Fire Fighter I

Course Plan

Course Details

Certification: Fire Fighter I

CTS Guide: Fire Fighter I Certification Training Standards Guide

Description: This course provides the skills and knowledge needed for the entry level professional fire fighter to perform his/her duties safely, effectively, and competently. The curriculum is based on the 2013 edition of NFPA 1001 Standard for Fire Fighter Professional Qualifications, the 2012 edition of NFPA 1051 Standard for Wildland Fire Fighter Professional Qualifications, and the 2008 edition of NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents. The seven overarching themes of the California State Fire Fighter I curriculum are: general knowledge germane to the profession, fire department communications, fireground operations, rescue operations, preparedness and maintenance, wildland suppression activities, and hazardous materials/WMD.

Designed For: Entry level fire fighter

Prerequisites: Minimum of Public Safety First Aid and CPR (CA Health and Safety Code 1797.182)

Corequisites: Confined Space Awareness (CA Code of Regulations, Title 8, Section 5157)

Introduction to the Incident Command System (ICS-100), FEMA

National Incident Management System, An Introduction (IS-700.A), FEMA

Standard: Complete all activities and formative tests.

Complete all summative tests with a minimum score of 80%.

Complete all mandatory skills testing.

Hours: Lecture: 126:30

Activities/Skills: 240:00

Testing: 36:00

Hours (Total): 402:30

Maximum Class Size: 50

Instructor Level: Training Instructor 1A and 1B

Instructor/Student Ratio: 1: 50 (Lecture); 1:10 (Skills)

Restrictions: None

SFT Designation: CFSTES

Required Resources

Instructor Resources

To teach this course, instructors need:

- Fundamentals of Fire Fighter Skills (Includes Instructor's Toolkit DVDs)
  (Jones and Bartlett Learning, Third Edition, ISBN: 978-1-4496-7085-6), or:
- Essentials of Fire Fighting and Fire Department Operations
  (Stowell, Frederick M., Murnane, Lynne, Brady Publishing, a division of Pearson Education, Sixth Edition, ISBN: 978-013-3140804), or:
- Fire Engineering's Handbook for Fire Fighter I and Fire Fighter II (Includes Instructor Guide and Sample Skills Drills DVDs)
  (Corbett, Glenn, PennWell Corporation, First Edition, ISBN: 978-1-59370-135-2)
- Wildland Firefighting Fundamentals
  (Teie, William C, Deer Valley Press, Second Edition, ISBN: 978-1931301268)
- IS-100 Introduction to Incident Command System, I-100, Instructor Guide
  (http://training.fema.gov/EMIweb/IS/is100lst.asp)
- IS-700 National Incident Management System, An Introduction, Instructor Guide
  (http://training.fema.gov/EMIWeb/is/is700alst.asp)

Online Instructor Resources

The following instructor resources are available online at http://osfm.fire.ca.gov/training/instructorscorner.php:

- Skill Sheets

Student Resources

To participate in this course, students need:

- Fundamentals of Fire Fighter Skills
  (Jones and Bartlett Learning, Third Edition, ISBN: 978-1-4496-7085-6), or:
- Essentials of Fire Fighting and Fire Department Operations
  (Stowell, Frederick M., Murnane, Lynne, Brady Publishing, a division of Pearson Education, Sixth Edition, ISBN: 978-013-3140804), or:
- Fire Engineering's Handbook for Fire Fighter I and Fire Fighter II
  (Corbett, Glenn, PennWell Corporation, First Edition, ISBN: 978-1-59370-135-2)
- Wildland Firefighting Fundamentals
  (Teie, Willam C, Deer Valley Press, Second Edition, ISBN: 978-1931301268)
- IS-100 Introduction to Incident Command System, I-100, Student Manual
  (http://training.fema.gov/EMIweb/IS/is100lst.asp)
- IS-700 National Incident Management System, An Introduction, Student Manual
  (http://training.fema.gov/EMIWeb/is/is700alst.asp)
- Full structural and wildland personal protective equipment

Facilities, Equipment, and Personnel

The following facilities, equipment, or personnel are required to deliver this course:

- **Appliances and tools**: 1 ½-inch fog nozzle, 2 ½ - 1 $^{1}/_{8}$-inch straight tip nozzle, wildland nozzles and appliances, cap, double female fittings, double male fittings, hose clamps, hose jacket, hose roller, hose strap, rope, or chain, nozzle selection as determined by AHJ, plug, master stream device, traffic and scene control devices, reducer or increaser (fittings), Siamese, spanner wrenches, and gated wye
- **Extinguishers and supplies**: Dry chemical extinguisher, (ordinary base or multi-purpose) 20 pounds, CO_2 extinguisher, pump tank water extinguisher, Class A fuel for live burns, Class B fuel for live burns, and metal pan – minimum 16 square feet
- **Hose**: 1-, 1 ½- or 1 ¾-inch fire hose (300-foot minimum), 2 ½- or 3-inch fire hose (500-foot minimum), large diameter hose (LDH) (300-foot minimum), handline with fog nozzle, hard suction (intake) hose and strainer, hose and nozzles capable of flowing a minimum of 95 GPM, and soft suction hose
- **Hand tools**: Bolt cutters, crowbar/pry bar, flat head axe, halligan tool, hand saw, hydrant wrench, K-tool, pick-head axe, pike pole (8 feet), sledgehammer, flashlight, and wildland hand tools and equipment
- **Ladders:** 10-foot folding ladder, 14-foot roof ladder, 24-foot extension ladder, 35-foot extension ladder, and two straight ladders
- **Power tools:** Electric and gasoline powered fan, chain saw, gasoline powered circular saw, and a generator
- **Protective equipment/clothing:** Full set of protective clothing for structural fire fighting for each trainee, including bunker pants, bunker coat, bunker boots, gloves, helmet, hood, and face piece, self-contained breathing apparatus with charged air cylinder, (one extra fully charged air cylinder), personal alert safety system (P.A.S.S.), safety harness, manufacturer approved cleaning agent (for SCBA), manufacturer approved cleaning equipment (for SCBA), and manufacturer approved sanitizing agent (for SCBA)
- **Rope:** ½-inch rope, safety line, webbing, various lengths and diameters of utility rope, various lengths and diameters of synthetic rope, and various lengths of 1-person or 2-person life safety rope
- **Salvage equipment/materials:** Brooms**,** buckets, tubs, mops, objects to cover, salvage covers, squeegees, sprinkler stop, and water vacuums
- **Simulation equipment/materials:** Burn building as recommended in NFPA 1403: Standard on Live Fire Training, wood roof prop, smoke-generating equipment, training tower, minimum of two stories in height, gas, water, and electric service cut-off, vehicle fire prop, and a simulated breaching/restricted passageway prop
- **Other supplies/equipment needed:** Fire hydrant, pitot tube and gauge, portable radio, thermal imaging camera, standard above ground fall protection, minimum of two apparatuses equipped with pump and two separate water supplies, fuel and supplies for power equipment, cleaning supplies and equipment, portable lighting equipment, two portable tanks with water transfer equipment and appliances

Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective

At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives

1. Identify facility requirements
    - Restroom locations
    - Food locations
    - Smoking locations
    - Emergency procedures
2. Identify classroom requirements
    - Start and end times
    - Breaks
    - Electronic device policies
    - Special needs and accommodations
    - Other requirements as applicable
3. Review course syllabus
    - Course objectives
    - Calendar of events
    - Course requirements
    - Student evaluation process
    - Assignments
    - Activities
    - Required student resources
    - Class participation requirements

Discussion Questions

1. What is a formative test? What is a summative test?

Activities

1. To be determined by the instructor.

Topic 1-2: Fire Fighter I Certification Process

Terminal Learning Objective

At the end of this topic, a student will be able to identify different levels in the Fire Fighter I certification track, the courses and requirements for Fire Fighter I certification, and be able to describe the capstone task book and testing process.

