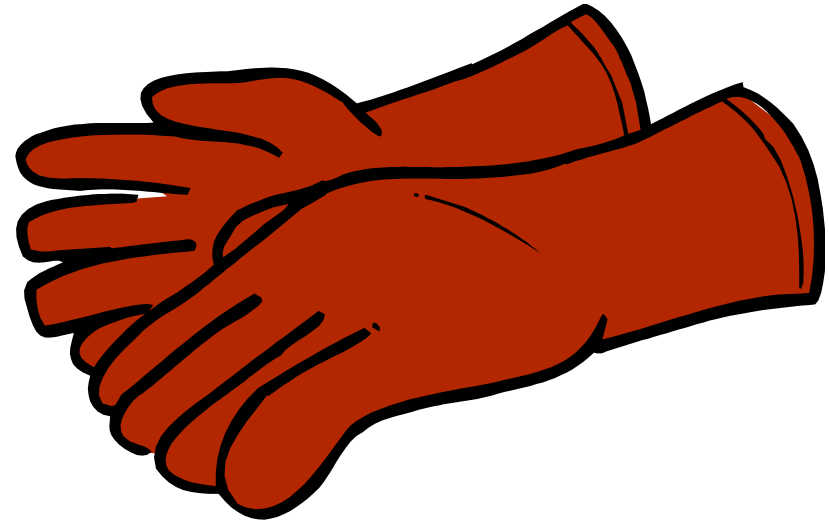
# Protecting yourself ( in general)



- 1. Wear the clothing and protective wear
- 2. Laboratory coats must be kept fastened
- 3. Don't wear sandals or open shoes
- 4. Long hair must be tied back

# Protecting yourself - gloves

- There are many different types of protective glove
- Use the correct ones for the job you will be doing
- Remember that you need to select chemical protection gloves according to the materials and/or substances with which you will be working
- Remove your gloves before using instruments, telephone, and leaving the laboratory



# Laboratory hygiene

- 1) Never eat, drink or smoke in a laboratory
- 2) Never apply cosmetics
- 3) Never touch your face, mouth or eyes
- 4) Never suck pens or chew pencils
- 5) Always wash your hands before you leave and especially before eating





# What are the general hazards in a laboratory?

- 1) Fire
- 2) Breakage of glassware
- 3) Sharps
- 4) Spillages
- 5) Pressure equipment & gas cylinders
- 6) Extremes of heat & cold
- 7) Chemical hazards
- 8) Biological hazards
- 9) Radiation

And many more!



**AL-Mustansiriyah University**

**College of science**

**Biology Dept.**

**Zoology**

**4<sup>th</sup> class**

**Laboratory Technique LAB.**

**(2)**

**NAME :**

# Avoiding Fires

- Flammable substances
  - 1) Use minimum quantity
  - 2) Store in special storage cabinet
  - 3) Use temperature-controlled heating sources  
(eg water-bath rather than hot-plate or Bunsen burner)



## Fire Safety

- Make sure that you know what to do:
  - If you have a fire
  - If you hear a fire alarm



# Glassware

- 1) Use correct techniques for the insertion of tubing onto glassware
- 2) Never use glassware under pressure or vacuum unless it is designed for the job and suitably shielded
- 3) Dispose of chipped or broken glassware – it is a risk to you and others
- 4) Always dispose of broken glass in a glass bin or sharps bin and not in a general waste bin



# Gas cylinders

- 1) Never use without formal training
- 2) Minimise the number in a laboratory
  - 1) Store externally whenever possible
- 3) Cylinders are heavy and can do serious damage to you if they fall
  - 1) Ensure that they are chained when in use
  - 2) Move only with a cylinder trolley
- 4) Use regulators & control equipment suitable for the gas concerned
- 5) Consider the consequences if your cylinder leaks



# Cryogenics

- 1) Liquid gasses are extremely cold and can cause burns
- 2) Liquid gases evaporate and many can cause asphyxiation
- 3) If you need to take cryogenics in a lift, there are special procedures to follow – speak to your supervisor or a senior member of technical staff
- 4) You must have special training to use them



# Electrical Equipment

- Always do a visual check on electrical equipment before use, looking for obvious wear or defects
- All portable electrical equipment must have a current Portable appliance testing “PAT test” sticker
- **NEVER** use defective equipment



