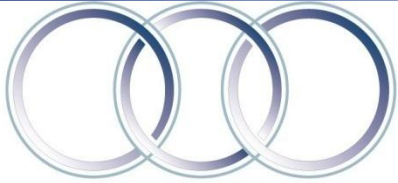


San Mateo County Community College District



SAN MATEO COUNTY
COMMUNITY COLLEGE DISTRICT



Cañada College



Skyline
COLLEGE

ACHIEVE

San Mateo County Community College District

Hazardous Materials Training



Topics to be covered

- Hazardous Materials
- Hazardous Materials Identification
- Storage Practices
- Spills and Leaks
- Notification & Response Actions
- Questions & Answers

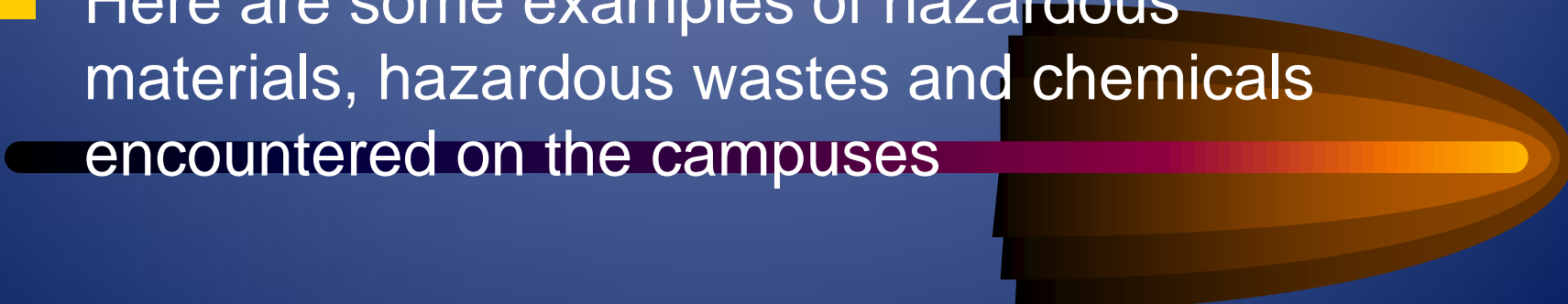


Close Encounters with Chemicals

- We encounter chemicals almost every day on each campus
 - Laboratories chemistry & biology
 - Custodial services
 - Filling campus vehicles with fuels
 - Building maintenance – paints, sealants
 - Landscape maintenance - pesticides fertilizers
 - Using solvents or acids at work
 - Vehicle maintenance & repair



Hazardous Materials at SMCCCD

- Hazardous materials are a valuable and integral part of our activities at the District.
 - Many chemicals can cause injury or illness if not handled properly.
 - Here are some examples of hazardous materials, hazardous wastes and chemicals encountered on the campuses
- 

