

Workplace



FIRE SAFETY

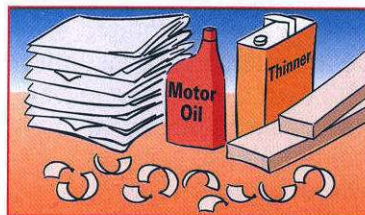


FIRE

—A Chemical Reaction

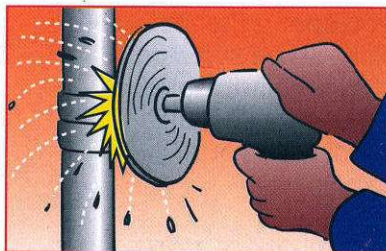
*Fire develops when **3** elements create a chain reaction:*

- ❑ **Fuel**—solids (combustibles like paper, wood, rags), liquids (solvents, petrol, oil), flammable gases and vapours.



- ❑ **Oxygen**—The greater the concentration of oxygen, the brighter the blaze and the more rapid the burning. Try to reduce extra sources of oxygen.

- ❑ **Ignition source**—such as sparks, arcs, flames, or sources of heat that could cause vapourisation.



PREVENT FIRES

Keep these 3 elements from coming together!

Workplace FIRE EMERGENCY!

❑ *Know your escape route*

Your employer is required to have an emergency evacuation plan. Learn escape routes from all of your work areas. In a real fire, dense smoke may reduce your vision and the lights may be out.

❑ *Fire drills are important*

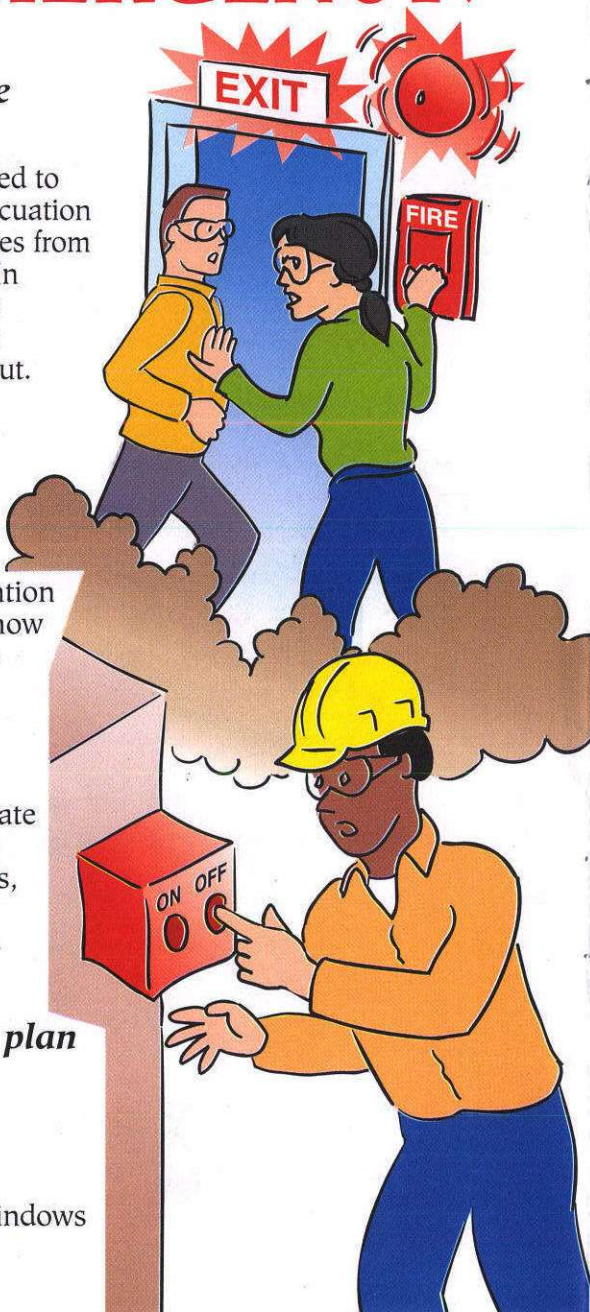
Know the sound of emergency alarms in your facility. Pay attention during drills so you know what to do and where you are to report.

❑ *Act fast*

If you spot a fire, activate facility alarm systems. When an alarm sounds, get out immediately according to your escape plan.

