Lab Safety

What do you think is the most dangerous thing in any laboratory?

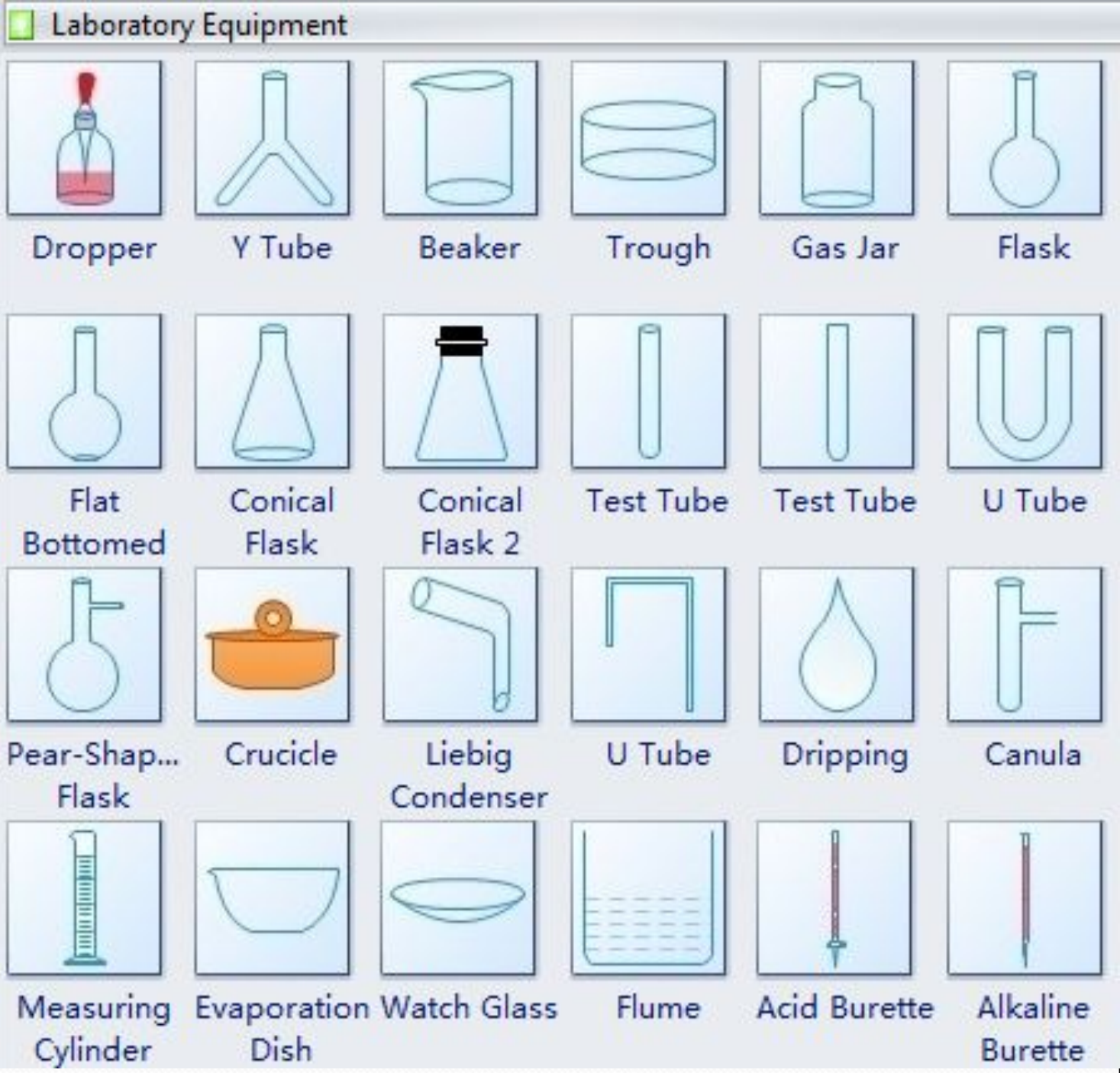
Lab Safety

- The most dangerous thing in any laboratory is someone who doesn't know what they are doing.