Small Laboratory Chemical Containers



Chemical Storage Cabinets



Laboratory Preparations



Custodial Services



Vehicle Fueling



Building Maintenance



Landscape Maintenance Chemicals



Labeled Ceramics Chemicals



Swimming Pool Chemicals



Hazardous Waste Materials



Hazardous Waste Materials

Oily & Waste Rags



Universal Waste Materials

Spent Fluorescent Tubes



Potential Housekeeping Issues

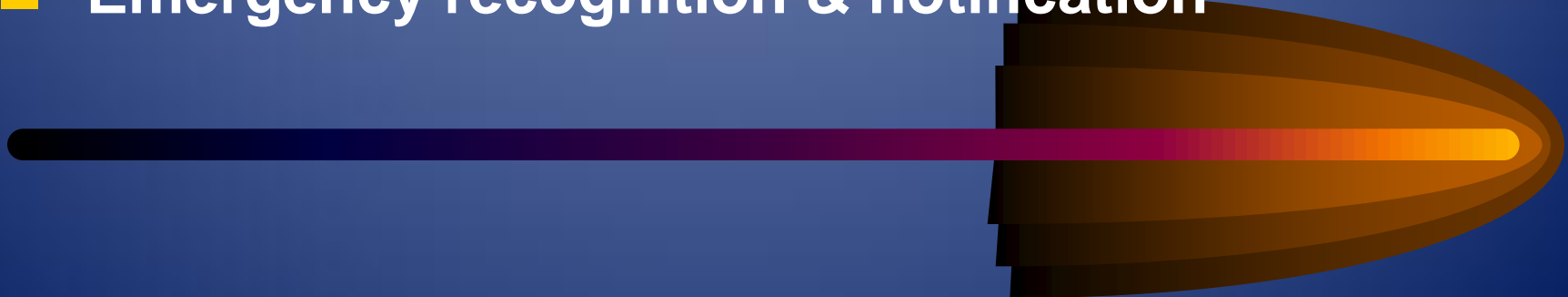


Laboratory Hazardous Wastes

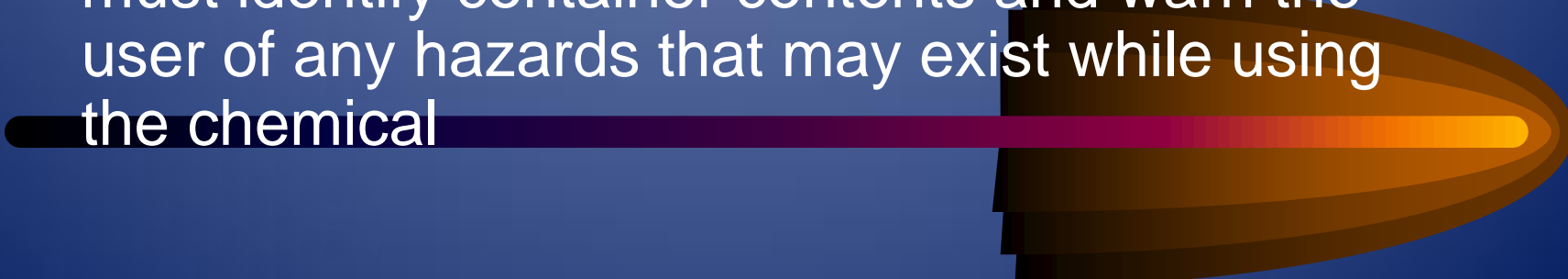


Hazard Communication

- The Hazard Communication Standard covers:
- Right to Know – what chemicals are around
- Material Safety Data Sheets
- Product Labeling
- Personal Protective Equipment
- Spills & Leaks
- Emergency recognition & notification



Hazcom's Five Major Elements

1. **Chemical Inventory** – a list of the hazardous chemicals in the workplace
 2. **Material Safety Data Sheets (MSDS)** – must be available for each hazardous chemical that you work with
 3. **Labeling** – labels must be affixed to each chemical container in the workplace. Labels must identify container contents and warn the user of any hazards that may exist while using the chemical
- 

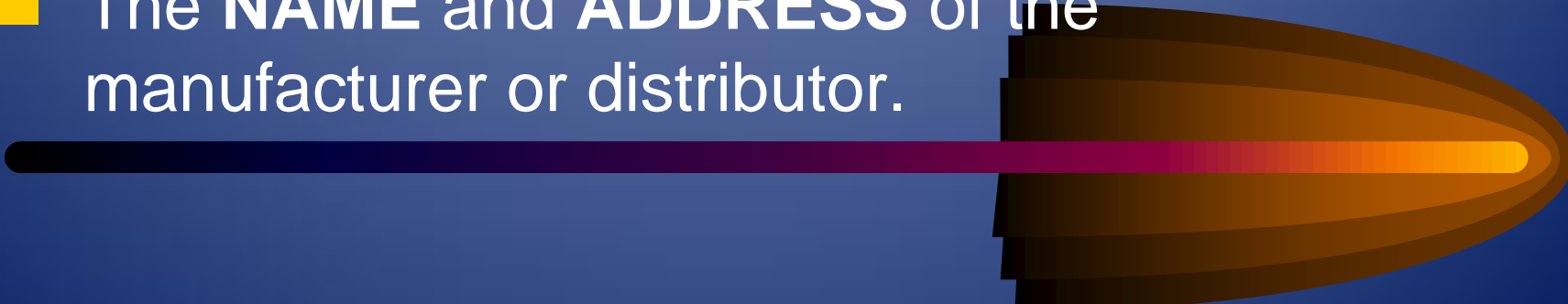
Hazcom Five Major Elements

4. **Training** – Employers must inform their employees of the hazards of chemicals in their workplace, and train them how to use safely.
5. **Written Program** – There must be a written hazard communication program, or policy, in the workplace



Hazard Communication Standard

Label must include the following information.

- The **NAMES** of the chemical. If a product contains than one ingredient, all must be listed.
 - A **WARNING** of the hazards associated with the product. The warning may also be indicated in the form of a symbol or sign.
 - The **NAME** and **ADDRESS** of the manufacturer or distributor.
- 

HazCom Standard (cont.)