Enabling Learning Objectives

1. Identify the different levels of certification in the Fire Fighter I certification track
    - Fire Fighter I

- Wildland Fire Fighter I
- NFPA 472 Awareness/Operations Level Responder: Hazardous Materials/Weapons of Mass Destruction Incidents

2. Identify the courses required for Fire Fighter I
   - Fire Fighter I
   - Wildland Fire Fighter I
   - First Responder Operations
   - Confined Space Awareness
   - IS-100 Introduction to Incident Command System
   - IS-700A National Incident Management System, An Introduction
3. Identify any other requirements for Fire Fighter I
4. Describe the capstone task book process
   - Complete all prerequisites and course work
   - Submit application and fees to request capstone task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training
5. Describe the capstone testing process
   - Complete course work
   - Schedule online capstone test
   - Schedule skills evaluation test

Discussion Questions

1. How many levels are there in the Fire Fighter I certification track? What are they?

Activities

1. To be determined by the instructor.

Topic 1-3: General Knowledge Requirements

Terminal Learning Objective

At the end of this topic, a student, given AHJ policies and procedures, will be able to define the role of Fire Fighter I in the fire department, identify the mission of the fire service, follow standard operating procedures and rules and regulations of the fire department, and access the department's member assistance program.

Enabling Learning Objectives

1. Describe the organization of the fire department
   - Equal Employment Opportunity
   - Harassment
   - Diversity
2. Define the role of Fire Fighter I in the organization

3. Describe the mission of the fire service
4. Describe fire department standard operating procedures and rules and regulations as they apply to the Fire Fighter I
5. Identify the role of other agencies as they relate to the fire department
6. Identify aspects of the fire department's member assistance program
7. Locate information in departmental documents and standard or code materials

Discussion Questions

1. What is an employee assistance program?
2. How would you define the role of a fire fighter in today's fire service?

Activities

1. Ask students to develop a mission statement for a fire department.

CTS Guide Reference:

1-1

Unit 2: Fire Fighter Safety

Topic 2-1: Health and Safety

Terminal Learning Objective

At the end of this topic, a student, given an assignment, will be able to identify common types of accidents and injuries, ways to maintain a healthy and physically fit lifestyle, and maintain life safety initiatives in the line of duty.

Enabling Learning Objectives

1. List common types of accidents or injuries and their causes
2. Discuss the importance of physical fitness and a healthy lifestyle to the performance and duties of a fire fighter
3. Define the critical aspects of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program
4. Discuss the value of fire and life safety initiatives in support of the fire department's mission to reduce fire fighter line-of-duty injuries and fatalities

Discussion Questions

1. What is the importance of physical fitness as it pertains to the duties of a fire fighter?
2. What are the components of physical fitness as it pertains to the job of a fire fighter?
3. What is the importance of a nutritious diet as it pertains to the performance of a fire fighter?
4. What is the importance of psychological stability in the fire service?
5. What are the benefits of grief counseling in the event of a line-of-duty death, serious injury, etc.?

Activities

1. Ask students to prepare a physical fitness plan.
2. Ask students to develop a nutritious menu plan for one week.

CTS Guide Reference:

1-1; 3-11

Topic 2-2: Structural Personal Protective Ensemble

Terminal Learning Objective

At the end of this topic, a student, given structural personal protective ensemble, will be able to don a structural personal protective ensemble so that all elements of the ensemble are worn according to manufacturers' guidelines, within 60 seconds.

Enabling Learning Objectives

1. Identify the components of structural personal protective ensemble
2. Describe the protection provided by structural personal protective ensemble
3. Explain the importance of standards for structural personal protective ensemble
4. Describe the limitations of structural personal protective ensemble
5. Identify the proper method for inspecting, cleaning, and maintaining structural personal protective ensemble
6. Don structural personal protective ensemble
7. Doff structural personal protective ensemble and prepare for reuse

Discussion Questions

1. What are the different components of a structural personal protective ensemble and its importance as it pertains to safety?
2. What are the safety features of a structural personal protective ensemble?
3. What is the importance of knowing your equipment as it pertains to the structural personal protective ensemble?
4. What are the limitations of the structural personal protective ensemble?
5. What are the benefits of inspecting, cleaning, and maintaining structural personal protective ensemble?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-1

Topic 2-3: Self-Contained Breathing Apparatus

Terminal Learning Objective

At the end of this topic, a student, given a self-contained breathing apparatus and other personal protective equipment, will be able to use a self-contained breathing apparatus during emergency operations, correctly don and activate a self-contained breathing apparatus within 60 seconds, use controlled breathing techniques, activate emergency techniques and procedures if the self-contained breathing apparatus fails, recognize low-air warnings, avoid intentionally compromising respiratory protection, and exit hazardous areas prior to air depletion.

Enabling Learning Objectives

1. Identify conditions requiring respiratory protection
   - NFPA 1500
   - Code of Federal Regulations 29, 1910.134
   - California Code of Regulations Title 8, 5144K

2. Describe potential long-term consequences of exposure to products of combustion
3. Describe the uses and limitations of a self-contained breathing apparatus
4. Identify the components of a self-contained breathing apparatus
5. Describe operational inspection for a self-contained breathing apparatus
6. Describe different donning procedures
7. Describe different breathing techniques
8. Describe indications for and emergency procedures used with a self-contained breathing apparatus
9. Identify physical requirements of the self-contained breathing apparatus wearer
10. Demonstrate different controlled breathing techniques
11. Replace self-contained breathing apparatus air cylinders
12. Use a self-contained breathing apparatus to exit through restricted passages
13. Initiate and complete emergency procedures in the event of self-contained breathing apparatus failure or air depletion
14. Perform operational inspection for a self-contained breathing apparatus
15. Complete donning procedures to include:
    - Coat
    - Over-the-head
    - Seat mounted

Discussion Questions

1. What conditions require respiratory protection?
2. What are the limitations of the self-contained breathing apparatus?
3. What are the major components of the self-contained breathing apparatus and their functions?
4. What are some possible human errors and equipment failures of the self-contained breathing apparatus?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-2; 3-11

Topic 2-4: Responding on an Apparatus

Terminal Learning Objective

At the end of this topic, a student, given personal protective clothing, other necessary personal protective equipment, and an apparatus, will be able to respond on an apparatus to an emergency scene, correctly mount and dismount the apparatus, use seat belts while the vehicle is in motion, and correctly use other personal protective equipment.