If you don't know how to use it or don't know what it is for it has the potential to be dangerous.

- Pencil
- Coin
- You name it…

ab Equipmer


Laboratory Equipment
Dropper
Y Tube
Beaker
Trough
Gas Jar
Flask
Flat Bottomed
Conical Flask
Conical Flask 2
Test Tube
Test Tube
U Tube
Pear-Shap... Flask
Crucicle
Liebig Condenser
U Tube
Dripping
Canula
Measuring Cylinder
Evaporation Dish
Watch Glass
Flume
Acid Burette
Alkaline Burette

Safety Symbols

Common to all Sciences


Apron


Goggles


Glassware


Heat-resistant gloves


Electrical Shock


No Open Flames


Physical Safety


Proper Disposal


Hand Washing


General Safety


Toxic/poison


Open Flames

Usually only in Chemistry


Corrosive


Heating Glassware

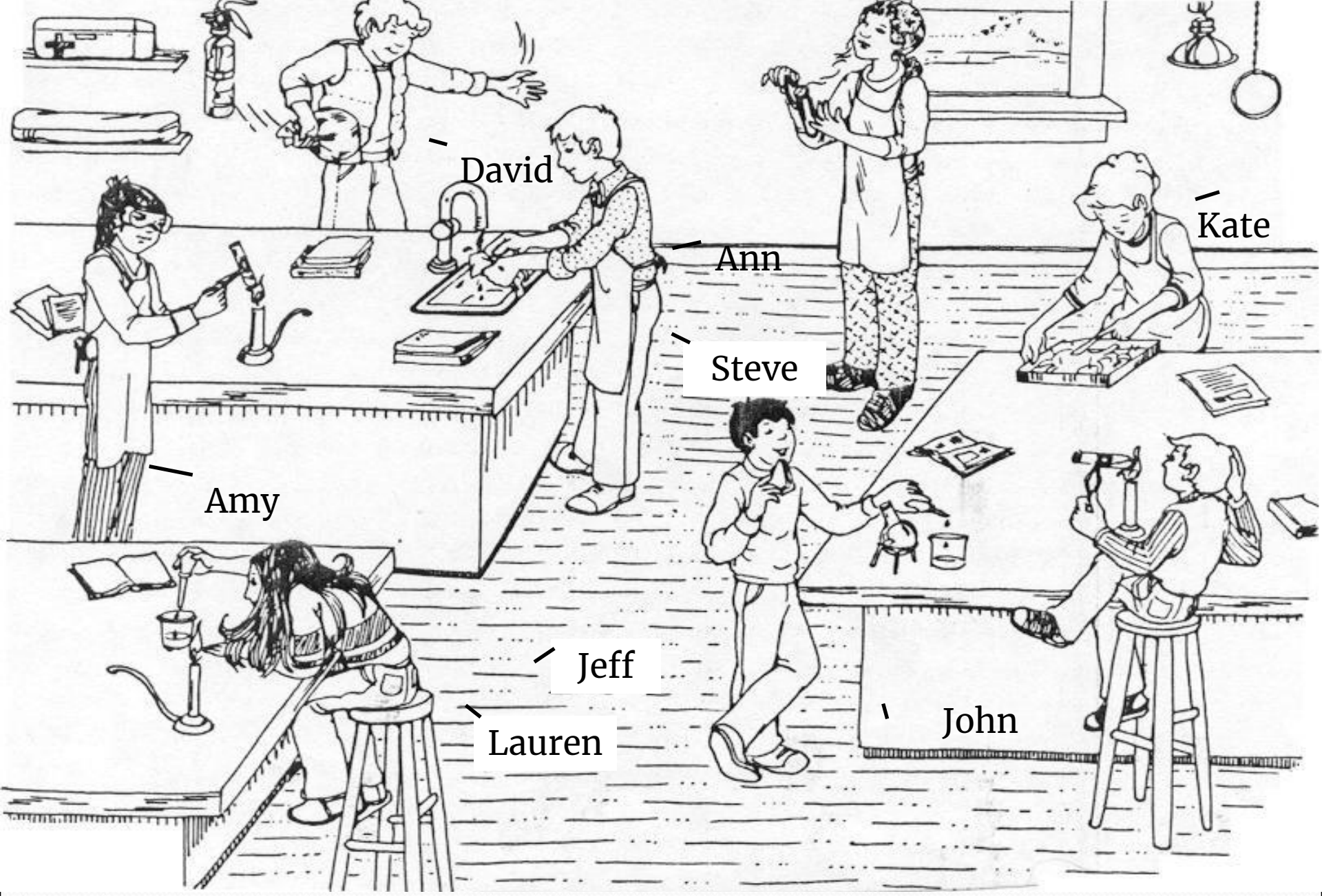

Fumes

Usually only in Biology


Sharp Objects


Plant Safety


Animal Safety



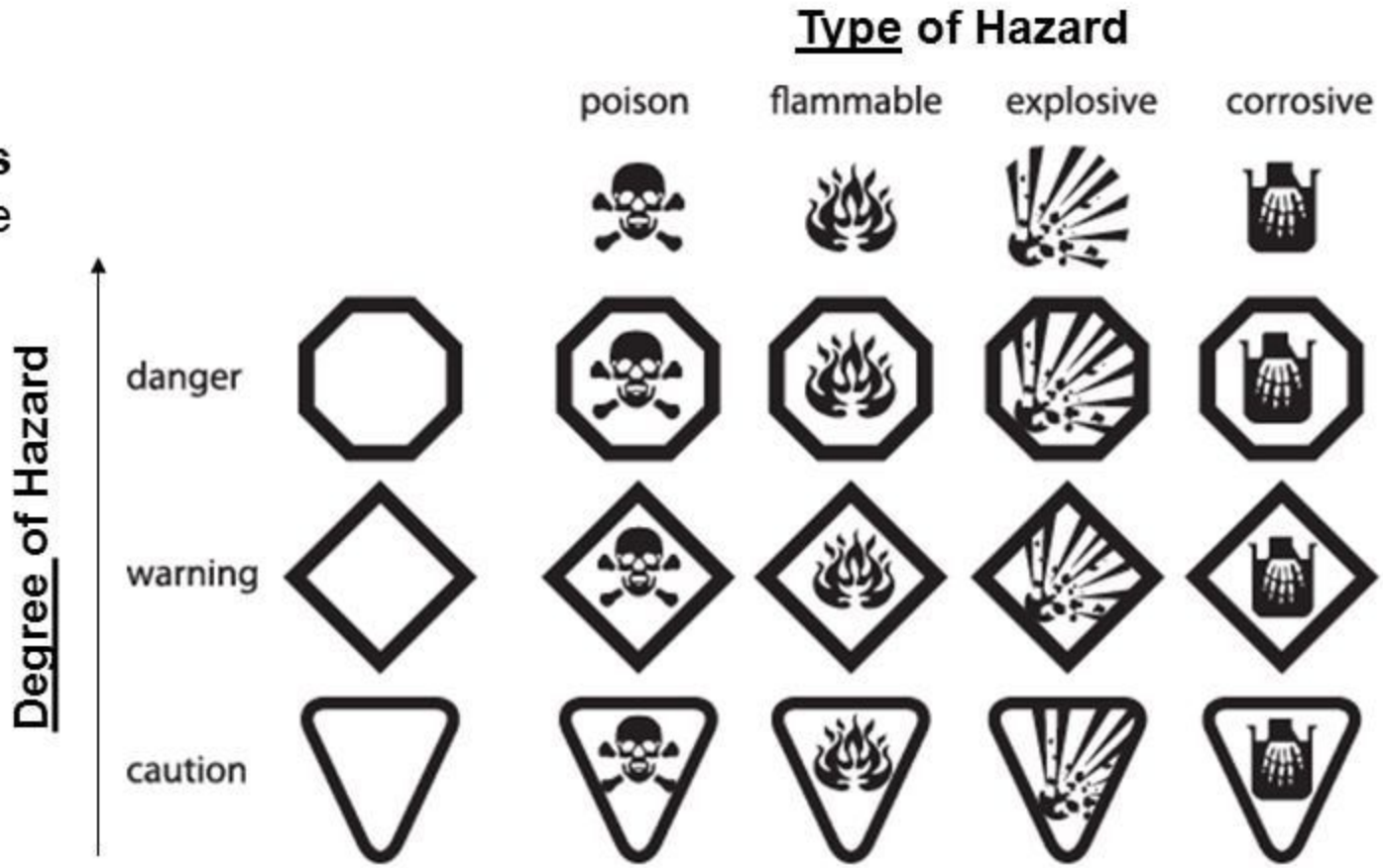
On the back of this page, identify what each student is doing wrong and how they should change to make their behaviour more safe.