PHYSICAL HAZARDS

- **FLAMMABLE LIQUIDS** have a flashpoint under 100° F which means that at or below 100° the material gives off enough vapor to catch fire if an ignition source is present.
- **COMBUSTIBLE LIQUIDS** have flash points above 100° F. These materials must be heated to above 100° F before enough vapor is emitted to ignite.
- **PYROPHORIC** materials can ignite without an ignition source at temperatures below 130° F.

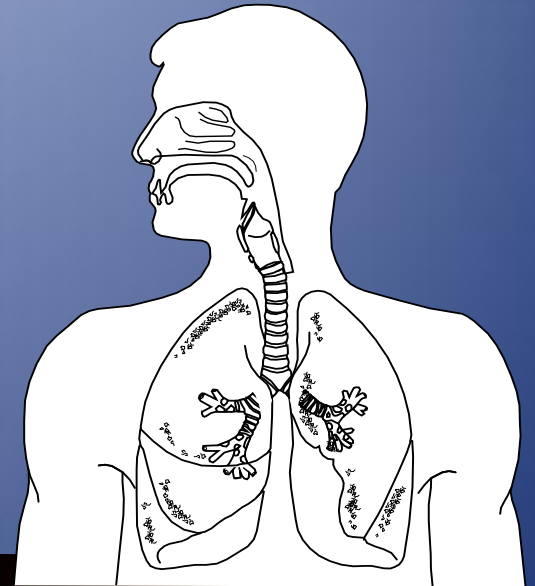
Chemical Hazards

- **Reactives** - Some chemicals are hazardous due to their ability to rapidly release large amounts of energy.
- **Explosive** materials can suddenly, almost instantaneously, release pressure, gas and heat when subjected to shock, pressure or high temperatures.
- **Reactives** may become dangerous when mixed with water, air or other chemicals. Water reactives releases a gas that is either flammable or toxic.

Health Hazards – Routes of Entry

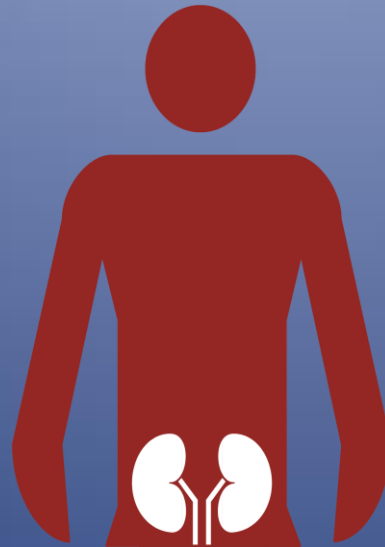
- A chemical is a health hazard if exposure can cause illness or health problems. For example, chemicals can be hazardous when:

1. **Your lungs** if you breath fumes, mists or dust
2. **Your skin** if liquid or dust touches or spills on you or splashes in your eyes
3. **Your mouth** if you eat after handling chemicals
4. Accidental swallowing of a chemical
5. Puncture of the skin with a tool or sharp objective



Other Potential Health Effects

- Some chemicals affect specific organs such as your kidneys, liver, reproductive or nervous system.



Chemical Exposures

- **Dosage** – the quantity of chemical entering the body
- **Acute** effects happen within a short period of time. For example, tissue damage may be experienced after contact with skin or breathing the vapors of a corrosive chemical. Also, temporary dizziness or headache shortly after inhalation of vapors would be considered an acute effect.
- **Chronic** effects take a relatively long time to occur, usually after repeated exposures over an extended period of time. For example the onset of asbestosis or lung cancer after 30 - 40 years of exposure to asbestos fibers.