Enabling Learning Objectives

1. Describe mounting and dismounting procedures for riding an apparatus
2. Identify hazards associated with riding an apparatus and ways to avoid them
3. Describe prohibited practices
4. Identify different types of department personal protective equipment and their use(s)

- Hearing protection
- Seat belts
- Safety gates

5. Use each piece of provided safety equipment

Discussion Questions

1. What safety equipment is used when riding on an apparatus?
2. What is the importance of using safety equipment to protect against hearing and vision loss?
3. What are some outcomes when safety equipment is not used?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-3

Topic 2-5: Operating at an Emergency Scene

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment, traffic and scene control devices, structure fire and roadway emergency scenes, traffic hazards, downed electrical wires, an assignment, standard operating procedures, and an apparatus, will be able to establish and operate in work areas at emergency scenes, follow procedures, wear protective equipment, establish protected work areas as directed using traffic and scene control devices, and perform assigned tasks in established protected work areas.

Enabling Learning Objectives

1. Identify potential hazards involved in operating on emergency scenes including vehicle traffic, utilities, and environmental conditions
2. Describe proper procedures for mounting and dismounting an apparatus in traffic
3. Describe procedures for safe operation at emergency scenes
4. Identify the personal protective equipment available for members' safety on emergency scenes and work zone designations
5. Use personal protective equipment
6. Deploy traffic and scene control devices
7. Dismount an apparatus
8. Operate in protected work areas as directed

Discussion Questions

1. What are some potential hazards to fire fighters while operating at an emergency incident and how can they limit exposure and injury?
2. What are the different types of personal protective equipment used by fire fighters on the scene of an emergency and what are their uses?
3. What are the hazards of mounting and dismounting a fire apparatus?

Activities

1. Given a simulated incident, ask students to develop an emergency scene work zone.

CTS Guide Reference

3-4

Unit 3: Communications

Topic 3-1: Operating a Phone in a Non-emergency Situation

Terminal Learning Objective

At the end of this topic, a student, given a fire department phone, will be able to receive a telephone call using correct procedures for answering the phone and relaying information.

Enabling Learning Objectives

1. Describe fire department procedures for answering non-emergency phone calls
2. Operate fire station telephone and intercom equipment

Discussion Questions

1. What are the different fire station telephone and intercom equipment?
2. What are some proper ways of answering a business phone at the fire station?

Activities

1. Ask students to answer a fire department phone and relay specific information to another person who is not on the call.

CTS Guide Reference:

2-2

Topic 3-2: Initiating a Response to an Emergency

Terminal Learning Objective

At the end of this topic, a student, given the report of an emergency, fire department standard operating procedures, and communications equipment, will be able to initiate the response to a reported emergency, obtain all necessary information, correctly operate all communications equipment, and promptly and accurately relay information to the dispatch center.

Enabling Learning Objectives

1. Explain the procedures for reporting an emergency
2. Identify department standard operating procedures for taking and receiving alarms
3. Identify radio codes, procedures, and clear text for communications
4. List information needs of dispatch center
5. Identify the different types of fire department communications equipment
6. Operate fire department communications equipment
7. Relay information
8. Record information

Discussion Questions

1. What are the different types of emergency and non-emergency calls?
2. What is the information needed to dispatch a call and why is it needed?

Activities

1. Ask students to take a report from a reporting party and transfer the information to a simulated dispatch center.

CTS Guide Reference:

2-1

Topic 3-3: Operating Fire Department Radios

Terminal Learning Objective

At the end of this topic, a student, given a fire department radio and fire department standard operating procedures, will be able to transmit and receive messages via the fire department radio and relay accurate, clear information within the time established by the AHJ.

Enabling Learning Objectives

1. Describe fire department procedures and etiquette for routine radio traffic
2. Describe fire department procedures and etiquette for emergency radio traffic
3. Describe fire department procedures and etiquette for emergency radio evacuation signals
4. Identify basic types and operations of fire department radios
5. Operate fire department radios and equipment
6. Identify the difference between routine and emergency radio traffic

Discussion Questions

1. What are the different components of a fire department radio?
2. What are the different uses for fire department radios?
3. What is the proper etiquette for routine and emergency radio traffic?
4. What are the emergency evacuation signals and when are they used?
5. What is emergency traffic and in what situations would it be used?

Activities

1. Given simulated situations, ask students to find different channels on a fire department radio.

CTS Guide Reference:

2-3

Unit 4: Fire Tools and Equipment

Topic 4-1: Ropes and Knots

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment, tools, ropes, webbing, and an assignment, will be able to tie a knot appropriate for hoisting tools securely and as directed.

Enabling Learning Objectives

1. Identify the types and uses of ropes
2. Identify the types and uses of knots

3. Describe the difference between life safety and utility rope
4. Identify reasons for placing rope out of service
5. List types of knots to use for given tools
6. List types of knots to use for given ropes
7. Describe types of knots to use for given situations
8. Describe hoisting methods for tools and equipment
9. Discuss the use of rope(s) to support response activities
10. Tie knots
    - Overhand
    - Half hitch
    - Clove hitch
    - Beckett bend
    - Bowline
    - Figure 8
    - Figure 8 on a bight
    - Figure 8 follow through
    - Water
    - Handcuff
11. Hoist tools using specific knots based on the type of tool
    - Axe
    - Pike pole
    - Roof ladder
    - Charged hoseline
    - Uncharged hoseline

Discussion Questions

1. What are three situations when ropes are applicable for use on the fire ground?
2. What is the difference between static and dynamic rope and which is preferred in the fire service?
3. What are two common uses for rope?
4. What are three common knots and their uses?
5. What are the three parts of a rope?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-20

Topic 4-2: Hand and Power Tools

Terminal Learning Objective

At the end of this topic, a student, given various hand and power tools, will be able to safely transport, operate, and maintain them.

Enabling Learning Objectives

1. Describe types of and uses for hand and power tools

2. Transport and operate hand and power tools

Discussion Questions

1. What are the differences between a two stroke and a four stroke engine and how are they each identified?
2. What are some examples of prying tools?
3. What are some examples of striking tools?
4. What are some examples of pushing and pulling tools?
5. What are some examples of cutting tools?

Activities

1. Given various tools contained within an engine company toolbox, ask students to identify each tool and its use.

CTS Guide Reference:

3-5

Topic 4-3: Portable Electric and Lighting Equipment

Terminal Learning Objective

At the end of this topic, a student, given fire service electrical equipment and an assignment, will be able to illuminate designated areas of the emergency scene and operate all illumination equipment within the manufacturers' listed safety precautions.

