

Module: Portable Fire Extinguishers

Description

This module prepares students to use portable fire extinguishers to put out small fires before they grow out of control. This is important because in many cases, firefighters often arrive first on the scene, and knowing how to handle small fires quickly can protect lives, reduce property damage, and prevent a larger emergency. This module will reinforce concepts from Fire Behavior to help students recognize when and how portable extinguishers can be used effectively.

Module Outcome

At the end of this module, the Firefighter I student will be able to extinguish incipient Class A, B, and C fires using portable fire extinguishers by identifying the classes of fire, selecting the correct extinguisher, approaching and operating the extinguisher properly under supervision and with standard PPE to prevent fire spread and protect life and property.

Standards

This module aligns with applicable standards in:

- NFPA 1010 *Standard on Professional Qualifications for Firefighters* (2024)
- NFPA 1 *Fire Code* (2024)
- NFPA 10 *Standard for Portable Fire Extinguishers* (2022)
- NFPA 557 *Standard for Determination of Fire Loads for Use in Structural Fire Protection Design* (2023)
- NFPA 1660 *Standard for Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery* (2024)
- NFPA 1700 *Guide for Structural Fire Fighting* (2021)
- NFPA 1900 *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances* (2024)

This module directly supports three Job Performance Requirements (JPRs) from NFPA 1010.

Table 1: Module Standards
NFPA 1010 (2024) Standard on Professional Qualifications for Firefighters
Chapter 6 — Firefighter I (NFPA 1001)

Standard	Requisite Knowledge or Skills
6.3.16 Extinguish incipient Class A, Class B, and Class C fires, given a selection of portable fire extinguishers, so that the correct extinguisher is chosen, the fire is completely extinguished, and correct extinguisher-handling techniques are followed.	<ul style="list-style-type: none">• The classifications of fire;• The types, rating systems for, and risks associated with each class of fire;• The operating methods of and limitations of portable extinguishers.• Operate portable fire extinguishers,• Approach fire with portable fire extinguishers,

Table 1: Module Standards**NFPA 1010 (2024) Standard on Professional Qualifications for Firefighters****Chapter 6 — Firefighter I (NFPA 1001)**

Standard	Requisite Knowledge or Skills
	<ul style="list-style-type: none"> Select an appropriate extinguisher based on the size and type of fire, Safely carry portable fire extinguishers.

The NFPA defines requisite knowledge and requisite skills as the minimum a student needs to know and be able to do in order to accomplish the task defined in the JPR.

**Note**

The Firefighter I should be able to extinguish incipient Class A fires such as wastebaskets, small piles of pallets, wood, or hay; Class B fires of approximately 9 ft² (0.84 m²); and Class C fires where the electrical equipment is energized. The Firefighter I should have knowledge of Class D and K fires and their extinguishing agents. (NFPA 1010 **A.6.3.16**)

Module Learning Objectives

By the end of this module, Firefighter I students will:

Table 2: Learning Objectives**Module: Portable Fire Extinguishers**

ID	Objective	Alignment
LO1	Identify the class of fire, given incipient fire conditions and available fire characteristics, so that the correct fire classification is determined.	6.3.16
LO2	Select the appropriate fire extinguisher, given a selection of portable fire extinguishers and a Class A, B, or C fire, so that the extinguisher matched the fire class.	6.3.16
LO3	Approach the fire with a portable extinguisher, given PPE, a portable extinguisher, and a fire scenario, so that the approach path is controlled, hazards are avoided, and a safe working position is achieved.	6.3.16
LO4	Operate a portable fire extinguisher using the PASS method, given an incipient fire, PPE, and a portable extinguisher, so that the extinguisher is discharged effectively and the fire is fully extinguished.	6.3.16
LO5	Carry a portable fire extinguisher, given a portable extinguisher and PPE, so that the extinguisher is transported safely and securely.	6.3.16
LO6	Describe the limitations and hazards of using portable extinguishers, given an incipient fire scenario and a selection of extinguishers, so that the risks and operational limitations are accurately explained.	6.3.16

Prerequisites

The prerequisites for this module are:

- Personal Protective Equipment (PPE) & Self-Contained Breathing Apparatus (SCBA)
- Fire Behavior

This module requires students to work in their PPE and don SCBA for practice and demonstrations. A knowledge of fire behavior is essential to the live fire demonstrations.