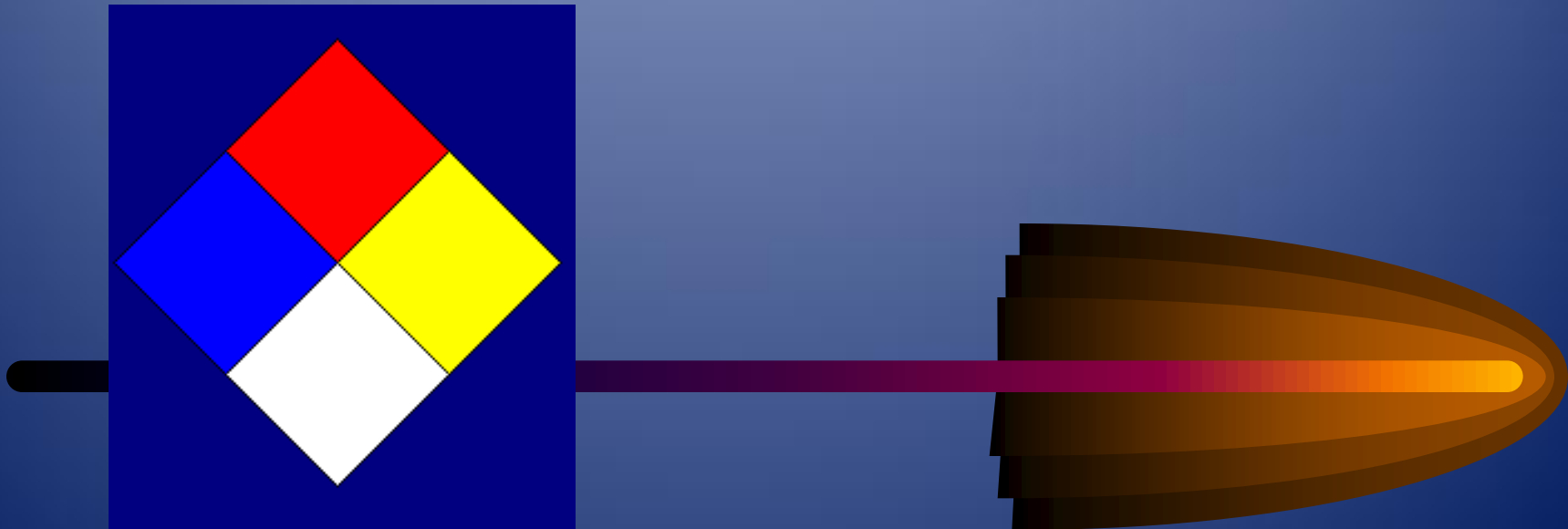
Labeling and Marking Systems

- National Fire Protection Association
NFPA Diamonds
- HMIS Labels
- Uniform Laboratory Hazard Signage
System



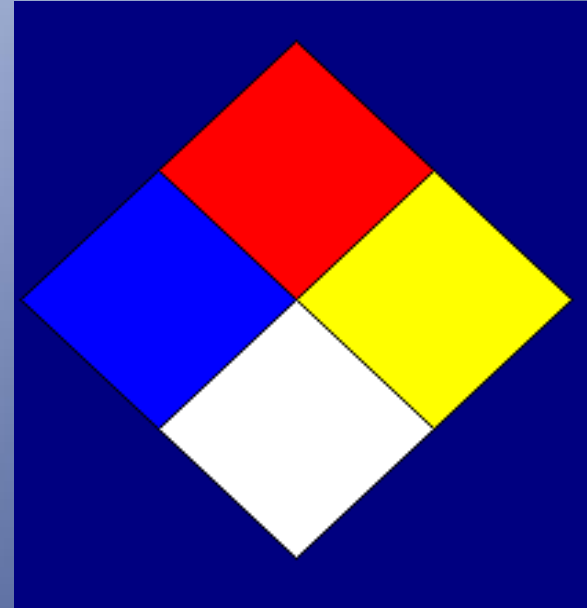
Hazard Communication 'Goals'

- Color codes, numerical rating system
- Will be located near main entrance, fire alarm panels or on outside entrance doors
- Provide at a glance hazard information



NFPA Diamonds

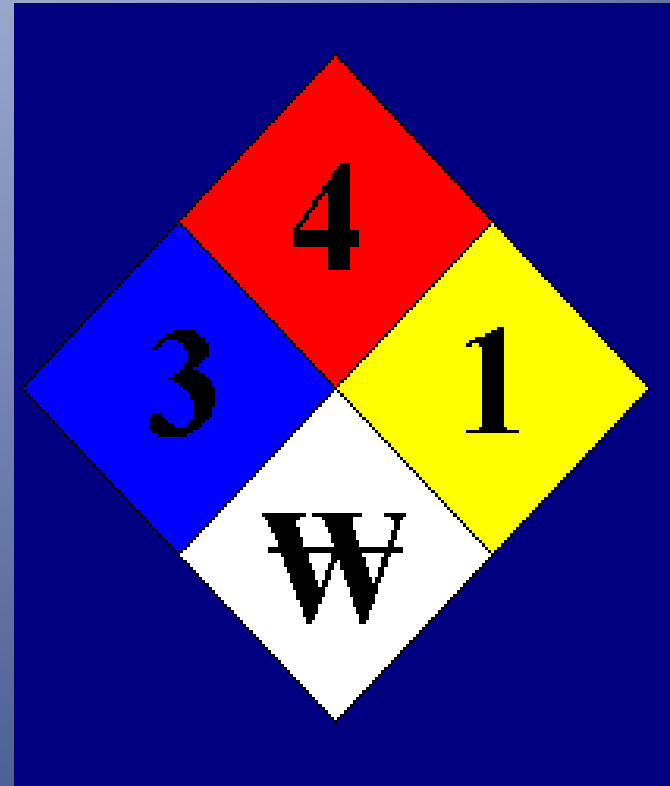
- **Blue = Health**
- **Red = Flammability**
- **Yellow = Instability**
- **White = Special hazard information**