Enabling Learning Objectives

1. Discuss safety principles and practices for portable electrical equipment
2. Identify power supply capacity and limitations
3. Describe light deployment methods
4. Operate department power supply and lighting equipment
5. Deploy cords and connectors
6. Reset ground-fault interrupter (GFI) devices
7. Locate lights for best effect

Discussion Questions

1. What is the purpose of portable lighting at an emergency scene?
2. What are some limitations of portable lighting?
3. What are some safety concerns when using portable lighting at an emergency scene?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-18

Topic 4-4: Maintenance

Terminal Learning Objective

At the end of this topic, a student, given cleaning tools, cleaning supplies, and an assignment, will be able to clean and maintain ladders, ventilation equipment, self-contained breathing apparatuses, ropes, salvage equipment, and hand tools according to

manufacturers' or departmental guidelines, record equipment maintenance, and place equipment in a ready state or report otherwise.

Enabling Learning Objectives

1. Describe types of cleaning methods for various tools and equipment
   - Ladders
   - SCBAs
   - Ventilation equipment
   - Hand tools
   - Salvage equipment
   - Ropes
2. Discuss the correct use of cleaning solvents
3. Identify manufacturer or departmental guidelines for cleaning equipment and tools, and removal from service
4. Select correct tools to maintain various parts and pieces of equipment
5. Complete recording and reporting procedures

Discussion Questions

1. What is the purpose of inspecting, cleaning, and maintaining fire service tools and equipment?
2. Why is attention to small details important when inspecting fire service tools and equipment?

Activities

1. Given tools that have been taken out of service due to safety concerns, ask students to inspect the tools/equipment and identify their deficiencies.

CTS Guide Reference:

4-1

Unit 5: Structural Fire Suppression

Topic 5-1: Building Construction and Related Hazards

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment, tools, ladders (when needed), and an assignment, will be able to describe common building materials and construction types, and identify dangerous building conditions created by fire.

Enabling Learning Objectives

1. Describe common building materials and construction types
2. Identify the effects of each construction type and elapsed time under fire conditions on structural integrity
3. Identify dangerous building conditions created by fire
4. Describe basic construction of typical doors, windows, walls, and roofs within the department's community or service area

Discussion Questions

1. Why is it important for fire fighters to understand building construction?

2. What are some indicators of potential building collapse?
3. What is the difference between legacy and modern construction/conventional and lightweight?

Activities

1. Locate a building under construction and complete a walk through, while identifying different components of building construction.
2. Identify different structural components on a given diagram.

CTS Guide Reference:

3-5; 3-11; 3-12

Topic 5-2: Fire Behavior

Terminal Learning Objective

At the end of this topic, a student, given a fire within a structure, will be able to identify and mitigate dangerous fire behavior conditions, while ensuring fire fighter safety.

Enabling Learning Objectives

1. List physical states of matter in which fuels are found
2. Describe the stages of fire
3. Describe the classifications of fire
4. Describe the methods of heat transfer
5. Describe the relationship of oxygen concentration to life safety and fire growth
6. Describe fire behavior in a structure
   - Energy efficient buildings
   - High rise structures
   - Below-grade structures
   - Wind-driven environments
7. Describe the principles of thermal layering within a structure fire
8. List the products of combustion found in a structure fire
9. Identify the signs, causes, effects, and prevention of backdraft/smoke explosion
10. Identify the signs, causes, effects, and prevention of flashover

Discussion Questions

1. What are the components of the fire tetrahedron?
2. What are the stages of fire growth and what are some indicators of each stage?
3. What are signs of flashover, backdraft, and smoke explosion?
4. How have modern building materials contributed to an increase of rapid fire development?
5. How does wind affect fire in a structure?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-11, 3-12, 3-13, 3-17

Topic 5-3: Fire Extinguishers

Terminal Learning Objective

At the end of this topic, a student, given a selection of portable fire extinguishers and personal protective equipment, will be able to choose the correct extinguisher and follow the correct handling techniques to completely extinguish incipient Class A, Class B, and Class C fires.

Enabling Learning Objectives

1. Identify the types of, rating systems for, and risks associated with, each class of fire extinguisher
2. Discuss the operating methods and limitations of portable extinguishers
3. Operate portable fire extinguishers
   - Stored water pressure
   - Dry chemical
   - CO_2
4. Select an appropriate extinguisher based on the size and type of fire
5. Safely carry portable fire extinguishers
6. Approach fire with portable fire extinguishers

Discussion Questions

1. Why does the fire service use different types of fire extinguishers?
2. What does "P.A.S.S." stand for?
3. What does the rating "2A/10BC" represent?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-17

Topic 5-4: Water Supply Systems

Terminal Learning Objective

1. At the end of this topic, a student, given supply or intake hose, hose tools, a fire hydrant, portable water tank, or static water source, an apparatus, and personal protective equipment, will be able to connect a fire department engine to a water supply, ensuring tight connections and an unobstructed water flow, as a member of a team.

Enabling Learning Objectives

1. Describe types and components of municipal and rural water systems
2. Discuss loading and off-loading procedures for a mobile water supply apparatus
3. Describe fire hydrant operations
4. Identify suitable static water supply sources
5. Describe procedures and protocols for connecting to various water sources
6. Deploy portable water tanks and the equipment necessary to transfer between and draft from them
7. Fully open and close the hydrant

Discussion Questions

1. What are the different water sources available to fire departments?

2. What are the components of a water supply system?
3. What are three ways water is collected for a water supply system?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-16

Topic 5-5: Fire Hose

Terminal Learning Objective

At the end of this topic, a student, given tools, a hose, nozzles, personal protective equipment, and an engine, will be able to place a hose into service on an assigned engine according to AHJ procedures, place nozzles on attack lines, and inspect, maintain, and place hose in or out of service.

Enabling Learning Objectives

1. Identify the principles of fire streams
2. Describe different types, design, operation, nozzle pressure effects, and flow capabilities of nozzles
3. Identify types, designs, and uses of fire hoses
4. Identify fittings, tools, and appliances
5. Describe the application of each size and type of attack line
6. Describe types of hose rolls, loads, and deployments
7. Describe departmental procedures for inspecting a hose according to the manufacturer's guidelines, noting any defects, and removing it from service
8. Discuss cleaning and maintenance methods
   - Hose
   - Nozzles
   - Appliances
9. Identify precautions to be followed when advancing hose lines to a fire
10. Describe observable results that a fire stream has been properly applied
11. Open, close, and adjust nozzle flow and patterns
12. Prevent water hammer when shutting down nozzles
13. Couple and uncouple various handline connections
    - Coupling hose – One fire fighter foot tilt method
    - Coupling hose – Two fire fighters
    - Uncoupling hose knee press
    - Uncoupling hose – Two fire fighter stiff-arm
14. Roll hose
    - Single roll
    - Donut roll
    - Twin donut roll
    - Self-locking twin donut roll
15. Carry hose

