LABORATORY SAFETY PROGRAM

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Laboratory Safety

- Lab safety is a top priority for students, faculties, and all lab users in the York Center for Environmental Engineering and Science (YCEES).

- There are many exposure routes in the laboratory that pose a hazard to your health and you may have never considered some of them before.

- Laboratory safety is the key to reduce injury and illness. A list of rules/steps are provided in this safety program.
What Does “Staying safe” mean?

• Handle chemicals with care
• ALWAYS use correct protective clothing and equipment
• Read labels on containers of chemicals
• Read Safety Data Sheets (SDS)
• Know emergency procedures

Refer a YouTube video: “Five Rules of Lab Safety”
https://www.youtube.com/watch?v=S6WARqVdWrE&list=PL4qaj9envlJnItGxkA_BUAxk0WbhypQlo
chemical, biological and radiological materials
bulldog, 4/17/2015

ALWAYS
bulldog, 4/17/2015

changed terms to SDS
bulldog, 4/17/2015

changed phrase
bulldog, 4/17/2015
Key Issues Related to Lab Safety

1. Know Health & Safety Hazards
2. Understanding Routes of Hazard Exposure
3. Wear Correct Personal Protective Equipment (PPE)
4. Use Lab Safety Equipment
5. Emergency Response Plans & Rules for fighting fire
6. Labeling of Chemicals in the Lab
7. Safety Data Sheets (SDSs)
8. Storage & Safe Use of Chemicals in the Lab
9. Hazardous Waste Disposal
10. Biological Safety
11. Radiological Safety
12. Nanoparticles
Please Watch:

“Five Rules of Lab Safety”

• https://www.youtube.com/watch?v=S6WARqVdWrE&list=PL4qaj9envlYnItGxkA_BUAxk0WbhypQIo
What is Hazard??
Definition of Hazards

A **hazardous substance** is defined as a material/substance that poses a physical or health hazard. This includes chemical, radiological, nano and biological agents.

A **biohazard** is defined as any organism that is capable of replication and is capable of causing disease in human, animal or plant.

A **radiological hazard** is defined as the danger to health arising from exposure to ionizing radiation, either or to radiation from radioactive materials within the body.

A **nano-hazard** is defined as nano-particles that are seriously risky to human due to the very tiny size effect.
Where did this definition come from?
Typical Hazards in the Lab

- **Chemical Hazards:**
  - Absorption of Chemicals
  - Inhalation of Chemicals
  - Ingestion of Chemicals
  - Fire/Explosion
  - Chemical and Thermal Burns

- **Physical Hazards**
  - Cuts, Scrapes, Bruises
  - Slips, Trips and Falls

- **Biological Hazards**
  - Contact with Infectious Agents

- **Electrical Hazards**

- **Radiation Hazards**

- **Nanoparticle Hazards**
Hazard Labels on Chemicals

- Carcinogen
- Reproductive Toxins
- Toxic or highly toxic
- Sensitizers
- Irritants
- Corrosives
- Neurotoxins
- Hepatotoxins
- Nephrotoxins
Physical Hazard Labels on Chemicals

- Flammable
- Explosive
- Oxidizer
- Pyrophoric
- Organic peroxide
- Compressed gas
- Combustible liquid
- Unstable (Reactive)
- Water-reactive
- Biological Agent
- Radiological
Personal Protection
Routes of Hazard Exposures:

- INHALATION
- SKIN CONTACT
- INGESTION
- INJECTION
Personal Protective Equipment or PPE

PPE is necessary to protect oneself from hazardous chemicals and materials. PPE include safety glasses, gloves, respirator, lab coat, shoes and shoe covers, or any other item that protects one from dangerous materials encountered in the lab.
PPE for Eye and Face Protection

**Safety Glasses/Goggles:**
- Protects against flying particles, and explosions striking the eye.
- Special eyewear: required for intense light such as UV, lasers, or welding.

**Chemical Splash Goggles:**
- Required from both impact and chemical splash.
- Required when working with particularly injurious or corrosive chemicals and any time there is the possibility of a chemical splash.

**Face Shield:** (for additional protection)
- Required when working with larger quantities of materials with a high probability of eye and face injury exists.