Labeling and Marking Systems

NFPA Diamonds

- 4= Deadly Hazard
- 3= Severe Hazard
- 2= Moderate Hazard
- 1= Slight Hazard
- 0= No Hazard



HMIS Labeling & Marking Systems

- Designed to go on individual containers of products that don't have manufacturer's labels
- Same color code/numerical rating system as the NFPA diamonds

HMIS Label



Chemical Name	
CAS#	
HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
INSTABILITY	<input type="checkbox"/>
SPECIFIC	<input type="checkbox"/>
<i>SMCCCD Hazard Communications</i>	

Labeling and Marking Systems












HMIS Labels

- Blue = Health
- Red = Flammability
- Yellow = Instability
- White = Personal Protective Equipment or special protection information
- Numerical Rating of 0-4

Chemical Name	
CAS#	
HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
INSTABILITY	<input type="checkbox"/>
SPECIFIC	<input type="checkbox"/>
<i>SMCCCD Hazard Communications</i>	

Other Label Warnings

- The identity of the chemical
- Name, address, and emergency phone number of the manufacturer
- Physical and health hazards
- Special handling instructions
- Basic PPE recommendations
- First aid, fire response, spill cleanup

CHEMICAL IDENTITY: _____					
MANUFACTURER: _____					
MSDS#: _____	DATE: _____				
<input type="checkbox"/> HEALTH					
<input type="checkbox"/> FLAMMABILITY					
<input type="checkbox"/> REACTIVITY					
<input type="checkbox"/> PPE					
CIRCLE ALL PPE THAT APPLY					
					
					

Labeling and Marking Systems

HMIS Labels

- You should never have any unattended, unlabeled containers in your workplace !



Labeling and Marking Systems

Uniform Laboratory Signage

- Located on laboratory and chemical storage area doors
- Pictographs depict worst hazards present in lab or area



Labeling and Marking Systems

Uniform Laboratory Signage

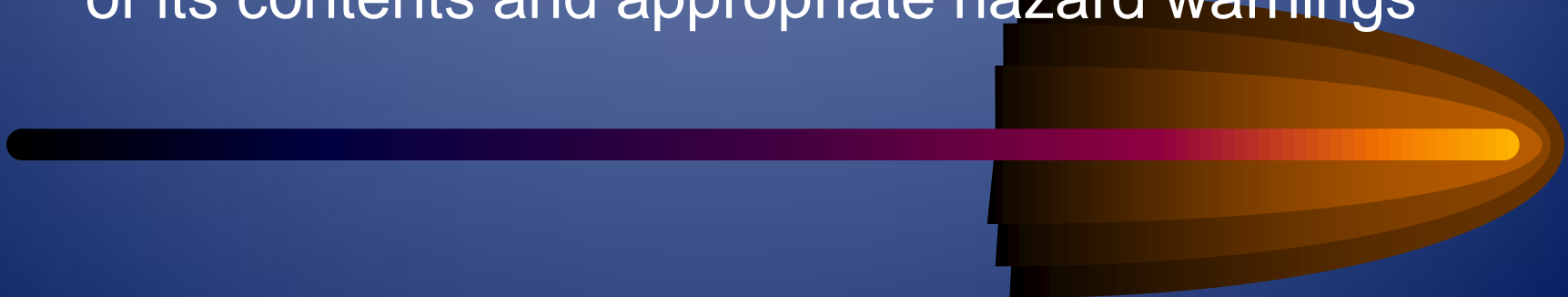
- Always check with the appropriate personnel (lab manager or chemical hygiene officer) before performing work or maintenance in a laboratory!