Consumer Safety - HHPS

Household Hazardous Product Symbols

On what types of household **products** have you seen these symbols?

What types of **precautions** should you take with each hazard?



Household Hazardous Symbols

WHMIS Symbols

Compressed Gas

Flammable

Oxidizer

Poisonous

Toxic

Biohazard

Corrosive

Reactive

WHMIS HAZARD SYMBOLS

Compressed Gas

Flammable Material

Oxidizing

Explosion Hazard

Harmful or Fatal

Biohazardous/ Infectious

Corrosive

Health Hazard

Harmful

Harmful to the Environment

Explanation of Symbols

Apron- Wear a lab apron to protect skin and clothing.

Goggles- Wear safety goggles to protect your eyes during labs that use chemicals, flames or heating, or the possibility of broken glass.

Glassware- handle breakable materials with care. Do not handle broken glass.

Heat-resistant gloves – Use hand protection when handling hot materials. Do not touch hot materials with bare hands.

Electrical Shock- Never use electrical equipment around water, or when equipment or hands are wet. Be sure cords are untangled and can't trip anyone. Disconnect equipment when not in use.

No Open Flames- Flammable materials may be present. Make sure no flames, sparks, or exposed heat sources are present.

Physical Safety- When an experiment involves physical activity, take precaution not to injure yourself or others. Alert your teacher of any reason that you should not participate in the activity.

Explanation of Symbols

Proper Disposal- Not everything goes in the trash or sink. Follow teacher's directions as to where to dispose of all materials.

Hand Washing- Wash hands thoroughly after all lab activities.

General Safety- Follow additional safety precautions given by your teacher.

Toxic/poison- Do not let poisonous chemicals come in contact with your skin, clothing or eyes. Do not inhale vapors. Wash hands when you are done with the activity

Open Flames- You will be working with open flames. Tie back loose hair and clothing. Follow teacher's instructions about lighting and extinguishing flames.

Corrosive- Do not let chemicals come in contact with your skin, clothing or eyes. Do not inhale vapors. Wash hands when you are done with the activity

Heating Glassware- Use a clamp or tongs to handle hot glassware. Do not pick up hot glassware with your hands.

Fumes- Work in a well-ventilated area or the fume hood. Do not inhale directly. Use wafting if you are to test the odor of a vapor.

Explanation of Symbols

Sharp Objects- scissors, scalpels, knives, needles, pins, or tacks, can cut or puncture your skin. Always direct sharp edge or point away from yourself and others. Use sharp instruments as suggested.

Plant Safety- Handle plants only as directed by your teacher. If you are allergic to certain plants, tell your teacher before an activity. Avoid touching poisonous plants or plants with thorns. Wash your hands after activity.

Animal Safety- Treat live animals with care to avoid harming the animals or yourself. Working with animal parts or preserved animals also may require caution. Wash your hands after handling any animal specimen.

Lab Safety Rules

Dress Code

1. Wear safety goggles when directed.
2. Wear a lab coat or apron when directed.
3. Tie back loose hair whenever chemicals or open flames are being used.
4. Do not wear loose, baggy clothing or loose jewelry (ID badge lanyards) when working with chemicals or open flames.
5. No contact lenses during a chemistry lab.