- Deploy minute-man load
- Deploy triple fold
- Deploy preconnected flat load
- Deploy working line drag method
- Deploy shoulder load method
- Deploy hose bundle (agency specific)
- Deploy wyed lines

16. Reload hose
    - Flat load
    - Minute-man load
    - Triple fold
    - Accordion
    - Horse shoe
    - Hose bundles (agency specific)
17. Replace burst hose sections
18. Hand lay a supply hose
19. Connect a supply hose to a hydrant
20. Make hydrant-to-engine hose connections for forward and reverse lays
21. Connect and place hard suction hose for drafting operations
22. Clean different types of hose
23. Operate hose washing and drying equipment
24. Replace coupling gaskets
25. Mark defective hose

Discussion Questions

1. What are the different types of hose used by the fire department?
2. Why is it important to clean, inspect, load, roll, and store fire hose?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-11, 3-16, 4-2

Topic 5-6: Utility Control at Emergencies

Terminal Learning Objective

At the end of this topic, a student, given tools and personal protective equipment, will be able to turn off building utilities in order to safely complete an assignment.

Enabling Learning Objectives

1. Describe properties and principles of, and safety concerns for, electricity systems
    - Primary electrical service
    - Secondary electrical service
    - Alternative energy services
2. Describe properties and principles of, and safety concerns for, gas systems
3. Describe properties and principles of, and safety concerns for, water systems

4. Identify utility disconnect methods
5. Discuss associated dangers with utility disconnect methods
6. Describe use of required safety equipment
7. Identify utility control devices
8. Operate control valves or switches
9. Assess for related hazards

Discussion Questions

1. What are some safety considerations at electrical emergencies?
2. What are some safety considerations at gas/propane emergencies?

Activities

1. Complete a survey of the community so students can observe control techniques for gas, propane, electrical, and photovoltaic utilities.

Instructor Notes

1. Fundamentals of Photovoltaics for the Fire Service, California State Fire Training

CTS Guide Reference:

3-19

Topic 5-7: Ground Ladder Operations

Terminal Learning Objective

At the end of this topic, a student, given single and extension ladders, an assignment, team members (if needed), and personal protective equipment, will be able to set up ground ladders, assess hazards, ensure ground ladders are stable and their angles are correct for climbing, extend extension ladders to the necessary height and lock their flies, place the tops of the ladders against reliable structural components, and accomplish the assignment.

Enabling Learning Objectives

1. Identify the types, parts, and construction features of ground ladders
2. Identify the uses of ground ladders
3. Identify types of lifts and carries
   - High shoulder – Single/two fire fighter
   - Low shoulder – Single/two/three fire fighter
   - Flat shoulder method – Three/four fire fighter
   - Suitcase or arms length carry – Single/two fire fighter
4. Describe methods used to secure ground ladders
5. Describe proper climbing techniques
6. Describe safety limits to the degree of angulation
7. Identify different angles for various tasks
8. Describe methods to safely work off ground ladders
9. Describe the hazards associated with setting up ladders
10. Define what constitutes a stable foundation for ladder placement
11. Describe what constitutes a reliable structural component for top placement
12. Tie off a halyard
13. Lift and carry ladders

- High shoulder – Single fire fighter
- Low shoulder – Single/two/three fire fighter
- Flat shoulder method – Three/four fire fighter
- Suitcase or arms length carry – Single/two fire fighter

14. Raise and move ladders
    - Flat raise – Single/two/three/four fire fighter
    - Beam raise – Single/two/three fire fighter
    - High shoulder – Single fire fighter
15. Extend and lock flies
16. Demonstrate proper climbing techniques
17. Demonstrate proper methods to safely work off ground ladders
18. Demonstrate leg lock method
19. Secure ground ladders
20. Determine that a wall and roof will support the ladder
21. Judge extension ladder height requirements
22. Place the ladder to avoid obvious hazards

Discussion Questions

1. What are some of the general uses of ground ladders?
2. How would you place a ladder on a building for rescue, search, or ventilation purposes?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-7

Topic 5-8: Forcible Entry

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment, tools, an assignment, and doors, windows, and walls, will be able to remove barriers and produce an opening that is safe and ready for use by forcing entry into a structure using tools as designed.

Enabling Learning Objectives

1. Describe basic construction of typical doors, windows, and walls within the department's community or service area
   - Residential
   - Commercial
2. Describe types and uses of hand and power tools used in forcible entry
3. Describe operation of doors, windows, and locks
4. Identify the dangers associated with forcing entry through doors, windows, and walls
5. Transport and operate hand and power tools used in forcible entry
6. Force entry through doors, locks, windows, and walls using assorted methods and tools

Discussion Questions

1. How would you size up a door for forcible entry purposes?
2. What are indicators of an inward versus an outward swinging door?
3. What are appropriate tools used to force entry through a residential door versus a roll-up door at a commercial structure?
4. What are some safety considerations during forcible entry operations?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-5

Topic 5-9: Structure Fire Search and Rescue Operations

Terminal Learning Objective

At the end of this topic, a student, given an assignment, obscured-vision conditions, personal protective equipment, a flashlight, forcible entry tools, hose lines or guide lines, a thermal imagine camera, and ladders (when necessary), will be able to conduct search and rescue in a structure, maintain team integrity, correctly place ladders when used, search all assigned areas, locate and remove all victims, and avoid compromising team members' safety, including respiratory protection, operating as a member of a team.

Enabling Learning Objectives

1. Define primary and secondary search techniques
2. Describe the use of thermal imaging cameras and other search tools
3. Identify team members' roles and goals in search and rescue operations within a structure
4. Identify considerations related to respiratory protection
5. Describe methods to determine if an area is tenable
6. Define methods to use and indicators of finding victims
7. Identify psychological effects of operating in obscured conditions and ways to manage them
8. Describe the use of forcible entry tools during rescue operations
9. Describe the use of ground ladders for rescue operations
10. Describe victim removal methods (including various carries)
11. Use a self-contained breathing apparatus to exit through restricted passages
12. Set up and use different types of ladders for various types of rescue operations
    - Balcony
    - Fire escape
    - Roof
    - Window
13. Remove the victim down a ladder
    - Conscious
    - Unconscious
14. Demonstrate victim removal methods (including various carries)

15. Rescue a fire fighter whose respiratory protection is not functioning
16. Rescue a person who has no respiratory protection
17. Assess areas to determine tenability
18. Demonstrate a primary and secondary search

Discussion Questions

1. When conducting a search in a residential structure, what area should be searched first, second, third, etc.?
2. What tools and equipment will make room/area searches more efficient?
3. What is the difference between a primary search and a secondary search?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-10

Topic 5-10: Structural Fire Fighting Operations

Terminal Learning Objective

At the end of this topic, a student, given an attack line ($1^1/_2$-inch or larger), ladders (when needed), personal protective equipment, tools, and an assignment, will be able to attack an interior structure fire, maintain team integrity, deploy the attack line for advancement, correctly place ladders when used, gain access into the fire area, effectively apply water, correctly approach the fire using attack techniques that facilitate suppression given the level of the fire, locate and control hidden fires, maintain the correct body posture, recognize and manage hazards, and bring the fire under control, operating as a member of a team.