-Note: **Contact lenses** do not provide eye protection in the lab; however, their use is acceptable as long as appropriate eye protection is used and the MSDS does not identify restrictions.
PPE for Skin and Body

**Gloves:**
- Required when working with hazardous chemicals, biological hazards, unknown toxics, corrosives, sharp objects, or hot/cold objects.
- Some gloves may be incompatible with certain chemicals: refer MSDS or the glove manufacturer.

**Protective Clothing:**
- Level of protective clothing vary depending upon the hazards.
- If there is a reasonable risk of splash or spill, skin should be protected.
- Lab coats, coveralls, aprons (Tyvek for corrosive, irritant chemicals and biological hazards).

**Footwear:**
- Open toed shoes and sandals are not permitted due to chemical and physical hazards in the lab.
- Working with corrosives or large quantities of corrosives may require chemical resistant overshoes, boots or shoes.
PPE for Respiratory & Hearing Protection

**Respirators**

- Required only where general ventilation do not reduce exposure to acceptable levels.
- Paper masks may be necessary to reduce nuisance dusts or vapors, but they are not enough in areas with respiratory hazards.
- Masks with charcoal filter for solvent vapors.
- Specialized masks are available for specific applications.

**Hearing Protection**

- Required in areas with noise levels above 85 decibels hearing protection.
- Earplugs are required in a noisy environment.
Please Watch
“Dressing for Safety”

https://www.youtube.com/watch?v=IT-Mo8iJln8&list=PLSDzkoiE_ydHoZyGFST16VavKYYVikEWGD
Emergency Response
Lab Safety Equipment

• **Safety Showers and Eyewash Facilities:**
  Prior to working in the lab, identify the nearest eyewash and shower.

• **Ventilation:**
  All operations that could generate air contaminants or have the potential to ignite or react should be done in fume hoods or use other ventilation. For safety and energy efficiency, keep the hood closed at all times when not in use.

• **First Aid Kit:**
  A first aid kit should be available in all labs. Locate the kit in the lab and ensure it is adequately stocked.
Being Prepared for Emergency

- Know where emergency phone numbers are posted
- Review SDS
- Know where to go and what to do in an emergency
- Know the location of the closest safety showers, eyewashes, and fire extinguishers
In Case of Accidents

Unexpected accidents occur and at the time of an emergency, react quickly and contact NJIT Campus Police immediately.

→ External #: 973-596-3111

NJIT

EMERGENCY

Call 3111
Emergency Response Plan

• Fire:
  1. Activate building fire alarm
  2. Evacuate building (close the door behind you)
  3. Contact the NJIT-Campus Police (ext. x3111) immediately
  4. Safely use fire extinguisher on small fires

• Hazardous Chemical Spill (over 1 pint):
  1. Evacuate the room immediately
  2. Close the door behind you
  3. Contact the NJIT-Campus Police (ext. x3111) immediately
Medical Emergencies

Only trained individuals should respond to an injury or illness

- For chemicals on skin, eyes or clothing:
  - Flush with water for no less than 15 minutes.
  - Consult SDS for specific instructions, dial 3111.

- For skin contact with infectious agents:
  - Wash with soap and water for at least 1 minute.
  - If skin is punctured wash and dial 3111.

- For Ingestion or symptoms of inhalation:
  - Consult the SDS and contact 3111 or poison control.
Watch the YouTube Video from ACS

“Emergency Equipment”

https://www.youtube.com/watch?v=_CKeqFCIv88&index=5&list=PLSDzkoiE_ydHoZyGFST16VavKYYVikEWGD
Fire Fighting
In Case of Fire

One should always be careful not to endanger oneself or others when attempting to put out a fire. For this reason, when a fire is discovered:

- Assist any person in immediate danger to safety provided it can be accomplished without risk to oneself.
- Activate the building fire alarm and then evacuate the building.
- Contact NJIT Campus Police (Ext. 3111).
- If the fire is small (and only after having activated the alarm) one may attempt to use an extinguisher to put it out.
Rules for Fighting Fires

Before deciding to a fight a fire:

- Know what is burning. If you don’t know what is burning, you won’t know what kind of extinguisher to use.
- Even if there is an ABC fire extinguisher, there may be something that may explode or produce toxic fumes.
- If one does not know what is burning, its best to let the fire department handle it.
- Is the fire spreading rapidly beyond the point where it started? The time to use an extinguisher is at the beginning stage of the fire.
- If the fire is already spreading quickly, it is best to simply evacuate the building.
Rules for Fighting Fires

Do not fight the fire if:

- **You don’t have adequate or appropriate equipment.**
  If you don’t have the correct type or large enough extinguisher, it is best not to try fighting the fire.