Connections to Other Learning

Table 3: Connections to Supported Standards
NFPA 1010 (2024) Standard on Professional Qualifications for Firefighters
Chapter 6 — Firefighter I (NFPA 1001)

Standard	Requirement
No connected standards.	

The use of portable extinguishers appears again when students do pre-incident planning in Firefighter II.

Coherence

What Students Have Learned Previously	What Students Are Learning Now	What Students Will Learn Later
<ul style="list-style-type: none"> ▪ Fire Behavior. Students have already learned the basic science of fire development and the conditions that define an incipient fire, which will now be directly applied to extinguisher use. ▪ PPE & SCBA. Students have been trained in the proper use of structural firefighting PPE and self-contained breathing apparatus (SCBA). 	<ul style="list-style-type: none"> ▪ Portable Extinguisher Use. Students will learn to select, carry, and operate portable extinguishers to control incipient Class A, B, and C fires. This is their first hands-on fire suppression skill, focused on precision and judgment rather than full-scale firefighting operations. 	<ul style="list-style-type: none"> ▪ Fire Suppression. Students will learn how to conduct interior and exterior fire attack operations using hose lines, nozzles, and coordinated team tactics in the Fire Suppression module.

Boundaries of Instruction and Assessment

This module is limited to the employment of portable extinguishers to suppress incipient stage fires and should not expand into other types of suppression operations.

Module Assessments

The following skills are required to be taught and practiced during this module. These skills should be evaluated through formative assessment during instruction.

Table 4: Formative Assessments
Module: Portable Fire Extinguishers

ID	Description of Skill	Standard	Description of Assessment
FA-01	Select appropriate fire extinguisher	6.3.16	
FA-02	Operate a fire extinguisher	6.3.16	Extinguish a fire using the PASS method
FA-03	Inspect and maintain a fire extinguisher	6.3.16	

The following criteria must be assessed during summative assessment and/or certification testing.

Table 5: Summative Assessments
Module: Portable Fire Extinguishers

Standards Assessed	Description of Assessment
Choose the correct extinguisher (6.3.16)	
Extinguish the fire (6.3.16)	
Follow correct extinguisher-handling techniques (6.3.16)	

Preparation, Materials, and Resources

Student Preparation

Students should review the relevant materials in their assigned textbook.

Instructor Preparation

- Read and annotate Chapter in Textbook.
- Review and annotate the associated lesson plans and standard evolutions for this module.

Materials and Resources

- Dry chemical extinguisher prop
- Air-Pressurized Water (APW) extinguisher
- Carbon dioxide extinguisher prop
- Extinguisher training prop with feedback. This may include class A fires, class B props, or electronic systems that provide visual feedback on the effectiveness of technique.

Key Terms

- **Dry Powder.** Solid materials in powder or granular form intended for the extinguishment of Class D combustible metal fires by crusting, smothering, or heat-transferring means. (NFPA 10:3.3.9)
- **Portable Fire Extinguisher.** A portable device, carried or on wheels and operated by hand, containing an extinguishing agent that can be expelled under pressure for the purpose of suppressing or extinguishing fire. (NFPA 10:3.4.3)

Revision History

The following table is provided as a quick reference.

Table 6: Revision History	
Module: Portable Fire Extinguishers	
Revision Date	Revision Description
	No revisions

Module Outline

Module: Portable Fire Extinguishers	
Block 1: Introduction to Portable Fire Extinguishers	
Lesson 1: Classes of Fire and Fire Behavior (30–45 minutes)	
Learning Objectives LO1 Identify the class of fire LO6 Describe the limitations and hazards of using portable extinguishers	
Enabling Learning Objectives <ol style="list-style-type: none"> 1. Define the components of the fire triangle and tetrahedron, given diagrams and examples, so that each component is correctly identified and its role in fire development is explained. (LO1) 2. Describe the characteristics of an incipient fire, given scenarios, so that indicators are accurately described. (LO1) 3. Identify the characteristics of Class A, B, C, D, and K fires, given common fire sources, so that each fire is correctly classified. (LO1) 4. Compare the risks and extinguishing challenges associated with each class of fire, given fire scenarios and extinguishing agents, so that the limitations and hazards were accurately explained. (LO1, LO6) 5. Explain why portable fire extinguishers may be ineffective or unsafe to use in certain fire conditions, given a description of fire development beyond the incipient stage, so that limitations of extinguisher use are correctly described. (LO1, LO6) 	
Content Outline	Resources
<ul style="list-style-type: none"> ▪ Introduction <ul style="list-style-type: none"> • Purpose of the lesson • Relevance to firefighter tasks and extinguisher use • Connection to fire behavior module ▪ Fire Development Fundamentals (ELO1) <ul style="list-style-type: none"> • The fire triangle: fuel, heat, oxygen • The fire tetrahedron: addition of chemical chain reaction • Role of each element in sustaining fire ▪ Incipient Fire Stage (ELO2) 	Activities <ul style="list-style-type: none"> ▪ x Materials <ul style="list-style-type: none"> ▪ x Facilities <ul style="list-style-type: none"> ▪ x Notes x