If time permits your plan may tell you to:

- ◆ Warn others
- ◆ Turn off equipment
- ◆ Close non-escape windows and doors.

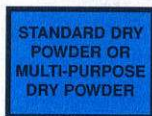


FIRE

Extinguisher Safety



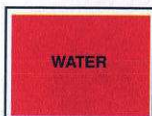
❑ *Know the extinguisher to use for each fire class.*



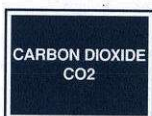
Best for wood, cloth, paper, plastics, coal etc. Fires involving solids. Liquids such as grease, fats, oils, paint, petrol etc. (except chip or fat pan fires).



Best for a limited number of liquid fires - check manufacturer's instructions for suitability of use on fires involving liquids



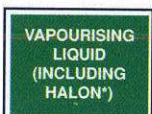
Best for wood, cloth, paper, plastics, coal etc. Fires involving solids.



Best for liquids such as grease, fats, oils, paint, petrol etc. (except chip or fat pan fires). Clean, effective and safe on live electrical equipment



Best for wood, cloth, paper, plastics, coal etc. Fires involving solids. Liquids such as grease, fats, oils, paint petrol etc. (except chip or fat pan fires).



Best for liquids such as grease, fats, oils, paint, petrol etc. (except chip or fat pan fires).

❑ *Only trained employees should use fire extinguishers.*

Use **PASS**:



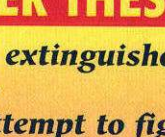
← **Pull** the pin



← **Aim** hose at base of fire



← **Squeeze** trigger



← **Sweep** back and forth with the extinguisher.

REMEMBER THESE FIREFIGHTING TIPS

- ◆ *Most fire extinguishers are emptied in less than a minute.*
- ◆ *Do not attempt to fight a large fire. Always leave yourself a way out—keep your back to an exit.*

Workplace **FIRE PREVENTION**

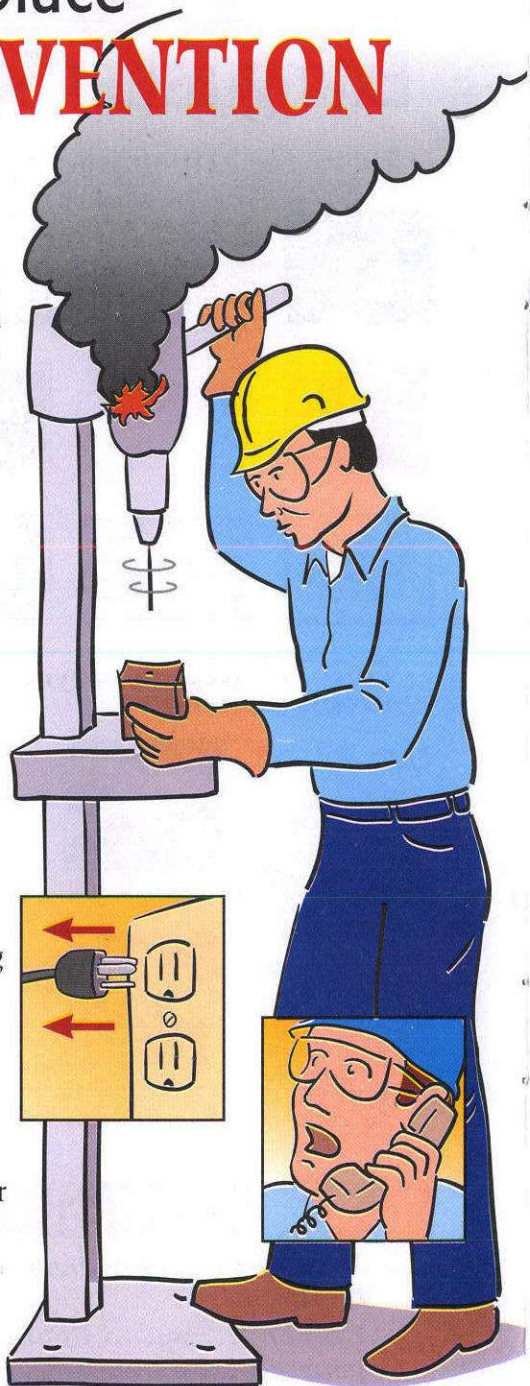
Electrical fires

A major cause of workplace fires is the misuse of electrical equipment or electrical system failure. These fires result from:

- ◆ Overloaded fuses, circuits, motors, or outlets
- ◆ Wiring with frayed or worn insulation
- ◆ Loose earth connections
- ◆ Lights or machinery in contact with combustible materials
- ◆ Defective power tools that spark.