- **You might inhale toxic smoke.**
  When synthetic materials such as the nylon in carpeting or foam padding in a sofa burn, they can produce hydrogen cyanide, acrolein, and ammonia in addition to carbon monoxide. These gases can be fatal in very small amounts.

- **Your instincts tell you not to.**
  If you are uncomfortable with the situation for any reason, just let the fire department do their job.
How to Use Fire Extinguisher: “PASS”

• **Pull the pin**: This will allow you to discharge the extinguisher.

• **Aim at the base of the fire**: Hit the fuel...if you aim at the flames, the extinguishing agent will pass right through and do no good.

• **Squeeze the top handle**: This depresses a button that releases the pressurized extinguishing agent.

• **Sweep from side-to-side until the fire is completely out.**: Start using the extinguisher from a safe distance away and then slowly move forward. Once the fire is out, keep an eye on the area in case it re-ignites.
Rules for Fighting Fires

- The final rule is to always position yourself with an exit or means of escape at your back before you attempt to use an extinguisher to put out a fire.

- In case the extinguisher malfunctions, or something unexpected happens, you need to be able to get out quickly. You don’t want to become trapped.

- As you evacuate a building, close doors and windows behind you as you leave. This will help to slow the spread of smoke and fire.
Labeling Containers
Labeling of Containers in the Lab

- It is important to know as much as possible about a hazardous agent.

- The most dangerous substance is the one that does not have a label.

- The labeling is essential in the laboratory for informing others in the lab and for regulatory compliance.
**Label Systems:**

- **ANSI** - American National Standards Institute
- **NFPA** - National Fire Protection Association
- **HMIS** - Hazardous Materials Identification System
- **HMIG** - Hazardous Materials Identification Guide
- **DOT** - Department of Transportation

**Examples for Labeling:**

- The full chemical name
- Date received
- Date opened
- Date of decision
- Peroxide level
Labels & Signs: ANSI Standard

DANGER indicates an **imminently hazardous** situation, if not avoided, could result in death or serious injury. This label is for extreme situations.

WARNING indicates a **potentially hazardous** situation, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
Key point:

- **HMIS®** is not intended for emergency circumstances.
- **HMIS®** attempts to convey full health warning information to all employees.
- **NFPA** is meant primarily for fire fighters and other emergency responders.
Hazardous Material Identification Guide – HMIHG:

- This is based on type of PPE that should be used when working with chemicals.

DOT Label Codes:

- Hazardous Materials Transportation Act of 1975 (HMTA) is the major transportation-related statute affecting transportation of hazardous cargoes.
OSHA Standard Labels

- It should be ensured that labels on incoming containers of hazardous chemicals are not removed or defaced.

- Lab Safety Standard Requires:
  - Full chemical name
  - Date of preparation
  - Concentration
Safety Data Sheets
Safety Data Sheets (SDSs)

- SDS is an important component of product stewardship and occupational safety and health. It provides workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data (melting point, boiling point, flash point, etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures.

- SDS’s should be readily accessible to all lab users using the products. You should be informed of the location of SDSs by your supervisor, and how to obtain the SDSs. Familiarize yourself with the contents of the SDS for any particularly hazardous material. ➔ Contact the NJIT Health and Environmental Safety Department (x3086 or x3059).
Safety Data Sheets (SDSs)

SDS sheets provide more detailed information about chemicals such as physical properties, physical and health hazards, and proper handling procedures. These include:

- Composition, information on ingredients (Section 2)
- Hazards identification (Section 3)
- First aid measures (Section 4)
- Accidental Release measures (Section 6)
- Handling and Storage (Section 7)
- Exposure controls, personal protection (Section 8)
- Stability and reactivity (Section 10)
- Toxicological information (Section 11)
Safety Data Sheets (SDSs)

- Precautionary measure need to be taken based on the data provided on the SDS sheet.

- Also, if there is a spill either on a surface or on your skin, the SDS can provide information needed for first aid.