Skyline's Chemistry
Lab Manager



Protecting Yourself

- Substitute less toxic materials whenever possible
- Use engineering controls, such as ventilation, when ever possible
- Use the necessary safety equipment
- Carefully label every container with the identity of its contents and appropriate hazard warnings




Protecting Yourself

- Limit the volume of volatile or flammable materials to the minimum needed.
- Provide means of containing the material in the event containers break or spill their contents.
- Obtain and read Material Safety Data Sheets
- If you need additional information contact your supervisor or manager!!



Personal Protective Equipment

- **Gloves:** protect your hands from chemical exposure. Consult the MSDS to choose the correct glove for the chemical you are using
 - **Goggles:** chemical splash goggles should be worn when there is a risk of splashing chemicals in your eyes.
 - **Face Shields:** should be worn, along with chemical splash goggles, when working with corrosive materials such as strong acids and bases.
 - **Splash Aprons:** protect your body against corrosive chemicals. If the potential for a significant splash hazard is present, such as pouring contents of one container into another, splash aprons are needed.
 - **Respirators:** may be needed if you have significant exposure to fumes or mists of a hazardous material. If you think you may need a respirator, first check with your Supervisor.
- 

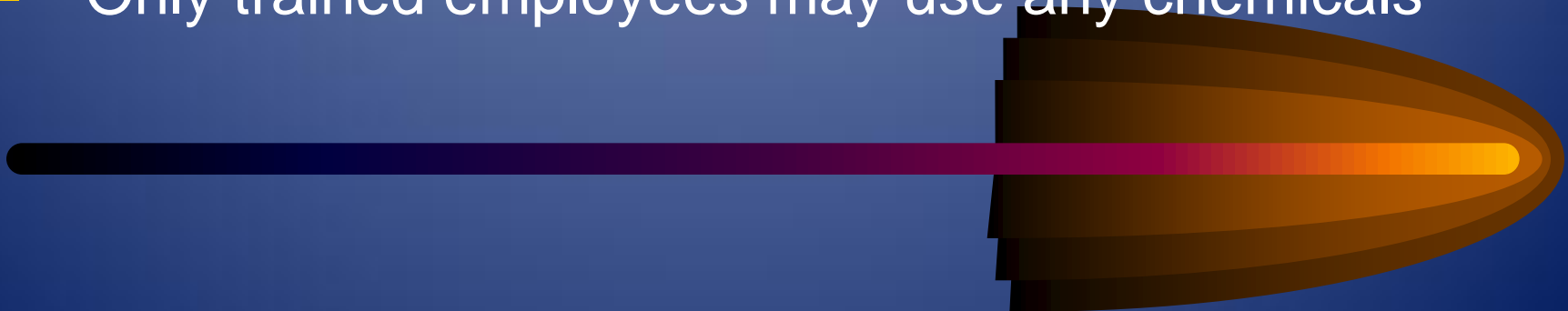
Personal Protective Equipment (used by Emergency Responders)

- Dust masks and respirators
- Glasses, goggles, and face shields
- Hearing protection
- Gloves
- Foot protection
- Head protection
- Aprons or full-body suits
- **We are not Emergency Responders !!!**



Hazard Communication Summary

- Review the written Hazard Communication Plan.
- Know what chemicals you are working with.
- Know ahead of time where MSDS are located and how to use them.
- Ask your supervisor if you have any questions.
- Only trained employees may use any chemicals



Hazardous Materials First Aid

- Fundamental First Aid Steps include:
- Eyes: Flush with water for 15 minutes
- Skin: Wash with soap and water
- Inhalation: Move to fresh air
- Swallowing: Get emergency medical assistance



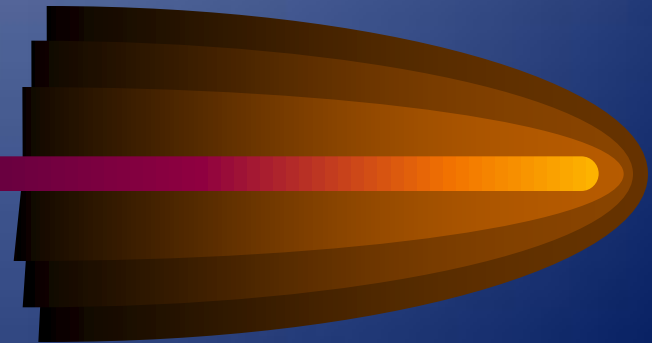
Spills and Leaks

- Basic response actions when encountering a chemical spill or leak:
- Evacuate the area
- Notify a supervisor or the emergency response team
- Remove ignition sources (if safe to do so)
- Stay away



Spills & Leaks

- What can happen when there is a spill or leak?
- A little acid spill ??
- Unlabeled containers??
- What could go wrong?
- How can this be prevented from becoming a problem?