In case of an electrical fire:

- ◆ Never touch the burning object or person
- ◆ Turn off the power if possible
- ◆ Extinguish a small fire with a carbon dioxide or multipurpose AFFF fire extinguisher—never water
- ◆ Activate your facilities fire response system.



Electrical Equipment **DO'S & DON'TS**

DO

- ❑ Replace wires when insulation gets frayed or worn.
- ❑ Use the correct fuse for the job. An overrated fuse could create a dangerous overload condition.
- ❑ Use extension leads that are in good condition and adequate for the task.
- ❑ Check the earth connections—proper earth provides a safe path for electricity if there is an electrical fault.
- ❑ Keep combustible materials away from lights and machinery.



DON'T

- ❑ Don't use temporary wiring.
- ❑ Don't overload motors, bearings, circuits, and outlets.
- ❑ Don't leave heating equipment or machinery running unsupervised.
- ❑ Don't let grease or dust build up on machinery.
- ❑ Don't place leads near heat or water.
- ❑ Don't use defective equipment.
- ❑ Don't put leads under rugs.

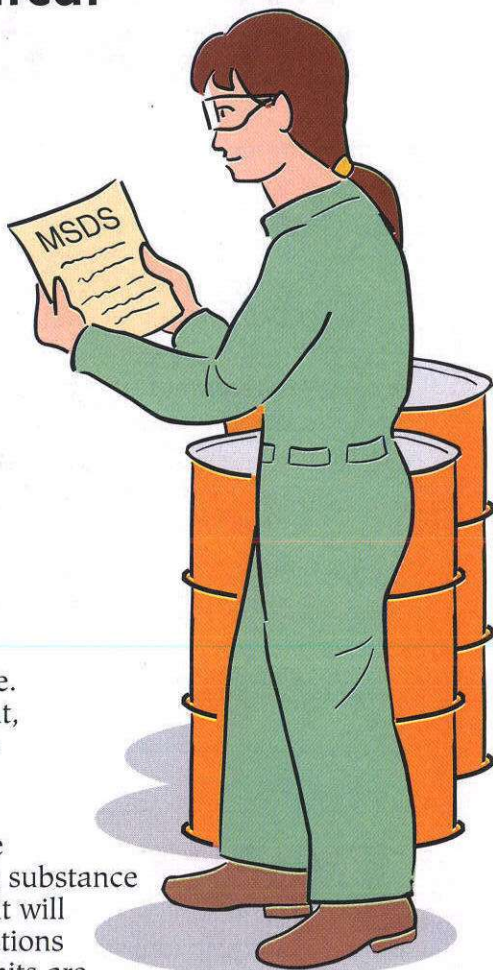


Prevent Chemical **FIRES**

COSHH Data Sheets (COSHH) and chemical labels provide important fire prevention information.

❑ **COSHH**

Always review the COSHH Data Sheets before working with a chemical. It will tell you how easily the substance can catch fire.