Module: Portable Fire Extinguishers

Block 1: Introduction to Portable Fire Extinguishers

- Definition and characteristics
- Observable indicators of incipient fires
- Importance for extinguisher use decisions
- Fire Classification (ELO3)
 - Overview of fire classes
 - Class A - Ordinary combustibles
 - Class B - Flammable liquids and gases
 - Class C - Energized electrical fires
 - Class D - Combustible metals
 - Class K - Cooking oils and fats
- Comparison of Fire Classes and Extinguishment Challenges (ELO4)
 - Unique risks of each fire class
 - Typical extinguishing agents and effectiveness
 - Hazards related to incorrect extinguisher selection
- Limitations and Hazards of Using Extinguishers (ELO5)
 - Scenarios where extinguisher use is ineffective
 - Conditions that may make extinguisher use unsafe
 - Importance of recognizing fire development beyond the incipient stage

Lesson 2: Types and Ratings of Extinguishers

(30–45 minutes)

Learning Objectives

LO2 Select the appropriate fire extinguisher

LO6 Describe the limitations and hazards of using portable extinguishers

Enabling Learning Objectives

1. Identify the types of portable fire extinguishers, given examples of extinguishers, so that the extinguishing agent and general use case are correctly identified. (LO2)
2. Match extinguisher types to the appropriate fire class, given a list of fire classes and common extinguishers, so that extinguishers are selected based on compatibility and safety. (LO2)
3. Interpret the UL rating label on a fire extinguisher, given extinguisher labels, so that the numerical and letter codes were correctly explained. (LO2)
4. Explain the operational limitations and potential hazards of specific extinguisher types, given fire scenarios and extinguisher types, so that the safety considerations and performance limitations were accurately described. (LO6)

Content Outline

- Introduction
 - Overview of lesson focus:
 - Extinguisher types

Resources

Activities

- x

Materials

- x

Module: Portable Fire Extinguishers

Block 1: Introduction to Portable Fire Extinguishers

- Selection criteria
- Limitations
- Relevance to firefighter safety and initial attack decisions
- Connection to prior lesson on fire classification
- Types of Portable Fire Extinguishers (ELO1)
 - Common extinguisher types and contents
 - Pressurized water
 - Carbon dioxide (CO₂)
 - Dry chemical (ABC, BC)
 - Class K and Class D specialized agents
 - General use cases and mechanisms of action
- Extinguisher and Fire Class Compatibility (ELO2)
 - Fire class review and matching principles
 - Compatibility matrix: agents vs. fire classes
- UL Rating System and Extinguisher Performance (ELO3)
 - Explanation of UL letter codes (A, B, C)
 - Explanation of UL number ratings (e.g., 2A:10B:C)
 - How to interpret a label to determine extinguisher capability
- Operational Limitations and Hazards of Extinguisher Use (ELO4)
 - Discharge time, reach, and limited capacity
 - Agent-specific hazards
 - CO₂ in confined spaces
 - water on electrical fires
 - Other environmental and situational factors that limit safe use

Facilities

- x

Notes

x

Module: Portable Fire Extinguishers

Block 1: Introduction to Portable Fire Extinguishers

Lesson 3: Extinguisher Use and Limitations

(30–45 minutes)

