

FIRE SAFETY

&

EXTINGUISHERS

IN

FACILITIES

(1 Training Hour)

Lifetech Instructional Services

727-433-3341

COURSE OVERVIEW

- Vocabulary
- What fire is
- The fire triangle
- Classifications of fire
- Types of fire extinguishers
- Alarm goes off!
- Operation of extinguishers
- Decision on fighting the fire
- Location of fire extinguishers and maintenance
- Plan of evacuation
- Additional fire safety tips

VOCABULARY LIST

Alarm- a signal, bell or warning device.

Confine- holding a fire within an area to prevent spreading.

Extinguish- to put the flames out or cease the fire.

Fire extinguisher- piece of equipment that has products inside to extinguish a fire.

Evacuation- a plan to remove away from an area with a fire or other endangerments.

Rescue- to save someone or bring people to safety and recovery.

Safety- free from danger and prevention of injuries and risk.

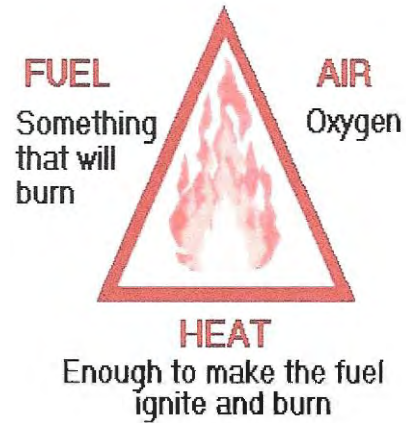
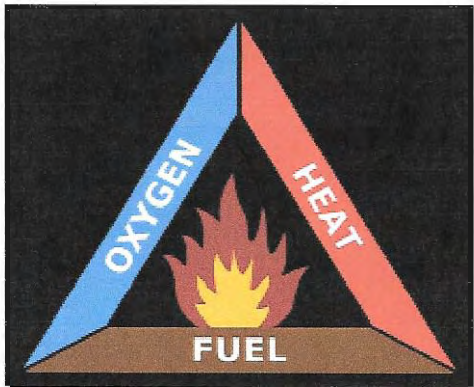
WHAT FIRE IS?

Fire is a state, process, or instance of combustion in which fuel or other material is ignited and combined with oxygen, giving off light, heat, and flame. In addition, fire is a combination of chemical and physical changes in which substances interact to release heat, light, smoke and ash. For example, whether it is a fire in electrical insulation, an oil fire or a simple domestic fire, they all require three ingredients--combustible material, oxygen, and a thermal trigger. If one of these is absent, the fire goes out.

Combustible material often consists mainly of carbon and hydrogen and can be almost anything solid, liquid or gaseous, from hydrogen to wax, oil, wood and plastic. Even metal will burn provided the temperature is high enough. Sufficient quantities of oxygen are usually supplied by the air, and the energy to light a fire is produced by friction or sparks.

THE FIRE TRIANGLE

The fire triangle is a simple model for understanding the necessary ingredients for most fires. The triangle illustrates the three elements a fire needs to ignite. For the fire to thrive and spread it requires,



FUEL--for the fire to burn.

AIR/OXYGEN--for the fire to breathe.

HEAT--for the fire to continue burning.

Removal of any one of the sides of the Fire Triangle will extinguish the fire. For example, if fuel is removed, the fire will starve and be extinguished. If the air is removed, the fire will suffocate. The removal of heat or the cooling of a fire is the most common form of suppression.

CLASSIFICATIONS OF FIRE

First of all, you need to know the different classifications of fire. There are five classifications of fire.

- Class A fire--which consists of wood, paper, rubber, and plastic.
- Class B fire--is flammable and combustible liquids, and gases.
- Class C fire--is energized electrical equipment
- Class D fire--is combustible metals like aluminum, magnesium, and titanium.
- Class K fire--is cooking media, for example, cooking oils and fats.



Class A Fires: Fires involving ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.



Class B Fires: Fires involving flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and flammable gases.



Class C Fires: Fires that involve energized electrical equipment.

























Class D Fires: Metal fires involving magnesium, sodium, potassium and sodium-potassium alloys.

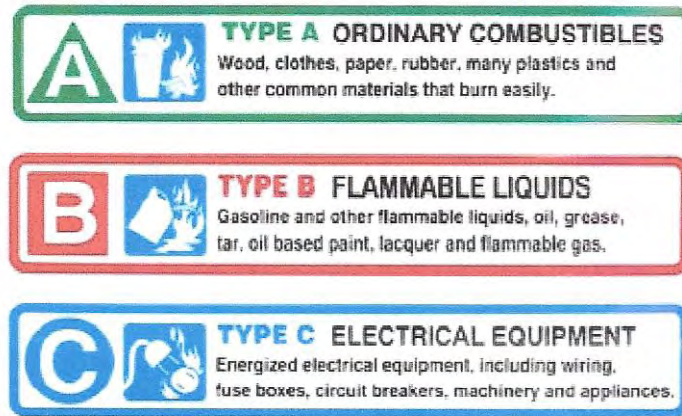


Class K Fires: Cooking media fires involving oils and greases.