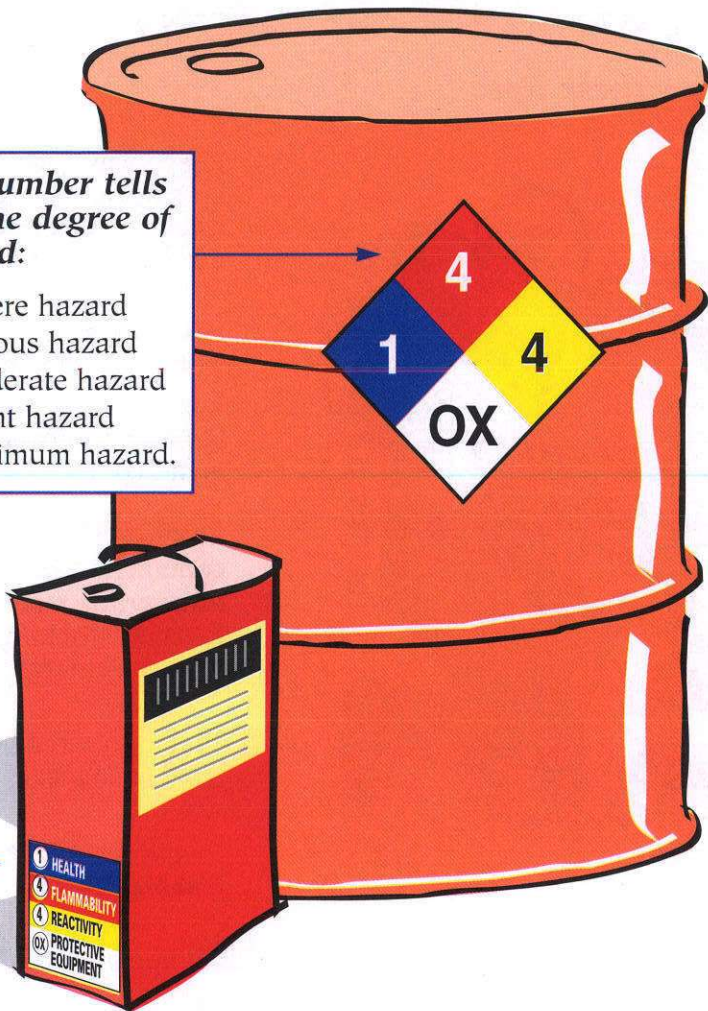
- ◆ **Flash Point**—the minimum temperature at which a liquid gives off enough vapours to ignite. The lower the flash point, the more flammable the substance.
- ◆ **Flammable Limits**—the concentration range of a substance in the air, during which it will readily ignite. Concentrations below or above these limits are either too lean or too rich to ignite.
- ◆ **Reactivity and compatibility hazards**—the stability of the chemical and how it may react with other substances, including whether it will burn, release toxic vapours, or explode.
- ◆ **Fire Fighting Measures**—the proper extinguishing agents to use and appropriate protective gear.

❑ Labels

Before you move, handle, or open a chemical container, read its label. Chemical labels often indicate a fire hazard by the **colour red combined with a number**.

The number tells you the degree of hazard:

- 4=Severe hazard
- 3=Serious hazard
- 2=Moderate hazard
- 1=Slight hazard
- 0=Minimum hazard.

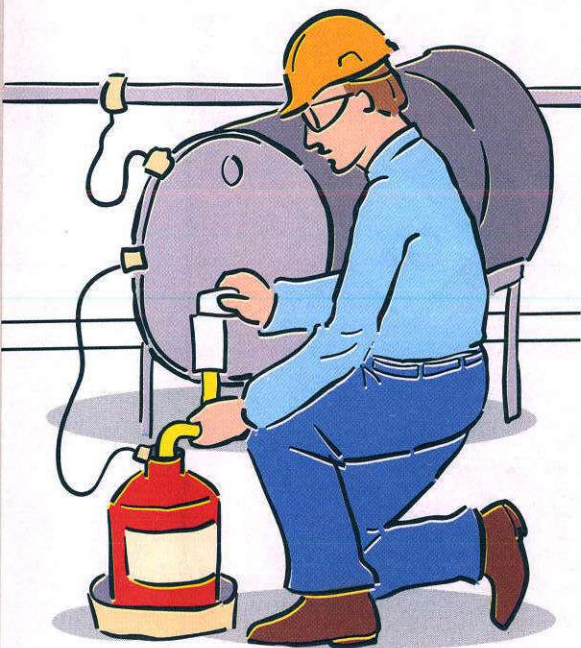


Flammable chemicals generally catch fire easily.
Flammable liquids have a flash point under 100° F.
Combustible liquids have a flash point from 100° F to below 200° F.

Flammable Liquids

Flammable liquids like oil, gas, paraffin, and many solvents present unique fire hazards. They give off invisible vapours that can travel long distances and catch fire quickly or explode when ignited by something as small as a static discharge.