Enabling Learning Objectives

1. Identify precautions to be followed when advancing hose lines to a fire
2. Identify principles of exposure protection
   - Exterior
   - Interior
3. Define the role of the backup team in fire attack situations
4. Describe attack and control techniques for below, at, and above grade level *fires*
5. Identify methods for locating and exposing hidden fires
6. Apply water using direct, indirect, and combination attacks
7. Advance charged and uncharged hand lines of 1½-inch diameter or larger up ladders and up and down interior and exterior stairways
8. Operate charged hand lines of 1½-inch diameter or larger while secured to a ground ladder
9. Attack fires below, at, and above grade level
10. Locate and suppress interior wall and subfloor fires

Discussion Questions

1. What are critical fireground factors to consider prior to and during fire suppression operations?
2. What is the difference between a second line and a backup line?

3. What are important factors to consider when engaging in overhaul efforts?
4. What are indicators of a below grade fire?
5. What hazards are associated with below grade fires?

Activities

1. To be determined by the instructor.

Instructor Notes

1. Fire Control 3A or 3B, California State Fire Training

CTS Guide Reference

3-11

Topic 5-11: Horizontal Ventilation Operations

Terminal Learning Objective

At the end of this topic, a student, given an assignment, personal protective equipment, ventilation tools, equipment, and ladders, will be able to perform horizontal ventilation on a structure, free ventilation openings of obstructions, use tools as designed, place ladders and ventilation devices correctly, and clear structure of smoke, as a part of a team.

Enabling Learning Objectives

1. Describe the principles, advantages, limitations, and effects of horizontal ventilation
   - Natural
   - Mechanical
   - Hydraulic
2. Describe safety considerations when venting a structure
3. Transport and operate ventilation tools and equipment and ladders
4. Break windows and door glass and remove obstructions
5. Horizontally ventilate a structure
   - Mechanical
     - Negative
     - Positive
   - Hydraulic

Discussion Questions

1. What situations call for horizontal ventilation?
2. What are appropriate actions to take when implementing horizontal ventilation?
3. What are different ways to complete horizontal ventilation?
4. What are some safety considerations when using horizontal ventilation?
5. What are the ramifications of opening windows and doors without coordinating with attack crews?

Activities

1. Ask students to develop several case studies that resulted in fire fighter injury or fatality due to improper ventilation.

CTS Guide Reference:

3-12

Topic 5-12: Vertical Ventilation Operations

Terminal Learning Objective

At the end of this topic, a student, given an assignment, personal protective equipment, ground and roof ladders, and ventilation tools, will be able to perform vertical ventilation on a structure, position ladders for ventilation, create a specified opening, remove all ventilation barriers, avoid compromising structural integrity, release products of combustion from the structure, and retreat from the area when ventilation is accomplished, as a part of a team.

Enabling Learning Objectives

1. Describe the principles, advantages, limitations, and effects of vertical ventilation
2. List the techniques and safety precautions for venting flat roofs, pitched roofs, and basements
3. Identify the effects of construction type and elapsed time under fire conditions on structural integrity
4. Describe basic indicators of potential collapse or roof failure
5. Describe the advantages and disadvantages of vertical and trench/strip ventilation
6. Select, carry, deploy, and secure ground ladders for ventilation activities
7. Deploy roof ladders on pitched roofs while secured to a ground ladder for vertical ventilation
8. Carry ventilation-related tools and equipment while ascending and descending ladders
9. Hoist ventilation tools to a roof
10. Sound a roof for integrity
11. Cut roofing and flooring materials to vent flat roofs, pitched roofs, and basements and retreat from the area as a team when ventilation is accomplished
12. Clear an opening with hand tools

Discussion Questions

1. When is vertical ventilation performed versus horizontal ventilation?
2. What safety factors should be considered when performing vertical/top-side ventilation?
3. What are the types of cuts that can be performed to achieve vertical ventilation?
4. What are some indicators that a roof is not safe for operations?
5. What are some safety considerations while performing vertical ventilation on different roof types?

Activities

1. To be determined by the instructor.

CTS Guide Reference

3-13

Topic 5-13: Property Conservation

Terminal Learning Objective

At the end of this topic, a student, given an assignment, salvage tools and equipment, and personal protective equipment, will be able to conserve property so that the building and its contents are protected from further damage, acting as a member of a team.

Enabling Learning Objectives

1. Discuss the purpose of property conservation and its value to the public
2. Describe methods used to protect property
3. List types of and uses for salvage covers
4. Describe operations at properties protected with automatic sprinklers
5. Discuss how to stop the flow of water from an automatic sprinkler head
6. Identify the main control valve on an automatic sprinkler system
7. Describe procedures for protecting possible areas of origin and potential evidence
8. Describe forcible entry issues related to salvage
9. Cluster furniture
10. Deploy covering materials
11. Roll and fold salvage covers for reuse
12. Construct water chutes and catch-alls
13. Remove water
14. Cover building openings, including doors, windows, floor openings, and roof openings
15. Stop the flow of water from a sprinkler with sprinkler wedges or stoppers
16. Operate a main control valve on an automatic sprinkler system

Discussion Questions

1. What is the importance of property conservation?
2. When does property conservation take place?
3. What are some effective ways to conserve property?
4. What is primary damage?
5. What is secondary damage?

Activities

1. To be determined by the instructor.

CTS Guide Reference

3-15

Topic 5-14: Overhaul

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment, an attack line, hand tools, a flashlight, and an assignment, will be able to overhaul a fire scene without compromising structural integrity, discover all hidden fires, preserve fire cause evidence, and extinguish the fire.

Enabling Learning Objectives

1. Describe the purposes and methods of overhaul
2. Describe the types of fire attack lines and water application devices most effective for overhaul

3. Discuss water application methods for extinguishment that limit water damage
4. Identify types of tools and methods used to expose hidden fire
   - Senses
   - Hand and power tools
   - Thermal imaging cameras
5. Discuss dangers associated with overhaul
   - Air monitoring
   - Need for respiratory protection
6. Identify reasons for protecting a fire scene
7. Describe obvious signs of area of origin, cause, or arson
8. List techniques for the preservation of fire cause evidence
9. Deploy and operate an attack line for overhaul
10. Apply water for maximum effectiveness
11. Expose and extinguish hidden fires in walls, ceilings, and subfloor spaces
12. Remove floor, ceiling, and wall components to expose void spaces without compromising structural integrity
13. Recognize and preserve obvious signs of area of origin and arson
14. Separate, remove, and relocate charred material to a safe location while protecting the area of origin for cause determination
15. Evaluate for complete extinguishment

Discussion Questions

1. What safety factors should be considered when performing overhaul operations?
2. What are appropriate tools and equipment used when performing overhaul operations?
3. What are ways to preserve an area for a proper fire investigation prior to and during overhaul operations?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

3-14; 3-9

Unit 6: Fire Fighter Survival

Topic 6-1: Structural Fire Fighter Survival

Terminal Learning Objective

At the end of this topic, a student, given vision-obscured conditions, personal protective equipment, and the department's standard operating procedures, will be able to activate an emergency call for assistance and exit a hazardous area without endangering others while maintaining team integrity.