The classifications of A, B, C, D and K fires can be identified sometimes by shapes and colors with identifying letters.

Fire Classification 			
Know How To Handle It			
Classes Of Fires	Types Of Fires	Picture Symbol	Extinguisher
	Wood, paper, cloth, trash and other ordinary materials.		<ul style="list-style-type: none">  Water  Foam Spray  ABC Powder  Wet Chemical
	Gasoline, oil, paint and other flammable liquids		<ul style="list-style-type: none">  Foam Spray  ABC Powder  Carbon Dioxide
	May be used on fires involving live electrical equipment without danger to the operator		<ul style="list-style-type: none">  ABC Powder
	Combustible metals and combustible metal alloys		<ul style="list-style-type: none">  ABC Powder  Carbon Dioxide
	Cooking media (Vegetable or Animal Oils and Fats)		<ul style="list-style-type: none">  Wet Chemical

Class A, B, and C fires is the most commonly encountered.



While fires can start at anytime and anywhere, here are some examples of the most common types of fires.

The most common type of fire in the United States is the kitchen fire. The reason that the kitchen is the source of many fire hazards is because the kitchen is where heat, electricity, water, and grease come together. The most common type of kitchen fire is the grease fire.

Electrical fires are another common type of fire. Electrical fires are caused by a number of different factors, including faulty appliances, worn or faulty electrical wiring, improper use of electrical outlets and worn out breaker boxes.

Heater fires are among the most common types of fires in the winter months. For example, extension cords used to plug in space heaters can generate too much electricity and can start a fire.

Another major type of fire is smoking-related. Most smoking fires are started by embers igniting on furniture, bedding and trash cans.

TYPES OF FIRE EXTINGUISHERS

There are many different types of extinguishers, but the most common and the one used in most schools and homes are the Multi-purpose dry chemical, in which its contents are a dry chemical like foam or powder and pressurized with nitrogen. Know your extinguishers, the type of extinguisher, and always look at the name plate on the extinguishers.

Different types of fire extinguishers are designed to fight different classes of fire. The three most common types of fire extinguishers are:

1. WATER EXTINGUISHER

--Air-pressurized water. Usually are large, silver extinguishers that are filled about two-thirds of the way with ordinary tap water, then pressurized with normal air. This extinguisher weighs about 25 pounds when full. To sum it up in the comedian way, it is a giant squirt gun.



2. CO2 EXTINGUISHER (Carbon Dioxide)

--are filled with non-flammable carbon dioxide gas under extreme pressure. You can recognize a CO2 extinguisher by its black hard horn and lack of pressure gauge. The pressure in the cylinder is so great that when you use one of these extinguishers, bits of dry ice may shoot out the horn. CO2 cylinders are RED and range in size from 5 lbs to 100 lbs or larger. CO2 extinguishers are designed for Class B and C (flammable liquid and electrical) fires only.



3. DRY CHEMICAL EXTINGUISHERS

Dry chemical extinguishers come in a variety of types. You may see them labeled:
-- "DC" short for dry chem.
-- "ABC" indicating that they are designed to extinguish Class A,B, and C fires
-- "BC" indicating that they are designed to extinguish Class B and C fires.

"ABC" extinguishers are filled with a fine yellow powder. The greatest portion of this powder is composed of monoammonium phosphate. Nitrogen is used to pressurize the extinguishers. ABC extinguishers are RED and range in size from 5 lbs. to 20 lbs.

Dry chemical extinguishers put out the fire by coating the fuel with a thin layer of dust, separating the fuel from the oxygen in the air. The powder also works to interrupt the chemical reaction of fire, so these extinguishers are extremely effective at putting out fire.



As we said before the most common type of extinguisher that is used is the multi-purpose dry chemical.

IN SUMMARY, of these types of extinguishers, it is extremely important to identify which types of dry chemical extinguishers are located in your area. Read the labels and know their locations! You don't want to mistakenly use a "BC" extinguisher on a Class A fire, thinking that it was an "ABC" extinguisher.

ALARM GOES OFF!

If the fire alarm goes off, the important thing to remember is remain calm. Call 9-1-1. Remember the four letter acronym **R. A. C. E.** as to the critical steps to follow in case of a fire emergency.

R- Remove/Rescue

Rescue whoever is in immediate danger. Move children, teachers or staff in the immediate area of the fire to a safer place. If your school has elevators **Do Not Use.**

A- Activate Alarm

Alert the entire school or facility by pulling the nearest alarm or other communication that it set up in the work place.