Learning Objectives

LO4 Operate a portable fire extinguisher using the PASS method

LO6 Describe the limitations and hazards of using portable extinguishers

Enabling Learning Objectives

1. List the four steps of the PASS method, given a demonstration of extinguisher use, so that each step is identified in the correct order. (LO4)
2. Describe how each step of the PASS method is performed, given descriptions of each action, so that the function and correct application of each step are identified. (LO4)
3. Recognize common safety considerations when operating a portable extinguisher, given a scenarios, so that unsafe actions and correct safety behaviors are identified. (LO6)
4. Explain the physical limitations of portable fire extinguishers, given examples of extinguishment failures or ineffective use, so that agent capacity, discharge time, and range were accurately described. (LO6)

Content Outline

- Introduction
- The PASS Method of Extinguisher Operation (ELO1, ELO2)
 - Pull - removing the pin while maintaining control
 - Aim - targeting the base of the fire from a safe distance
 - Squeeze - activating the extinguisher safely
 - Sweep - side-to-side motion to control fire spread
- Safety Considerations During Operation
 - Common errors in extinguisher use
 - Maintaining situational awareness
 - Wind
 - Reflash
 - Egress paths
 - Use of PPE and working position relative to the fire
- Limitations of Portable Fire Extinguishers
 - Physical limitations
 - Capacity
 - Discharge time
 - Range
 - Situational limitations
 - Size of fire
 - Ventilation
 - Agent mismatch

Resources

Activities

- x

Materials

- x

Facilities

- x

Notes

x

Module: Portable Fire Extinguishers

Block 2: Portable Fire Extinguishers Labs

Lab 1: Fire Classification and Extinguisher Selection

(60 minutes)

Learning Objectives

LO1 Identify the class of fire

LO2 Select the appropriate fire extinguisher

Enabling Learning Objectives

1. Classify fire types, given incipient fire scenarios with visible fuel sources and fire behavior, so that the fire is correctly identified as Class A, B, C, E, or K. (LO1)
2. Justify fire classification decisions, given incipient fire scenarios with visible fuel sources and fire behavior, so that the fuel source and fire behavior are accurately identified. (LO1)
3. Select the appropriate portable fire extinguisher, given a set of labeled extinguishers and a classified fire, so that the extinguisher selected matched the class of fire. (LO2)
4. Explain the reason for extinguisher selection, given a selected extinguisher and fire scenario, so that the compatibility of agent to fire class and operational limitations were clearly stated. (LO2)
5. Verify extinguisher readiness, given a selected extinguisher, so that the safety pin, pressure gauge, and labeling are checked, and any deficiencies are identified. (LO2)

Content Outline

- Introduction
 - Purpose of the lab and relevance to fireground response
 - Review of PPE requirements and extinguisher handling safety
 - Explanation of evaluation criteria for task performance
- Fire Classification Exercises
 - Presentation of multiple mock incipient fire scenarios
 - Student classification of each fire
 - Student justification of fire class decisions
- Extinguisher Selection Exercises
 - Display of a set of labeled portable fire extinguishers
 - Students select the extinguisher appropriate for each classified scenario
 - Students explain rationale for extinguisher selection, including agent compatibility and safety considerations
- Readiness Inspection
 - Students inspect extinguishers for operational readiness
 - Check pressure gauge
 - Confirm safety pin is intact
 - Ensure labeling is visible and appropriate

Resources

Activities

- FA-01
- FA-03

Materials

- x

Facilities

- x

Notes

x

Module: Portable Fire Extinguishers

Block 2: Portable Fire Extinguishers Labs

- Document and report deficiencies in accordance with SOP

Lab 2: Approach and PASS Method

(60 minutes)

Learning Objectives

- LO3** Approach the fire with a portable extinguisher
- LO4** Operate a portable fire extinguisher using the PASS method
- LO5** Carry a portable fire extinguisher

Enabling Learning Objectives

1. Carry a portable fire extinguisher, given a selected extinguisher, a designated walking path, and PPE, so that the extinguisher is lifted without strain or injury risk and transported securely with control maintained. (LO5)
2. Approach a simulated incipient fire, given a marked fire location, a selected extinguisher, and PPE, so that the approach path minimizes exposure to hazards and maintains situational awareness. (LO3)
3. Position the body for effective extinguisher use, given a marked fire location, a selected extinguisher, and PPE, so that balance, distance, and stance are appropriate for safe discharge. (LO3)
4. Operate a portable fire extinguisher, given a controlled Class A, B, or C fire prop, a portable extinguisher, and PPE, so that the safety pin is removed without accidental discharge, the nozzle direction targeted the base of the flames, the extinguisher functions as intended and agent flow is continuous, and extinguishment is complete. (LO4)
5. Maintain situational awareness during extinguisher operation, given a live-fire prop and designated work area, so that hazards are monitored and extinguisher use is controlled and effective. (LO4)