# General Tidiness

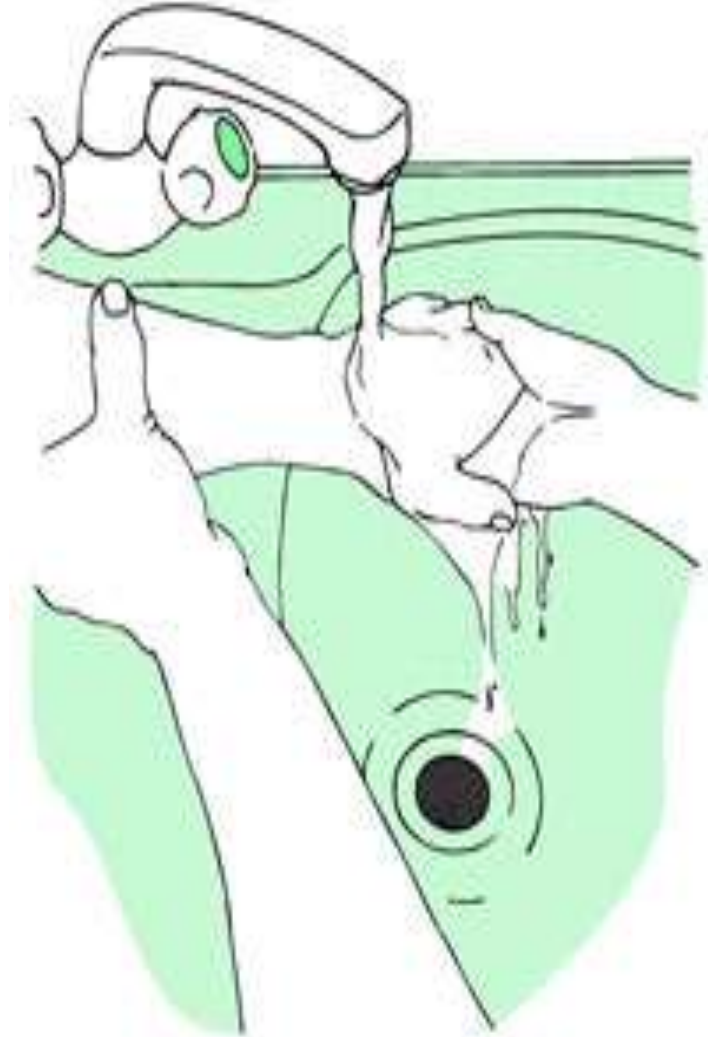
- Keep your workplace tidy
- Clear up waste, deal with washing up and put things away as you finish with them
- Make sure everything is safe before you leave things unattended
- A tidy laboratory avoids accidents to everyone



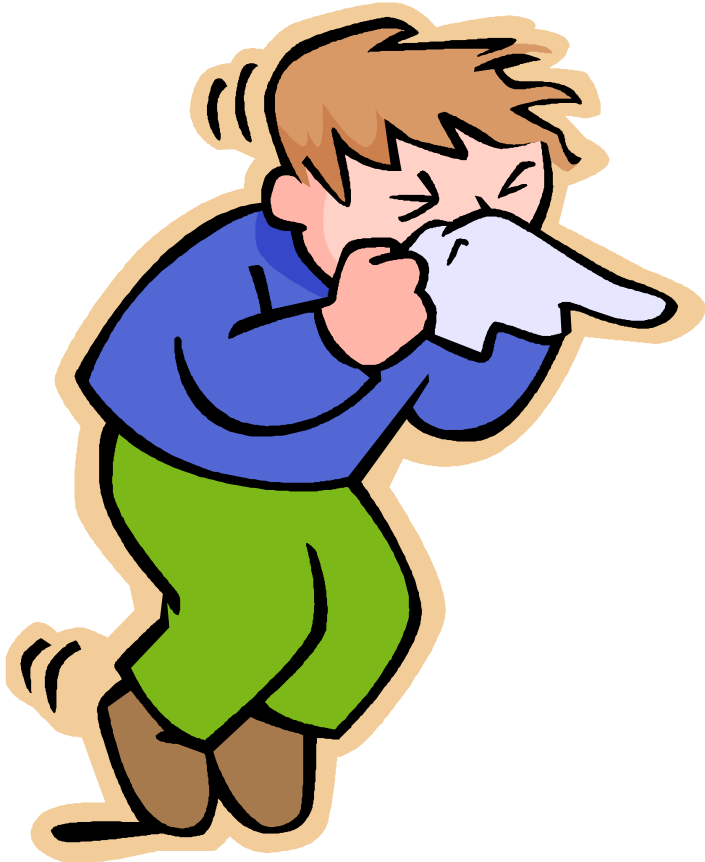


# First Aid

- All laboratory workers should undergo simple first aid training
  - A. For **ALL** chemical splashes, wash with plenty of water for 10 minutes
  - B. Control bleeding with direct pressure, avoiding any foreign bodies such as glass
- Report all accidents to your supervisor or departmental safety officer



# Protecting your health



- If you have an allergy to lab materials or suffer from a medical condition which may affect you in the laboratory (eg diabetes or epilepsy), ensure that your supervisor knows

# Waste Materials

- Part of your risk assessment will be to determine how to dispose of waste lab materials safely
  - Solvents and oils must be segregated into the correct waste bottle or drum
  - Your department will help you determine what to do with chemical or biological materials
- Do not put materials down the drain or in with normal waste unless authorised to do so



# When in doubt – ASK!!!

- Do not carry out a new or unfamiliar procedure until you have been fully trained & understand the precautions necessary for safe working
- **DO NOT GUESS!!!!**