C- Confine

Close all doors and windows. Clear all hallways and emergency exits of all equipment.

E- Extinguish the Fire

Use a fire extinguisher on a small fire that has not spread to other areas.

OPERATION OF A FIRE EXTINGUISHER

It's easy to remember how to use a fire extinguisher if you can remember the acronym **P. A. S. S.** (which stands for Pull, Aim, Squeeze, and Sweep).

P--PULL THE PIN

This will allow you to discharge the extinguisher.

A--AIM

Aim at the base of the fire. If you aim at the flames, the extinguishing agent will fly right through and do no good. You want to hit the fuel at the base.

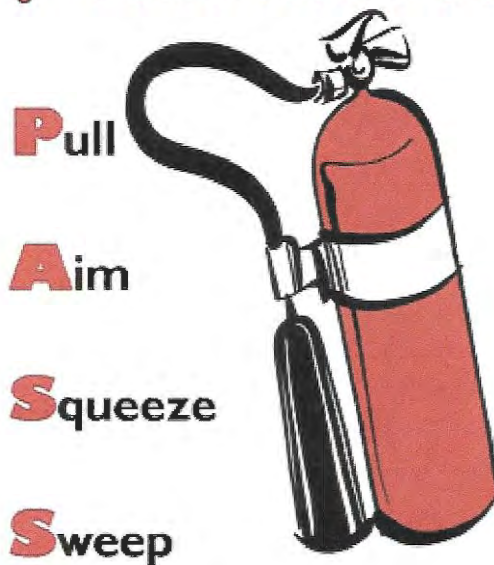
S--SQUEEZE THE HANDLE

This depresses a button that releases the pressurized extinguishing agent in the extinguisher.

S--SWEEP

Sweep from side to side until the fire is out. Start using the extinguisher from a safe distance away, then move forward. Once the fire is out, keep an eye on the area.

Remember!



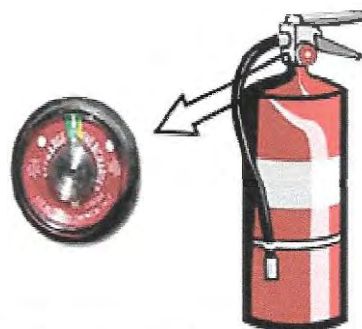
Never fight a fire if you don't know what is burning or not knowing what type of extinguisher to use. Even if you have a dry chemical ABC extinguisher, there may be something in the fire which is going to produce an explosion or possibly create a more toxic smoke. In addition, if the fire is spreading rapidly beyond the area where it started don't try to extinguish the fire. The time to use an extinguisher is in the beginning stages of a fire. If the fire is spreading too fast, it is best to evacuate the school or your home immediately. If you decide that you can put the fire out because it is in a small area, remember to use the PASS method.

LOCATION OF FIRE EXTINGUISHERS and MAINTENANCE

Fire extinguishers should be put in the right place, they should be throughout the school you work in. For example, near exits, along areas of high traffic paths, upstairs in hall ways, along escape routes. In the homes, they should be in the kitchen by the stove area or areas that could pose a possible hazard.

Walk through your school and let the teachers also see where the extinguishers are, and become familiar with them. They should be mounted on brackets, and in clear view. Also have placards on the wall above the extinguisher to indicate there is a fire extinguisher.

Fire extinguishers should be checked regularly according to the manufacturer's guidelines. There should be a record tag on the extinguisher showing dates of each inspection, recharge, and/or repair. There is a gauge on the extinguisher that indicates that the extinguisher is charged (which the needle indicator is in the green area). If the extinguisher is not charged or discharged from use, the needle indicator will be in the red area. If the extinguisher has been discharged or needle indicator is in the red, it must be refilled as soon as possible or replaced if using a disposable type.



The pressure gauge of an extinguisher should always be in the green area.

PLAN OF EVACUATION

An evacuation plan is very important, and may make the difference between life and death. Check your fire and evacuation plan, pay attention when you have fire drills, and at least have drills every other month, because sometimes we forget. Make sure that doorways are clear from any debris or clutter. Know where the exit doors are to each classroom or window areas. Everyone in the building should be oriented to the fire and evacuation plan you have set up.

In the home setting, practice drills also so you and your family know what to do in case there is a fire. Come up with an evacuation plan and let each family member know. If in a fire situation and family members are running out of the house come up with a plan to have a certain location to where family members need to meet, so everyone can be accounted for. If needing additional help to come up with a plan you can call your local fire department and they can help you.



ADDITIONAL FIRE SAFETY TIPS

Talk with children about fire safety, and practice these activities with them. Keep in mind that children under the age of five are at highest risk.