Spill & Leak Dangers

- Where did the acid spill go and what damage was done?
- Damaged concrete surface & possible discharge to storm drain !!



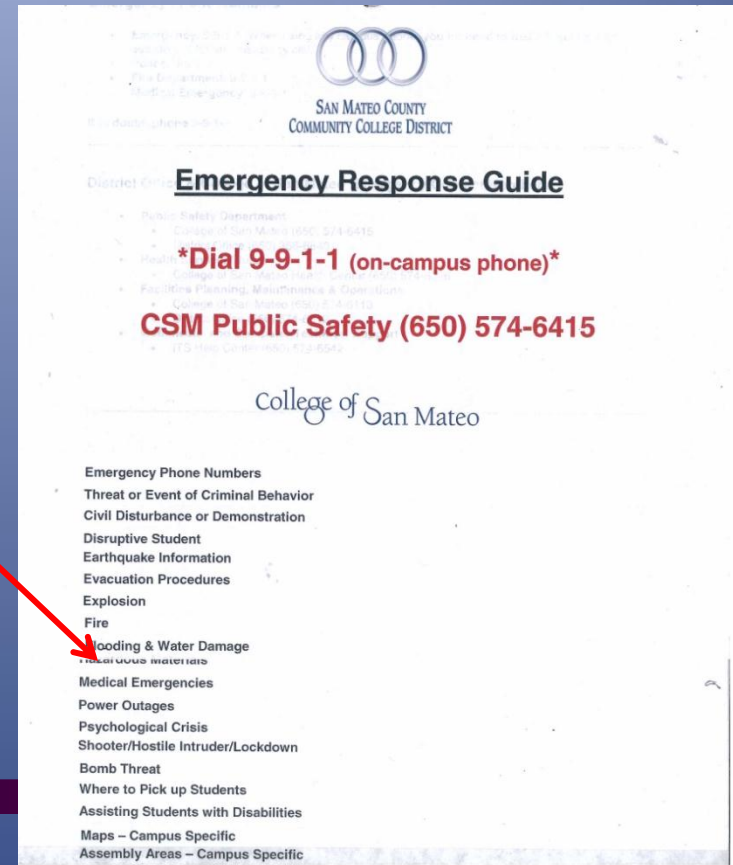
Spills & Leaks Happen

- Did this spill require notification?
- Yes!!
- Why?
- The chemical can flow to a storm drain or come into contact with people



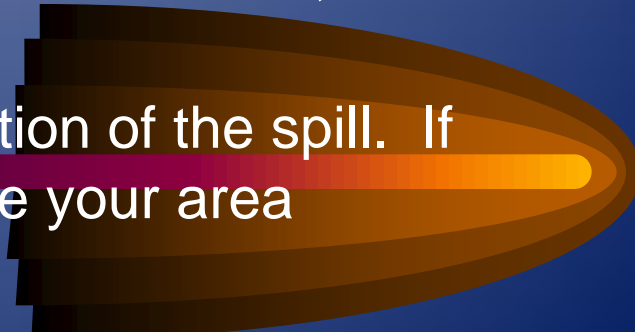
Campus Emergency Response Guide

- Review the Campus Emergency Response Plan and keep it handy.
- It has a Hazardous Materials section.
- You need to read it ahead of time & keep handy.



What do I do?

If a hazardous materials spill occurs,

1. Call the Campus Public Safety Department, District Office (650-358-6840) or the local Fire Department, 9-9-1-1 See next slide for campus contacts.
 2. If toxic chemicals come in contact with your skin immediately flush the affected areas with clear water for at least 15 minutes. Use chemical showers if available.
 3. If you can give responders information as to the chemicals involved or stored in the affected areas, it will help them respond more quickly.
 4. Notify Facilities of the extent and location of the spill. If there is any possible danger, evacuate your area immediately.
- 
- A decorative graphic consisting of several overlapping, horizontal, teardrop-shaped elements in shades of brown, orange, and yellow, pointing to the right, located in the bottom right corner of the slide.