Lab Safety Rules

General Safety

5. Never "horse around" in the lab. Be serious and alert.
6. Be ready to work when you enter the lab. **Understand the procedures** before you begin and any hazards associated with the lab.
7. Read all directions before the lab. If you are unsure of proper procedure, ask your teacher before proceeding.
8. Never perform activities that are not authorized by your teacher.
9. Never handle any equipment without permission from teacher.
0. If you spill something, tell the teacher immediately so that you can clean it up according to proper procedure.
1. Never eat, taste, or drink anything. Do not apply cosmetics. Wash hands before and after each activity.
2. Know location and use of safety equipment in lab.
3. Notify teacher of any health issues you may have, such as asthma, allergies, etc…
4. Keep your area neat and free of clutter. No books, bags, unnecessary

First Aid

5. Report all accidents, no matter how minor, immediately to the teacher.
6. Use the eyewash station immediately for liquid chemicals in the eye.
7. Remove dry chemicals BEFORE using eyewash station or water.
8. Know what to do in the case of specific accidents such as acid spills, fires, or chemicals on skin or in eyes.
9. Know the location of the first aid kit, Nurse's and Office phone number and how to respond in case of an emergency. Your teacher should administer any first aid that you require, but if the teacher goes down you need to help.

Heating and Fire Safety

8. Never use a heat source such as a candle or burner without wearing goggles.
9. Never heat anything that you are not instructed to heat.
10. Keep work area clear of clutter.
11. Never reach across a flame.
12. Make sure you know how to light a Bunsen burner. If you do not your teacher will show you.
13. Point test tubes or bottles that are being heated away from you and others. Chemicals can boil or splash out of the tube.
14. Never heat a closed container.
15. Never pick up a container without first checking to see if it is hot. If you can feel heat when you hold the back of your hand near it, use heat gloves or tongs to pick it up.

Using Chemicals Safely

6. Never mix chemicals for the "fun of it." See unauthorized experiments (rule #8).
7. Never touch, taste, smell etc… any chemical unless instructed to do so.
8. Use only the chemicals need for an investigation. Keep all lids closed when a chemical is not in use. Notify teacher if spills occur.
9. Dispose of all chemicals as instructed by teacher. To avoid contamination do not return chemicals to their original containers.
10. Be careful when working with chemicals such as acids or bases. Always pour them over the sink rather than over your work area.
11. When diluting an acid always add small amounts of Acid to Water. A to W. Ahhh. W to A. WAAAAA!
12. Rinse acids or bases off of skin immediately. Notify teacher immediately of spills.

Glassware Safety

3. Never force glass tubing into a rubber stopper. Your teacher will demonstrate the proper procedure to do this.
4. Never heat glassware that is not dry. Use wire gauze to protect glass from the flame.
5. Hot glass does not look hot. Don't pick up any glassware that may have been heated without checking to see if it is hot first.
6. Never use broken or chipped glassware. If glass breaks, tell teacher immediately and dispose of glass in GLASS BOX.
7. Never eat or drink out of lab glassware.

Using Sharp Instruments

8. Handle scalpels and razor blades with extreme care. Never cut material toward yourself or others. Cut away from you and others.
9. Be careful with sharp stuff. (See sharp object safety symbol)
10. Notify your teacher if you cut yourself.

Handling Living Organisms – not applicable for grade 9

1. No investigations that will cause pain, discomfort, or harm to mammals, birds, reptiles, fish, and amphibians should be done in the classroom or at home.
2. Treat all living things with care and respect. Do not touch any organism in the classroom or lab without permission. (see plant and animal symbols as well)
3. Animals should be handled only if necessary. If an animal is excited or frightened, pregnant, feeding, or with its young, special handling is required.
4. Your teacher will instruct you as to how to handle each species that may be brought into the classroom.
5. Treat all microorganisms as if they were harmful. Use antiseptic procedure, as directed by your teacher, when working with microbes. Dispose of microbes as your teacher directs.
6. Clean your hands thoroughly after handling animals or the cage

Clean up Rules

48. When done do the following: Clean up. Put away correctly. Turn off/unplug. Wash hands.

To Summarize

- Use common sense.
- Follow the teacher's directions.
- If you don't know, ask.
- Do the right thing.

Sources

- http://morrisonlabs.com/images/safety/labSafety.jpeg
- http://www.heumann.org/u1/lab.jpg
- Lab Safety Symbols from:
  - Prentice-Hall *Biology* Laboratory Manual A