Safety Messages for Kids:

- Matches and lighters are tools, not toys. These tools help adults use fire properly. If you see someone playing with fire, tell an adult right away.
- If a fire starts in your home or you hear the smoke detector alarm, yell "Fire!" several times and go outside right away. If you live in a building with elevators, use the stairs. Never try to hide from fire. Leave all of your things where they are. Once you are outside, go to your meeting place and then send someone for help.
- If your clothes catch fire...remember STOP, DROP and ROLL. Stop what you are doing, drop to the ground, cover your face and roll over and over again until the flames go out. Running will only make the fire worse.

Action Steps for Adults:

- Show children how to crawl low, under the smoke to escape. Explain that they should feel a door before opening it. If the door is cool, open it slowly. If it is hot, find another way out. If they cannot get outside safely, instruct them to hang a sheet outside a window so that firefighters can find them.
- Practice "Stop, Drop and Roll" with your children. Explain that running away will only make the fire burn faster.

At Home or School

- Choose an outside meeting place, such as a tree, street corner or mailbox. Make sure it will be safe distance from the heat, smoke and flames. Go to this meeting place in case of a fire.
- Make sure that children understand that once they are outside, they should stay outside. Children are often concerned about the safety of their pets, so discuss this issue before a fire starts.

- Find two ways to escape from every room and practice getting out of your home during the day and at night. If you have an escape ladder, show your kids where it is and how to use it.
- Practice your home escape plan at least twice a year. Quiz your children every six months so they'll remember what to do and where to meet.
- Install smoke detectors on every level of your home, especially near bedrooms. Clean and test them monthly, and change the batteries at least twice a year when the time changes. Make sure children know what your smoke detector sounds like.
- Check the electrical wiring in your home or school. Fix frayed extension cords, exposed wires or loose plugs.
- Make sure heating sources are clean and in working order. Many fires are started by faulty furnaces or stoves, cracked or rusted furnace parts and chimneys with creosote build-up.

IN CONCLUSION:

Emergency situations are often unsafe. Your personal safety is always the highest priority, even before the safety of a child that needs help. You don't want to become a victim yourself that needs to be rescued. If the scene or area is unsafe, do not approach. If the location you are already in becomes unsafe, get out!

Hopefully this training program has benefited you and your school in giving you the basic knowledge on fire safety and how to use extinguishers.

Student Name: _____ **Date:** _____

INSTRUCTIONS: Read each of the following questions carefully and **CIRCLE** your best answer.

1. The fire triangle includes oxygen, heat, and fuel?

True or False

2. Proper maintenance of a fire extinguisher includes checking the pressure gauge, durable tag, bracket, and discharging a small amount of gas?

True or False

3. An electrical fire can be extinguished with a Class A and B extinguisher?

True or False

4. Some examples of combustible materials consists mainly of what?

- A. Liquid and solids
- B. Wood and plastic
- C. Oil and wax
- D. All of the above

5. Class C fire has the identification label on the extinguisher is?

- A. Star
- B. Square
- C. Triangle
- D. Circle

6. With the removal of air (oxygen) in the fire triangle, the fire will starve and be extinguished?

True or False

7. Which of the following fire extinguishers is most commonly used in the workplace or at home?

- A, BC extinguisher
- B. CO2 extinguisher
- C. Dry Chemical extinguisher
- D. Water extinguisher

8. In a kitchen fire, a water extinguisher with a Purple K additive, can extinguish a grease, fat and oil fire?

True or False

9. In using the fire extinguisher to put a fire out, it is best to spray into the flames so you can extinguish it?

True or False

10. When the fire alarm is sounding, which of the following steps would you use in the situation of a fire?

- A. C.A.R.E
- B. A.R.E.C
- C. R.A.C.E
- D. E.C.R.A

11. When using a extinguisher in a fire it is best to use the PASS method of pull, aim, squeeze and sweep?

True or False

12. If the classroom pet is still in the room, with light smoke in the area, is it alright to go and get the pet?

True or False

13. Smoke detectors should be tested and the batteries changed once a year to prevent malfunction?

True or False

14. Fire drills and evacuation plans should be conducted at least every year to prevent forgetfulness?

True or False

15. If there is a small fire in the school you work in, put the fire out and then call 9 1 1?

True or False

16. If your clothes catch fire, it is best to Stop, Drop and Roll to extinguish the flames?

True or False

FILL OUT YOUR INFORMATION BELOW AND SEND YOUR COMPLETED TEST TO THE ADDRESS BELOW.

INCLUDE YOUR CHECK or MONEY ORDER for \$ 10.00 (PER TEST)

Once received we will send you a printed certificate of completion.

Name: _____

Address: _____

Phone: _____

Email: _____

School Name: _____

MAIL TO:

Lifetech Instructional Services

1423 Wisconsin Avenue

Palm Harbor, FL. 34683