Follow these tips:

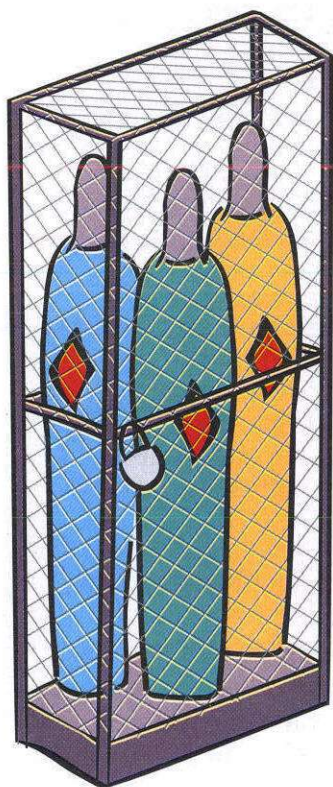
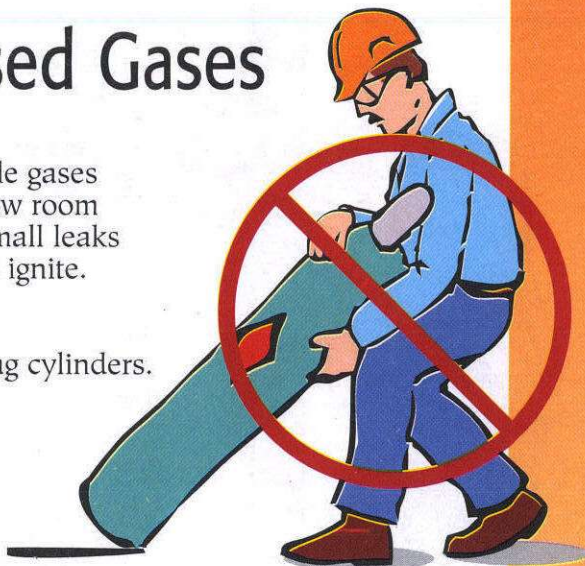


- ☐ Keep away from ignition sources, such as cigarettes or hot machinery surfaces.
- ☐ Use only in areas with good ventilation.
- ☐ Store in approved metal containers.
- ☐ Earth and bond containers when transferring materials to safely discharge static electricity.
- ☐ Take only what you need for a job.
- ☐ Clean up spills and leaks quickly.
- ☐ Remove clothing that has absorbed liquids immediately.
- ☐ Never store near heat sources. Do not cut or weld on drums or containers that once contained petrol or other flammable liquid.

Compressed Gases

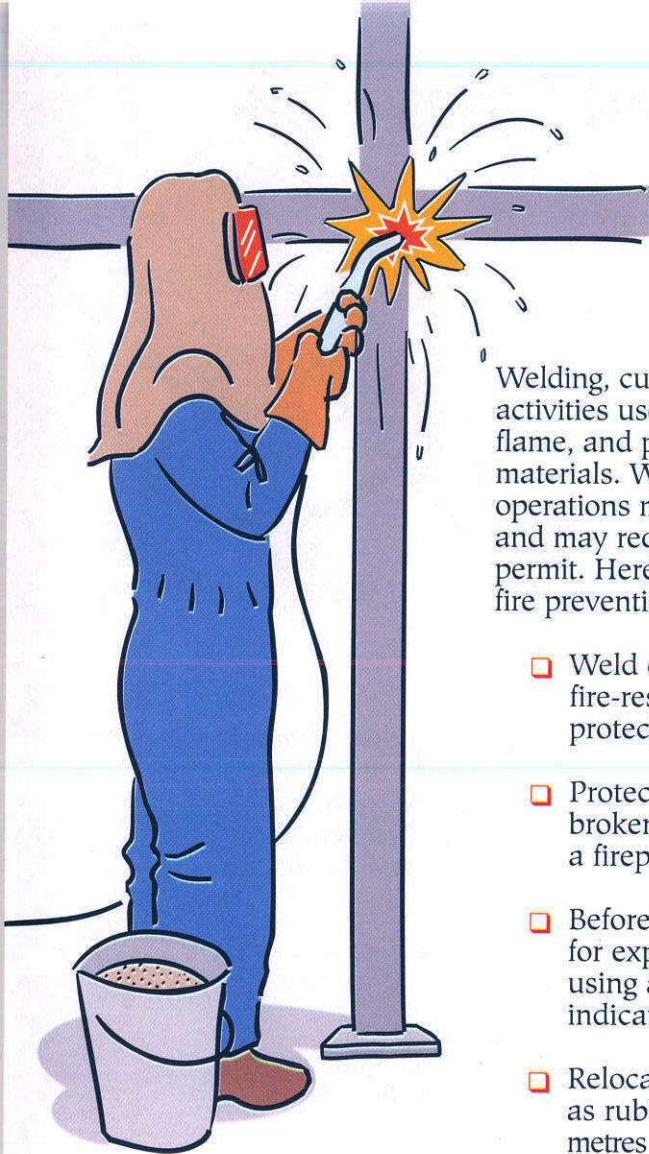
Compressed flammable gases have flash points below room temperatures. Even small leaks of these materials can ignite.