Enabling Learning Objectives

1. Identify different personnel accountability systems
2. Identify the development of fire fighter survival attitudes

3. Identify emergency communication procedures
4. Identify emergency procedures for loss of air supply
5. Initiate an emergency call in accordance with the AHJ's procedures
6. Use other methods of emergency calls for assistance
7. Describe emergency evacuation methods for fire fighter survival
8. Define what constitutes a safe haven
9. Identify elements that create or indicate a hazard
10. Demonstrate emergency evacuation methods for fire fighter survival
11. Operate as a team member in vision-obscured conditions
12. Locate and follow a guide line
13. Evaluate areas for hazards
14. Identify a safe haven

Discussion Questions

1. What are best practices for enhancing fire fighter safety and survival during fire suppression activities?
2. What are common factors that place fire fighters in need of rescue assistance in hazardous conditions?
3. What should a fire fighter do when he/she is trapped, disoriented, or has lost direct contact with the crew?
4. What does "L.U.N.A.R." stand for?

Activities

1. Ask students to develop case studies based on line-of-duty injuries and deaths that resulted from trapped, missing, or lost fire fighters.

Instructor Note

1. State Fire Training Fire Fighter Survival or International Association of Fire Fighter's Fire Ground Survival Program

CTS Guide Reference:

2-4; 3-6

Unit 7: Suppression of Fires Outside of a Structure

Topic 7-1: Exterior Fires

Terminal Learning Objective

At the end of this topic, a student, given attack lines, hand tools, master stream devices, an assignment, personal protective equipment, and fires in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, will be able to extinguish fires in exterior Class A materials, protect exposures, stop the spread of fire, avoid collapse hazards, effectively apply water, extinguish the fire, and preserve signs of the origin area(s) and arson.

Enabling Learning Objectives

1. Discuss types of exterior fires

2. Describe the types of attack lines and water streams appropriate for attacking stacked, piled materials, and outdoor fires
3. Identify water application methods for exposure protection and fire extinguishment
4. Identify dangers, such as collapse, associated with stacked and piled materials
5. Describe various extinguishing agents and their effect on different material configurations
6. Identify tools and methods used in breaking up various types of materials
7. Describe the difficulties related to complete extinguishment of stacked and piled materials
8. Describe dangers such as exposure to toxic or hazardous materials associated with storage building and container fires
9. Recognize inherent hazards related to the material's configuration
10. Operate handlines or master streams
    - One fire fighter method (operating a large hand line)
    - Two fire fighter method (operating a large hand line)
    - Master stream
        - Fixed
        - Portable
11. Break up material using hand tools and water streams
12. Evaluate and modify water application for maximum penetration
13. Search for and expose hidden fires
14. Assess patterns for origin determination
15. Evaluate for complete extinguishment

Discussion Questions

1. What life hazards are presented to fire fighters during exterior fires?
2. What are some concerns presented by outbuildings and dumpster fires and what steps can be taken to ensure fire fighter safety?

Activities

1. Divide students into groups and ask them to list possible materials found in exterior and outbuilding fires.

CTS Guide Reference:

3-9

Topic 7-2: Passenger Vehicle Fires

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment, an attack line (1½-inch or larger), hand tools, and a passenger vehicle, will be able to attack a passenger vehicle fire, avoid hazards, identify and control leaking flammable liquids, maintain protection from flash fires, overhaul all vehicle compartments, and extinguish the fire, while operating as part of a team.

Enabling Learning Objectives

1. Describe principles of fire streams as they relate to fighting passenger vehicle fires

2. Identify precautions to be followed when advancing hose lines toward a passenger vehicle
3. List observable results that a fire stream has been properly applied
4. Identify the hazards associated with alternative fuels in passenger vehicle fires
5. Describe dangerous conditions created during a passenger vehicle fire
6. Describe common types of accidents or injuries related to fighting passenger vehicle fires and how to avoid them
7. Describe how to access locked passenger, trunk, and engine compartments
8. Identify methods for overhauling a passenger vehicle
9. Identify passenger vehicle fuel types
10. Assess and control fuel leaks
11. Apply water for maximum effectiveness while maintaining flash fire protection
12. Advance 1½-inch or larger diameter attack lines on a passenger vehicle fire
13. Expose hidden fires by opening all passenger vehicle compartments

Discussion Questions

1. What are the major safety concerns of fire fighters during passenger vehicle fires?
2. What is the proper personal protective equipment associated with fighting passenger vehicle fires?
3. What are the recommended approaches, hoseline selections, and proper procedures for fighting passenger vehicle fires?
4. What are some hazards that hybrid and alternative fuel passenger vehicle fires present?

Activities

1. Given a fire in one of the three different vehicle compartments, ask students to describe and diagram how to fight each fire and list the different concerns each present to the fire fighter.

Instructor Note:

1. Alternative Fuel Vehicles, California State Fire Training

CTS Guide Reference:

3-8

Unit 8: Wildland Fire Suppression

Topic 8-1: Wildland Response

Terminal Learning Objective

At the end of this topic, a student, given an assembly location, an assignment, an incident location, a mode of transportation, and time requirements, will be able to assemble and prepare for response so that arrival at the incident with the required personnel and equipment meets agency guidelines.

Enabling Learning Objectives

1. Identify equipment requirements
2. Discuss agency time standards

3. Identify special transportation considerations (weight limitations)
4. Discuss agency safety response guidelines
5. Describe operational procedures for various transportation modes

Discussion Questions

1. What items are necessary for wildland incident response?
2. What steps should be completed at the fire station before a response to a wildland incident?

Activities

1. Ask students to create a list of items carried in an out-of-county bag.

CTS Guide Reference:

5-4

Topic 8-2: Wildland Personal Protective Equipment

Terminal Learning Objective

At the end of this topic, a student, given wildland personal protective clothing and a new generation fire shelter, will be able to don wildland personal protective clothing and shelter according to the manufacturers' guidelines within 60 seconds; deploy a new generation fire shelter within 30 seconds; ensure serviceability and availability on the fireline; and recognize defects and report them to a supervisor.

