

**LESSON PLAN****Course or program title:** Employee Fire & Life Safety**Lesson title:** Portable Fire Extinguishers**Length of lesson:** 2 hours 30 minutes**Method of delivery:** Lecture & Demonstration**Instruction level:** Basic**Audience:** Widget Inc. Employees**STUDENT LEARNING OBJECTIVES**

1. Identify NFPA 10, *Standard for Portable Fire Extinguishers*
2. Identify stored pressure & nonstored pressure extinguishers
3. List the following types of agents used in extinguishers:
  - Dry chemical
  - Pressurized water
  - Carbon dioxide (CO<sub>2</sub>)
  - Dry powder
  - Foam
4. List two examples of Class A, B, C, and D fires
5. Explain when to use a Class K extinguisher
6. List the information contained on an extinguisher label
7. Explain the P.A.S.S. method of using a fire extinguisher
8. Demonstrate the ability to extinguish a trashcan fire, using a portable extinguisher
9. Explain the extinguisher location and spacing rules in NFPA 10

**MATERIALS NEEDED**

- NFPA 10, *Standard for Portable Fire Extinguishers*—one for each student
- Lesson plan—teaching note pages
- Overhead projector with screen of appropriate size for room
- Flip chart
- Handout: *Fire Extinguisher Chart*
- Video player
- Video: *Fire Extinguishers: Fight or Flight*
- 30-gal trashcan and newspaper to burn
- Operational pressurized water extinguishers—enough for class to use
- Display samples of fire extinguishers: dry chemical, pressurized water, CO<sub>2</sub>, dry powder, foam
- Paper and pencils

*(continued)*

**Introduction**

Fire extinguishers can be valuable tools in first aid fire fighting in any facility. However, the proper use of an extinguisher is of the utmost importance so that the person using it does not become a victim of the fire. It is important to know the types and limitations of extinguishers, so the proper choices are made in their use and application.

**Presentation**

Follow the lesson plan on the following pages. Refer students to the pertinent points in NFPA 10, *Standard for Portable Fire Extinguishers*, as you progress through the lesson plan, covering the objectives.

**Application**

After adequately covering the points in the plan, move the students to the area designated as the burn area, and demonstrate extinguisher use on a small fire.

**Evaluation**

As time permits, conduct an informal evaluation by asking the students to demonstrate the use of an extinguisher, without live fire, on the training ground. Ask questions covering the material either at this time, or after returning to the classroom, or at both times.

**NOTES & VISUAL AIDS**

**Body of the Lesson**

**(1 hour)**

- I. Opening slide identifies NFPA 10, *Standard for Portable Fire Extinguishers*
  
- II. Four classes of fire as listed in NFPA 10
  - A. Class A—ordinary combustibles (e.g., paper, wood, cotton)
  - B. Class B—combustible and flammable liquids
  - C. Class C—charged electrical equipment (energized electrical equipment)
  - D. Class D—combustible metals (e.g., sodium, titanium, magnesium—most metals that end in “ium”)
  
- III. Types of extinguishers
  - A. Stored pressure (pressurized water, carbon dioxide)
  - B. Nonstored pressure (cartridge-operated dry chemical)

**OHT #1**

**OHT #2**

**OHT #3**

- IV. Types of agents
  - A. Dry chemical
  - B. Pressurized water
  - C. Carbon dioxide
  - D. Dry powder
  - E. Foam
  
- V. Information on extinguisher labels
  - A. Listing information
  - B. Extinguisher rating

**OHT #4**

**Show NFPA's video—  
*Fire Extinguishers: Fight or Flight*  
(20 minutes)**

**Ask for questions on video**

**OHT #5**

**Show students labels; explain the label  
information**

**EVALUATION**

**Summary Checklist for Measuring Learner Knowledge of Fire Extinguishers**

1. Can learner identify appropriate NFPA standard regarding fire extinguishers?  
(Learner should identify NFPA 10, and pick it out of a group of other standards.)
2. Given a fire scenario, have the learner identify the class of extinguisher that should be used to extinguish the fire.  
(Learner should be able to match classes of fire to appropriate extinguisher. For example, given a paper fire, learner should pick out pressurized water extinguisher; given an electrical fire, learner should pick out carbon dioxide or dry chemical extinguisher; given a magnesium chip fire, learner should pick out the bucket of clean sand or the "Metl-X" extinguisher.)
3. Given a number of extinguishers, have learner separate stored pressure types from nonstored pressure extinguishers.
4. Given a number of extinguishers, have learner identify obsolete extinguishers.  
(Learner should pick out inverting, brass-colored soda acid extinguisher.)
5. Simulating a fire condition, have learner explain and demonstrate the P.A.S.S. system of using an extinguisher.  
(Learner should **P**ull the pin, **A**im at the base of the fire, **S**queeze the extinguisher lever, and **S**weep the extinguisher back and forth across the base of the fire.)

## Portable Fire Extinguishers

*NFPA 10,  
Standard  
for  
Portable  
Fire  
Extinguishers*



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OHT #1

## Portable Fire Extinguishers

### *Classes of Fires*

- Class A – ordinary combustibles (e.g., paper, wood, cotton)*
- Class B – flammable and combustible liquids*
- Class C – charged electrical equipment (energized switchgear)*
- Class D – combustible metals (e.g., sodium, titanium, magnesium)*

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OHT #2

## Portable Fire Extinguishers

### *Types of Extinguishers*

- Stored pressure (pressurized water, carbon dioxide)*
- Nonstored pressure (cartridge-operated dry chemical)*

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OHT #3

## Portable Fire Extinguishers

### *Agents Typically Used*

- Dry chemical*
- Pressurized water*
- Carbon dioxide*
- Dry powder*
- Foam*

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OHT #4

## Portable Fire Extinguishers

### *Label Information*

- Listing information*
- Extinguisher rating*

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OHT #5