- ❑ Never roll or drag cylinders.



- ❑ Restrain cylinders whether they're empty or full by using straps, chains, or by fastening to a stand to prevent them from falling and rupturing.
- ❑ Store cylinders in dry, cool, well-ventilated places.
- ❑ Don't expose cylinders to temperatures over 50 °C (122°F).
- ❑ Don't extinguish a flame involving a flammable gas until the source of the gas has been turned off. ***It can easily reignite.***

Welding, Cutting & Brazing



Welding, cutting, and brazing activities use heat, electricity, flame, and potentially hazardous materials. Welding and cutting operations must be authorised and may require a hot work permit. Here are some special fire prevention requirements:

- ☐ Weld only in areas with fire-resistant floors or use protective shields.
- ☐ Protect open doorways, broken windows, etc. with a fireproof curtain.
- ☐ Before starting work, check for explosive atmosphere using a combustible gas indicator.
- ☐ Relocate combustibles, such as rubbish, to at least 11 metres away from the welding.
- ☐ Don't work on empty containers unless you're sure there are no toxic or flammable vapours left inside. Always check with a combustible gas indicator.
- ☐ Have suitable extinguishing material nearby, such as a fire extinguisher, pail of water, fire hose, or pail of sand.
- ☐ Designate a "fire watch" to look out for stray sparks or smouldering fires during and after work is completed.

Housekeeping To Prevent **FIRES**



Many fire prevention tips are also good housekeeping procedures. Use this checklist to keep your workplace free of fire hazards.

- ☐ Keep motors and machine tools free of dust and grease.
- ☐ Use non-flammable cleaners.
- ☐ Repair and clean up flammable liquid leaks immediately.
- ☐ Remove clothing splashed with flammable liquids immediately.
- ☐ Store flammable materials in designated locations.
- ☐ Keep incompatible substances away from each other.
- ☐ Dispose of combustible waste in covered, airtight metal containers.
- ☐ Sweep up dust, lint, sawdust, scraps, etc.
- ☐ Keep doors and passageways clear.



- ☐ Stack materials so they don't block sprinklers or exits.

Smoking, Space Heaters, And Office Fire Hazards

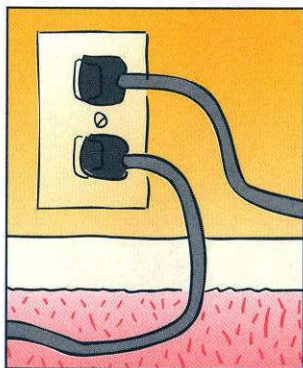
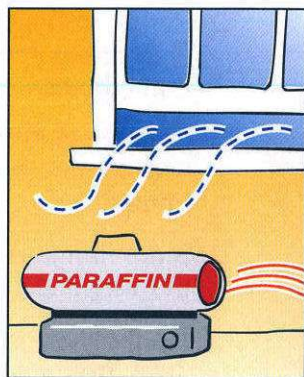


Smoking

- ☐ Obey **NO SMOKING** signs and rules.
- ☐ Never smoke near combustible materials—paper, wood, textiles—or where flammables are handled.
- ☐ Extinguish and dispose of cigarettes and matches in metal containers labelled for that purpose.

Space heaters

- ☐ Use only laboratory-approved heaters and always use the proper fuel.
- ☐ Provide good ventilation.
- ☐ Turn off and allow to cool before refuelling.
- ☐ Locate away from combustibles and protect from tipping over.