- SDS’s should be readily accessible to all lab users using the products. Familiarize yourself with the contents of the SDS for any particularly hazardous material.
Storage and Safe Use of Hazardous Materials
Storage & Safe Use of Chemicals:

- Physically separate incompatible chemicals according to physical hazard class.
- Ensure that storage area is dry and well ventilated.
- Store chemicals away from heat sources and post signs on chemical storage areas.
- Store liquids in spill trays.
- Ensure all containers are in good condition, properly capped, and labeled.
- Never store chemicals on the floor.
Add slides for Biological Agents, Radiological and Nanoparticles
bulldog, 4/17/2015

Not certain what this means
bulldog, 4/17/2015
Storage and Safe Use of Chemicals:

- Labs should have separate storage areas for:
  - Flammable and combustible organic liquids and solvents
  - Acids
  - Dry poisons, salts, and oxidizers
  - Bases

- Chemicals are stored in:
  - Chemical storage cabinets
  - Flammable storage refrigerators (No food)
  - Chemical storage refrigerators/freezers (No food)
  - On shelves with retaining barriers
Prepare similar slides for biological agents, radiologicals and nano-particles

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Storage of Flammable and Combustible Materials

- Flammable materials have flash points < 100°F (37.8°C).
- Store in NFPA approved flammable liquid containers
- (‘safety cans’) or flammable liquid storage cabinets or in designated areas.
- Proper grounding of the containers is necessary when dispensing from metal or other conductive containers.
- Ensure fire extinguishers and/or sprinkler systems are in the area.
- Use only refrigerators designed for flammable liquid storage.
- Flammable liquids should be stored away from strong oxidizers, direct sunlight, and heat sources, such as hot plates.
NFPA 30 (2000)

Flammability Hazard

1. **Combustible if heated**
2. **Caution** Combustible liquid flash point of 100° to 200° F (Class II; or IIIA)
3. **Warning** Flammable liquid flash point below 100° F (Class IA; IB; or IC)
4. **Danger** Flammable gas or extremely flammable liquid (Class IA liquids)
Storage Safe Use of Corrosive Chemicals

- A corrosive substance is one that causes skin damage or is destructive to steel. Examples include acids and bases.
- Segregate acids from bases.
- Never add water to acid.
- Liquid corrosives should be stored below eye level.
- Containers and equipment used for storage and processing of corrosive materials should be corrosion resistant.
- For all handling corrosive chemicals: Wear proper personal protective equipment and know the location of eyewash and safety shower.
Storage and Safe Use of Oxidizers

- Oxidizing Agents are known to readily give up oxygen and are reactive to cause fire and explosion hazards. Examples: hydrogen peroxide, nitric acid, sulfuric acid and more.

- Store oxidizers in containers with tight fitting screw-top lids.

- Store away from flammables, organics, and reducers.

- Know the reactivity of the materials you are working with in the experiment or process.

- Ensure there are no extraneous materials in the area that could become involved.

- If the reaction is anticipated to be violent or explosive, use shields or other methods for isolating the materials or the process.
Storage and Safe Use of Water Reactive and Pyrophoric Chemicals

- Water Reactive materials include alkali metals such as lithium, sodium, potassium, acid anhydrides, and acid chlorides. Do not use them in the presence of water!

- Pyrophoric materials can ignite spontaneously upon contact with air. Some include silane, silicon tetrachloride, and white or yellow phosphorous.

- Water reactive and pyrophoric materials should be stored in inert environments such as glove boxes.

- Know the properties of the material and use proper methods for dispensing.

- Ensure proper fire extinguishers are available and know the locations of safety showers.

- Never work alone with pyrophoric materials.
Storage and Safe Use of Peroxidizable and Unstable Chemicals

- May undergo auto-oxidation to form peroxides which may explode. Peroxides can be formed even if a container has not been opened, necessitating careful handling.

- Dispose of or check for peroxide formation after the recommended time: 3 months or one year, depending on the chemical.
  - Do not open any container that has obvious solid formation around the lid.
  - Follow the same basic handling procedures as for flammable materials.
  - Store away from light and heat.

- Unstable materials can spontaneously release large amounts of energy under normal conditions, when struck, vibrated, or otherwise agitated.
  - Date all containers of explosive or shock sensitive materials upon receipt.
  - If there is a chance of explosion, use barriers or other methods for isolating the materials or the process.
Storage and Safe Use of Cryogenics

- Liquids and/or gasses capable of achieving very low temperatures: Typically liquid nitrogen, Oxygen, and CO2.