Content Outline

- Introduction
 - Purpose of the lab and relevance to real-world fireground operations
 - Review of lifting technique, situational awareness, and PPE requirements
 - Review of PPE, extinguisher handling, and safety zone procedures
- Review of PASS Method
 - Quick refresher: Pull, Aim, Squeeze, Sweep
 - Overview of key performance criteria
 - Connection to body mechanics, approach, and positioning from previous labs
- Approach and Operation Exercise
 - Overview of safe lifting and carrying techniques with PPE

Resources

Activities

- FA-02

Materials

- x

Facilities

- x

Notes

Module: Portable Fire Extinguishers

Block 2: Portable Fire Extinguishers Labs

- Set up of simulated incipient fire using cones, props, or mock flame indicators
- Instruction on ideal stance and distance from fire
- Students approach the fire with extinguisher in hand
- Student practice positioning themselves for operation
- Extinguisher Operation Drill
 - Setup of Class A, B, or C fire props
 - Students don PPE
 - Students carry the extinguisher to the fire prop
 - Student performs full PASS method
 - Pull – safety pin removed with control
 - Aim – nozzle directed at fire base
 - Squeeze – extinguisher activated correctly, continuous agent flow
 - Sweep – nozzle movement controlled, fire fully extinguished
 - Instructor observes and provides real-time correction

Lab 4: Capabilities and Limitations Recognition

(60 minutes)

Learning Objectives

LO2 Select the appropriate fire extinguisher

LO6 Describe the limitations and hazards of using portable extinguishers

Enabling Learning Objectives

1. Evaluate the effectiveness of a portable extinguisher, given a live-fire scenario, a pressurized water extinguisher, and PPE, so that stages of fire growth are identified, water is applied effectively, and the fire is controlled. (LO2, LO6)
2. Identify signs that a fire has progressed beyond the incipient stage, given fire behavior observed in a controlled burn environment, so that the fire was judged as unsafe for extinguisher use. (LO6)
3. Simulate an improper extinguisher deployment, given a controlled burn environment, a pressurized water extinguisher, and PPE, so that limitations of extinguisher choice or use were demonstrated. (LO2, LO6)
4. Explain why portable extinguishers may be ineffective or unsafe, given a debrief and observed fire behavior, so that operational limitations were accurately described. (LO6)

Content Outline

- Introduction and Safety Briefing
 - Purpose of the lab: judgment-based use of extinguishers under realistic conditions
 - Safety procedures for Class A burn building or flashover simulator

Resources

Activities

- x

Materials

- x

Facilities

- x

Module: Portable Fire Extinguishers

Block 2: Portable Fire Extinguishers Labs

	Notes
<ul style="list-style-type: none">• Instructor role and emergency controls in the training environment▪ Extinguisher Effectiveness Demonstration<ul style="list-style-type: none">• Setup of incipient Class A fire using wood or Class A props• Instructor deploys a pressurized water extinguisher to suppress fire<ul style="list-style-type: none">▪ Observation of water stream, reach, and application angle▪ Identification of fire growth stage and suppression outcome• Evaluation of extinguishment effectiveness▪ Progressed Fire Behavior Observation<ul style="list-style-type: none">• Controlled demonstration of fire behavior beyond incipient stage• Students observe flame spread, rollover indicators, or ventilation effects• Discussion: “Would you use an extinguisher here?”▪ Simulated Improper Deployment<ul style="list-style-type: none">• Scenarios involving incorrect extinguisher choice or poor technique<ul style="list-style-type: none">▪ Use at incorrect angle or range▪ Aim other than base of fire• Instructor-led discussion of what went wrong and why▪ Debrief and Hazard Recognition Discussion<ul style="list-style-type: none">• Instructor-guided reflection on observed fire behavior and outcomes• Students explain extinguisher limitations based on agent capacity, fire stage, and safety hazards• Summary of scenarios where extinguisher use is appropriate and where withdrawal or backup is needed	x