Campus Contacts

■ Canada College

1. Facilities Manager – John Hashizume (650) 306-3325
2. Chief of Public Safety – Gary Hoss (650) 306-3420

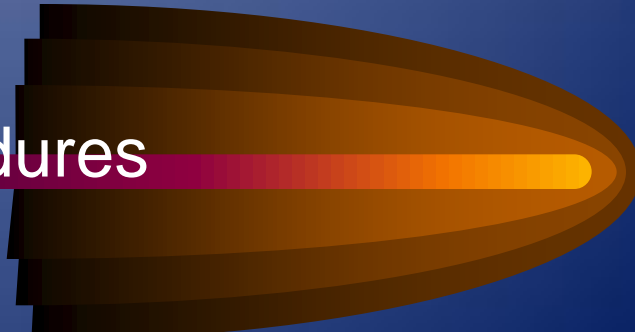
■ College of San Mateo

1. Facilities Manager – Paula Reyes (650) 574-6577
2. Chief of Public Safety – Brian Tupper (650) 574-6415

■ Skyline College

1. Facilities Manager – John Doctor (650) 738-4166
 2. Chief of Public Safety – Rob Dean (650) 738-4199
- 

Hazard Materials Summary

- What have we covered?
 1. Identify chemical hazards by reading labels and MSDSs
 2. Follow warnings and instructions, or ask your supervisor if in doubt
 3. Use the correct personal protective equipment
 4. Practice sensible, safe work habits
 5. Recognize spill & leak events
 6. Use emergency notification procedures
- 

Quiz

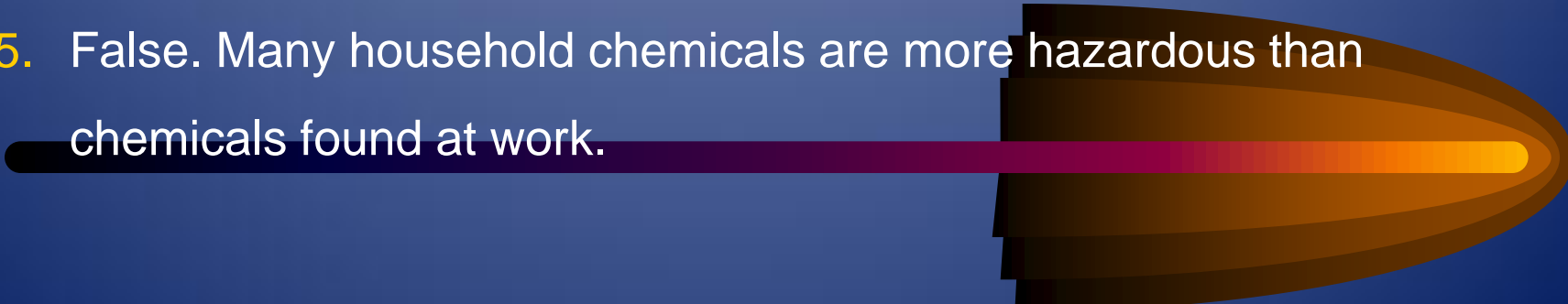
1. Chemical manufacturer's must label containers and provide _____.
2. Employers should keep material safety data sheets in a locked file cabinet. **True or False**
3. Dizziness, nausea, rashes, and respiratory irritation are signs of _____ exposure.
4. List four routes by which a chemical can enter the body:
_____, _____, _____,
and _____.
5. Household chemicals are never as hazardous as chemicals used at work. **True or False**

Quiz (cont.)

6. Typical first-aid for chemicals splashed in the eyes includes _____.
7. You will only know the health hazards and PPE requirements if you _____.
8. A _____ can be used to protect against breathing hazardous vapors or gases.
9. If you see a chemical spill, you should clean it immediately. True or False
10. On NFPA labels, a 4 in the red diamond indicates an extreme health hazard. True or False



Quiz Answers

1. Material safety data sheets must be provided by the manufacturer.
 2. False. MSDSs must always be accessible to the employees.
 3. These are all symptoms of acute effects, or short-term exposure.
 4. The primary routes chemicals enter the body are skin and eye contact, inhalation, swallowing, and penetration.
 5. False. Many household chemicals are more hazardous than chemicals found at work.
- 

Quiz Answers (cont.)

6. False. The red diamond indicates flammability hazards, not health hazards.
7. Flushing the eyes for 15 minutes is the typical first aid for chemicals splashed in the eyes.
8. You must read the labels and MSDSs to learn how to protect yourself from the hazards of a chemical.
9. Respirators protect against breathing hazardous vapors and gases.
10. False. Only attempt to clean a chemical spill if you've been properly trained.