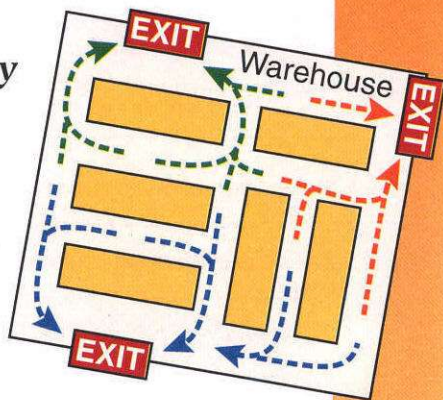
Office Safety

- ☐ Don't overload electrical circuits or outlets.
- ☐ Pull the plug on equipment that sparks or smokes.
- ☐ Never place extension leads under carpets or rugs.
- ☐ Keep storage areas clear of rubbish.

Learn **Not** to Burn

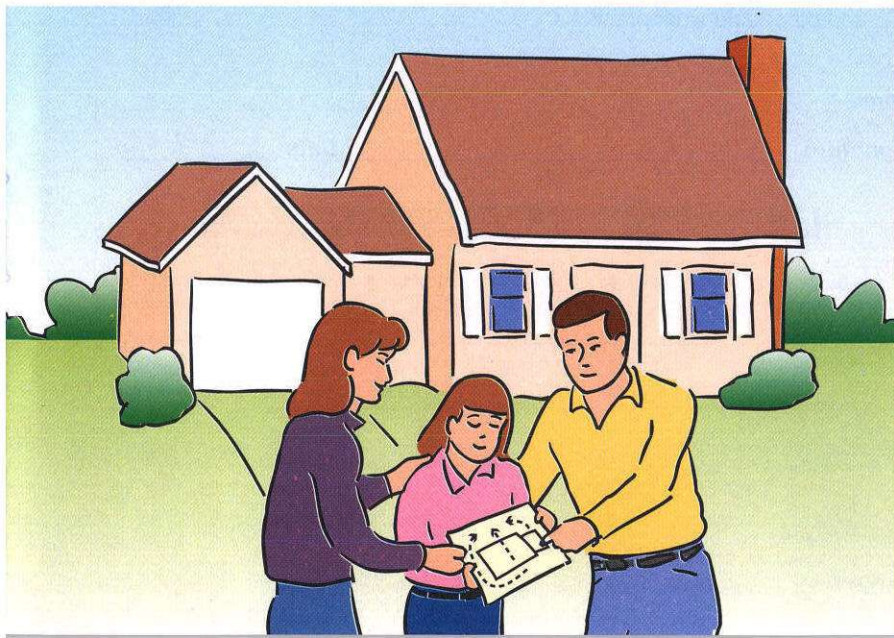
You can take steps everyday to prevent fire:

- ☐ Know the causes and how to prevent fires.
- ☐ Review escape routes and emergency plans.
- ☐ Eliminate fire hazards through good housekeeping and safe work practices.



And make your home safe from fire too!

- ☐ Remove all fire hazards.
- ☐ Have working smoke and fire detectors on each floor of your home. Test monthly and replace batteries when needed.
- ☐ Make a fire escape plan and practice it regularly.



Workplace Fire Prevention Knowledge QUIZ



20019100

Directions: Complete each of the following statements.
Write your answers on the lines.

1. Dangers of fire include flame, heat, smoke, suffocation, toxic vapours and _____.
2. Fire is a chemical chain reaction involving fuel, oxygen and an _____ source.
3. To survive a fire, you need to know your _____ routes.
4. When using a fire extinguisher, remember PASS—**P**ull, **A**im, **S**queeze, and _____.
5. Most workplace fires start from _____ equipment or system failure.
6. You can find important chemical fire prevention information on the _____.
7. Flammable chemicals present a special fire hazard because of invisible _____.
8. Never _____ near combustible materials or flammable liquids.
9. Never put _____ leads under carpets or rugs.
10. You can _____ fire hazards through good housekeeping and other safe work practices.

Name _____

Signature _____ Date _____

For the correct answers, turn this page upside down.

Answers: 1. explosions 2. ignition 3. escape 4. Sweep 5. electrical 6. COSHH Data Sheets 7. vapours 8. smoke 9. extension 10. eliminate



Printed on recycled paper.



Printed with soy ink.