- Hazards include fire, explosion, pressure buildup, frostbite, and asphyxiation.

- In addition to hazards associated with compressed gas, cryogens have two unique properties:
  - Extremely low temperatures can freeze human tissue and strong materials can become weak or brittle.
  - Cryogenic liquids can create large volumes of gas when they vaporize which can rupture a vessel or displace oxygen.

- Use proper PPE when using and use rubber or wood tongs to remove materials immersed in cryogens.

- Cylinders and Dewars should not be filled to more than 80% capacity.

- Storage of radioactive, toxic, or infectious agents should be placed in plastic cryogenic storage ampoules.

- Reheat cold samples slowly.
spelling?
bulldog, 4/17/2015
Storage and Safe Use of Compressed Gases

- Compressed gases come in steel cylinders under high pressure.
- If damaged they can explode like a bomb.
- Cylinders with regulators shall be individually secured. Only cylinders with valve protection caps may be secured in groups.
- Cylinders must be secured in an upright position. Use suitable racks, straps, chains, or stands to support the cylinders.
- Use an appropriate cart to move cylinders.
- Cylinders containing flammable gases such as hydrogen or acetylene must not be stored in close proximity to open flames, areas where electrical sparks are generated, or where other sources of ignition may be present.
Waste Disposal
Hazardous Waste Disposal

- Universal, hazardous and biological wastes have special procedures for proper disposal.
- It is important to properly dispose of wastes to ensure human and environmental health.
- NJDEP and USEPA regulates the wastes that are generated in the York Center.
Nanoparticle Waste Disposal

• Since the toxicology and environmental fate of nanoparticles is still largely unknown, all nanoparticle waste (solid material and liquids) should be conservatively managed as hazardous waste.

• This also includes any debris (i.e. PPE, plastic) that has become heavily contaminated with nanoparticles.

• All nanoparticle waste must be placed in an appropriate container and labeled. The label should indicate all constituents in the waste using a percent format; nanoparticles can be listed as “trace”.
Labeling of **Hazardous** Waste

1. “Hazardous Waste”
2. Contents as *chemical names*
3. Start date of accumulation
4. PI name and room number
5. The approximant amount (%) of each chemical is also helpful.
6. Segregate incompatible chemicals: - Toxic, Corrosive, Ignitable, Flammable, or Oxidizer
How to Handle Hazardous Waste

1. It is responsible for all lab users to properly characterize the chemical waste generated in the lab. Consult the NJIT Health & Environmental Safety Department (x3086 or x3059) for assistance.

2. Each lab must have a designated area for waste containers or bottles for accumulating waste.

3. Describe appropriate containers.

4. Waste is collected in the lab, and is clearly labeled and secured in containers.

5. Chemical waste may be mixed, only if compatible.

6. When the waste container is full, move it to the designated waste storage site or contact the NJIT Health & Safety Department (x3086 or x3059).
How to Handle Biological Waste

1. It is responsible for all lab users to properly characterize the biological waste generated in the lab. Consult the NJIT Health & Environmental Safety Department (x3086 or x3059) for assistance.

2. Each lab must have an area with waste containers or bottles for accumulating waste.

3. Describe approved biological waste containers.

4. Waste is collected in the lab, and is clearly labeled and secured in containers.

5. Chemical waste may be mixed, only if compatible.

6. When the waste container is full, move it to the designated waste storage site or contact the NJIT Safety Department (x3086 or x3059).
How to Handle Radiological Waste

1. It is responsible for all lab users to properly characterize the waste generated in the lab. Consult the NJIT Health & Environmental Safety Department (x3086 or x3059) for assistance.

2. Each lab must have an area with waste containers or bottles for accumulating waste.

3. Waste is collected in the lab, and is clearly labeled and secured in containers.

4. When the waste container is full, move it to the designated waste storage site or contact the NJIT Safety Department (x3086 or x3059).
Some General Rules of Lab Safety at Otto York
Labelling

■ NO unmarked or unsealed containers of any kind

■ Properly label ALL waste containers, identifying contents of all containers

■ Use proper labels – hazardous and non-hazardous wastes, organic and inorganic and so on.

