

# Lab Safety

Science Safety First!  
Urbana Middle School  
2019-2020



# Safety First

- Science is a hands-on laboratory class.
- You will be doing many laboratory activities, which require the use of hazardous chemicals and expensive lab equipment.
- Safety in the science classroom is the #1 priority.
- To ensure a safe science classroom, a list of rules has been developed and provided to you in your student safety contract.
- These rules must be followed at all times.
- A signed lab safety contract is required to participate in labs.

# Why is Lab Safety Important?

- Lab safety is a major aspect of every lab based science class.
- Lab safety rules and symbols are needed so that students do not injure themselves or their classmates.



# Lab Safety Rules

1. **Always follow the teacher's directions** and only do lab work when a teacher is present.
2. Conduct yourself in a responsible manner at all times. **No Horseplay!**
3. **Do not touch any** equipment, chemicals, or other **materials until told** to do so.
4. **No food or drinks in class!** Do not use lab glassware as food or beverage containers
5. **Report ALL accidents** to your teacher immediately, even if you think it is minor.



# Clothing

## **Wear:**

- Goggles/safety glasses
- Closed-toed shoes
- No loose clothing
- Tie back long hair

## **Do NOT Wear:**

- Sandals
- Dangling Jewelry
- Loose or Baggy clothing



# Lab Safety Equipment

Safety Shower



Eye Wash



Safety Goggles



# Lab Safety Equipment

Fire

Extinguisher



Fire Blanket



Fume Hood



# Safety Symbols

## Eye Protection



- Wear safety goggles when working with chemicals, flames, or heating devices.
- If a chemical gets in your eye, flush in water for 15 minutes and notify the teacher.

## Sharp Objects



- When using knives or other sharp objects always walk with the points facing down.
- Cut away from fingers and body.

## Electrical Safety



- Do not place a cord where someone can trip over it.
- Never use electricity around water.
- Unplug all equipment before leaving the room.



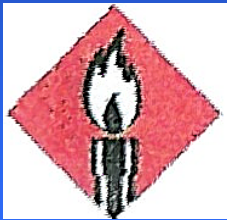
# Safety Symbols

## Animal Safety



- Only handle living organisms with teacher permission.
- Always treat living organisms humanely.
- Wash your hands after handling animals.

## Heating Safety



- Tie back hair and loose clothes when working with open flames.
- Never look into a container as you are heating it.
- Heated metal and glass looks cool, use tongs or gloves before handling.
- Never leave a heat source unattended.

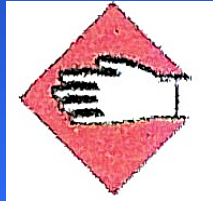
# Safety Symbols

## Chemical Safety



- Read all labels twice before removing a chemical from the container.
- Never touch, taste, or smell a chemical unless instructed by the teacher.
- Transfer chemicals carefully!

## Hand Safety



- If a chemical spills on your skin, notify the teacher and rinse with water for 15 minutes.
- Carry glassware carefully.

## Plant Safety



- Do not eat any plants in lab.
- Wash your hands after handling plants.

# Other Chemical Hazards and Symbols

- Flammable



- Irritant



- Explosive



- Corrosive



- Toxic/Poison



- Environmental



# Chemical Hazard Symbols and Definitions



- Flammable – Any substance that will burn if exposed to an open flame.



- Explosive – A substance that may explode if exposed to heat or flame.

# Chemical Hazard Symbols and Definitions



- Toxic/Poison – A substance that can lead to death if inhaled, ingested, or absorbed by the skin.



- Corrosive – A substance that can destroy or burn living tissue or eat away at materials.

# Chemical Hazard Symbols and Definitions



- **Irritant** - A substance that **causes inflammation upon** contact with skin or mucous membranes.



- **Environmental** - Substances that are **harmful to the environment**. They **must be disposed of properly**, not washed down the drain.

# Accidents and Injuries

- Report ALL accidents and injuries to your teacher immediately!!!
- Be aware of safety hazards associated with each chemical you use.
- Eye accident – Wash the eye with copious amounts of water for at least 15 min.
- Fire Burns – Stop, Drop, and be covered with a fire blanket or soaked with water. Do not remove clothing stuck to victim. Get medical attention immediately.

# Extra Safety Precautions

- Never heat iodine because it produces a poisonous gas.
- **Never smell anything** without specific instructions. Then wave the air above the substance toward your nose and sniff carefully. Do not inhale the fumes directly.
- When mixing **acid and water**, always add the acid to the water slowly, using the greatest caution.
- **Do not use chipped or cracked glassware.**



# Transferring liquid chemicals

- Use pipettes
- Pour it directly from one container to another
- transfer method depends on the type of chemical being used.
- \* Contamination occurs if you pour used chemicals back into original containers



# Heat Transfer

- Never touch a heated beaker or test tube with bare hands!!
- Use proper tongs for test tubes & beakers

# Microscope use

- Always **carry** a microscope **with both hands**.
- Hold the **arm with one hand**: place the **other hand** under the **base**.
- **When focusing** a microscope, make sure you **start on low power** and only focus in the upward direction.

# Waste Disposal

- First ask your teacher where/how to dispose of waste.
- Never pour anything down the drain unless you are told to do so.
- A waste bottle will be supplied for substance that cannot go down the drain



# Reasons for proper waste disposal

- Hazardous chemicals down the drain can lead to pollution of ground water, lakes, rivers, etc.
- Plants and animals can die if they are exposed to hazardous chemical waste.
- Serious health problems will become present in people if hazardous waste finds its way into drinking water.

# Pollution Facts of Champaign County

## Major Pollutants in the County:

- Methanol
  - Ammonia
  - Glycol Ethers
  - N-METHYL-2-PYRROLIDONE
  - XYLENE (MIXED ISOMERS)
- In 2002 Champaign County ranked in the the dirtier 40% of all counties in the U.S. in terms of air release carcinogens.
  - For more facts about land, air, and water pollution in your area go to the website [www.scorecard.org](http://www.scorecard.org) .

# Any Questions?



## REMEMBER:

- Carefully read through the entire safety contract and sign.
- Have your parents read and sign your safety contract.
- Study for the safety quiz later this week!

# Sources

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