■ All glass and other lab supplies sorted and discarded in appropriate and labeled containers

■ Flammable containers should be stored in appropriate storage cabinets not under cardboard boxes
In the lab

- No extension cords – surge protectors are permitted
- Remove trash and empty containers in hoods, cabinets and lab
- Must know what is what? Can not say “I don’t know” to any question when safety inspectors visit the lab.
- No trip hazards such as long wires, or things on the floor
- Regular trash – put outside in the hallway for pick up by our custodial staff.
- Adequate aisle space in labs and between labs
- All benches cleaned and organized
Laboratory Attire

➢ No open-toed shoes
➢ No shorts unless a lab coat is used
➢ Restrain hair when working with hazardous materials
➢ Remove protective clothing in public
➢ Use the proper Personal Protective Equipment for the job

➔ Refer a ACS YouTube video for “Handling Chemicals Safely”:
  https://www.youtube.com/watch?v=ed_xs9mZQBw&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD&index=6
Good Laboratory Practice

- Avoid direct contact with any hazardous materials.
- Wash hands thoroughly with soap and water after handling chemicals or biological materials.
- No food, eating, drinking or smoking in the lab.
- Do not mouth pipette.
- Do not use refrigerators or microwave ovens that have been used with chemicals for food storage or prep.
- Keep work areas clean and uncluttered.

 REFER a ACS YouTube video for “Behavior in Lab”:
https://www.youtube.com/watch?v=Gb9ojjSGVH4&list=PL5DzkiE_ydHoZyGFST16VavKytYrVikEWGD&index=4
Good House Keeping

- Storage of hazardous materials, equipment, waste and empty containers at a lab or bench must be kept to a minimum and understand incompatible materials.

- Clean up hazardous materials spills immediately.

- Do not block exits, aisles, access to emergency equipment, or controls

- Do not use hallways or stairwells for storage.

- Follow proper safety precautions for cylinders.

- Familiarize yourself with emergency equipment (alarms, extinguishers, showers, eyewash, evacuation routes.)
Working in the Laboratory

- **When transporting hazardous materials** outside the laboratory, carry containers in a bottle carrier or use a cart with raised edges.

- **Unattended Operations**: Develop a protocol with the lab supervisor for operations that will be left unattended. Post warning notices, including contact name and telephone # if hazardous conditions may be present or emergency occurs.

- **Working alone** when there is a potential hazard is always discouraged and should only be done with approval of the lab supervisor, who should develop protocols for working alone.

- Be alert to unsafe conditions and notify York Center Administrators immediately.[contact names and telephone #]
Lab Safety Videos

Zombie college: The 5 rules of lab safety

• https://www.youtube.com/watch?v=S6WARqVdWrE&list=PL4qaj9envlYnItGxkA_BUAxk0WbhypQlo

• Professor McClean's 5 Rules of Lab Safety
  1. Dress for lab
  2. PPE
  3. Chemical safety
  4. Safety equipment
  5. Lab behavior

• ACS Lab Safety Videos:
Some YouTube Videos to Watch
ACS Chemistry Lab Safety Videos
Published on Oct 4, 2012, (C) American Chemical Society 1991

Enjoy the videos below:

1. Dressing for Safety: https://www.youtube.com/watch?v=IT-Mo8ijfJn8&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD
2. Thermometer Safety: https://www.youtube.com/watch?v=G3lnArqVWMVc&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD&index=2
3. Bunsen Burner and Glassware Safety: https://www.youtube.com/watch?v=HLYo5PUtE&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD&index=3
4. Behavior in Lab: https://www.youtube.com/watch?v=Gb9ojJSVfI4&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD&index=4
5. Emergency Equipment: https://www.youtube.com/watch?v=CxqFClv88&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD
6. Handling Chemicals Safely: https://www.youtube.com/watch?v=ed_x9mZQBWw&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD&index=6
7. Glass Tubing Safety: https://www.youtube.com/watch?v=UMCIaW7iZD&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD&index=7
8. Centrifuge Safety: https://www.youtube.com/watch?v=gWLLNld8FaQ&index=8&list=PLSDzkoiE_ydHoZyGFST16VavKYVikEWGD

[add more for biological, radiological, nano, laser, cyro]
Lab Safety Does Not Always Have to Be Serious

https://www.youtube.com/watch?v=7uCcRfrQ0A
Work safe, Keep Everyone Safe and Enjoy the Laboratory Environment at the York Center !!!