Enabling Learning Objectives

1. Describe the use and limitations of required wildland personal protective clothing
2. Describe the use, limitations, inspection, and care of new generation fire shelter
3. Describe the inspection of wildland personal protective clothing
4. Recognize unserviceable items among wildland personal protective clothing
5. Describe maintenance of wildland personal protective clothing
6. Discuss agency policy on fire shelter use
7. Demonstrate the ability to don wildland personal protective ensemble
8. Demonstrate the ability to deploy new generation fire shelter
   - Standing to sitting method
   - Standing drop-down method
   - Lying down method
9. Demonstrate proper cleaning procedures for wildland personal protective clothing

Discussion Questions

1. What characteristics make wildland personal protective clothing different from structural personal protective equipment?
2. Why is it important to always wear your personal protective equipment, including your fire shelter?

Activities

1. Given a recent fire entrapment or shelter deployment, ask students to discuss how personal protective equipment worked to prevent more serious injuries or fatalities.

Instructor Note:

1. New Generation Fire Shelter DVD, National Wildland Coordinating Group, NFES 2712

CTS Guide Reference:

5-1; 5-2

Topic 8-3: Wildland Tools and Equipment

Terminal Learning Objective

At the end of this topic, a student, given tools, equipment, and agency maintenance specifications, will be able to recognize defects and report them to a supervisor and maintain assigned suppression hand tools and equipment so that assigned equipment is serviceable.

Enabling Learning Objectives

1. Identify wildland fire fighting tools and equipment
   - Fussees
   - Road flares
   - Drip torches
   - Backpumps
   - Round point shovel
   - Pulaski
   - Mcleod
   - Brush hook
   - Single and double bit axe
   - Wire broom
   - Rhino tool
   - Combi tool
   - Fireline flagging
2. Describe uses for wildland fire fighting tools and equipment
3. Describe the inspection of tools
4. Describe the maintenance and care of tools and equipment
5. Describe the inspection of assigned suppression equipment
6. Recognize unserviceable items
7. Perform required maintenance techniques
8. Sharpen assigned suppression equipment
9. Perform other maintenance techniques for assigned suppression equipment
10. Use required maintenance equipment
11. Assemble and use a back pump

Discussion Questions

1. Why is it important to properly maintain wildland tools and equipment?
2. What are some common tools for cutting lines?

Activities

1. Given wildland tools that have been taken out of service due to safety concerns, ask students to inspect the tools/equipment and identify the deficiencies.

CTS Guide Reference:

5-3

Topic 8-4: Wildland Fire Behavior

Terminal Learning Objective

At the end of this topic, a student, given a wildland or wildland urban interface fire and the standard safety policies and procedures of the agency, will be able to describe basic wildland fire behavior.

Enabling Learning Objectives

1. Describe basic wildland fire behavior

Discussion Questions

1. Why is it important to have a good understanding of weather?
2. How does weather influence fire behavior?
3. Why is it important to monitor the seven wildland fire environment factors?

Activities

1. Ask students to discuss how local factors influence fire behavior.
2. Ask students to obtain and review various sources of weather data.
3. Ask students to correctly predict fire behavior using a simulated wildland fire.

Instructor Notes:

1. Introduction to Wildland Fire Behavior, S-190, National Wildland Coordinating Group
2. Fire Weather DVD, National Wildland Coordinating Group, NFES 2236

CTS Guide Reference:

5-5

Topic 8-5: Wildland Fire Safety

Terminal Learning Objective

At the end of this topic, a student, given a wildland or wildland urban interface fire and the standard safety policies and procedures of the agency, will be able to recognize hazards and unsafe situations, promptly communicate hazard(s) and unsafe condition(s) to a supervisor, and take appropriate action.

Enabling Learning Objectives

1. Describe basic wildland fire safety
   - 10 standard fire orders
   - 18 watch-out situations
   - LCES
   - Common denominators
   - Downhill line construction
   - Avoiding fire entrapment
   - Using a vehicle or a structure as refuge
2. Describe hazards associated with working around aircraft
3. Describe hazards associated with working around heavy equipment
4. Assume safe position for an air tanker drop
5. Use fireline flagging
6. Use the Incident Response Pocket Guide (IRPG)

Discussion Questions

1. How is LCES different than the 10 standard orders or 18 watch-out situations?
2. How do the principles of wildland fire behavior factor into avoiding fire entrapment?

Activities

1. Using small work groups, ask students to identify how to effectively implement the 10 standard fire orders and 18 watch-out situations.
2. Given several fatal fire incidents, ask students to identify violations of the 10 standard fire orders and 18 watch-out situations.

CTS Guide Reference:

5-5

Topic 8-6: Human Factors on the Fireline

Terminal Learning Objective

At the end of this topic, a student, given a wildland or wildland urban interface fire and the standard safety policies and procedures of the agency, will be able to promptly communicate hazard(s) and unsafe condition(s) to a supervisor.

Enabling Learning Objectives

1. Describe basic verbal communications

Discussion Questions

1. How do human factors affect fireline safety?
2. How do human factors affect crew cohesion?

Activities

1. To be determined by the instructor.

Instructor Notes:

1. Human Factors on the Fireline, L-180, National Wildland Coordinating Group

CTS Guide Reference:

5-5

Topic 8-7: Wildland Suppression

Terminal Learning Objective

At the end of this topic, a student, given a wildland or wildland urban interface a fire agency line construction standards, suppression tools and water or other suppression agents equipment, will be able to construct a fireline that conforms to the construction standard of the AHJ.

Enabling Learning Objectives

1. Describe basic wildland strategy and tactics
2. Describe basic wildland suppression methods
    - Hose lays
    - Line construction
        - Hand line
        - Dozer line
        - Retardant line

    - Mobile attack
3. Use and carry wildland tools
    - Brush hook
    - Pulaski
    - Single and double bit axe
    - Round point shovel
    - Mcleod
    - Wire broom
    - Rhino tool
    - Combi tool
    - Procedures for passing hand tools
4. Construct handline
    - Build a control line using the bump up or one lick method
    - Build a cup or trench while constructing handline
5. Perform mobile attack
6. Perform a simple hose lay
    - Single person
7. Perform progressive hoselay
    - Two person minimum
8. Retrieve hose
    - Single-section drain and carry
    - Figure 8 drain and carry

Discussion Questions

1. How is a simple hoselay different from a progressive hoselay?
2. How wide should a fireline be?
3. What are the safety considerations when building a fireline?

Activities

1. To be determined by the instructor.

CTS Guide Reference

5-5; 5-6

Topic 8-8: Reinforcing a Fireline

Terminal Learning Objective

At the end of this topic, a student, given a wildland fire, suppression tools, water or other suppression agents, and equipment, will be able to locate and abate burning materials and unburned fuels that threaten the fireline's integrity.

Enabling Learning Objectives

1. Describe line improvement techniques
2. Identify safety considerations when burning out
3. Describe the types of basic ignition devices
4. Use basic ignition devices
    - How to ignite and extinguish road flares and fussees

- How to assemble and use a drip torch

Discussion Questions

1. What tools might be used to burnout a fireline?
2. What safety factors must be mitigated before burning is done?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

5-7

Topic 8-9: Wildland Urban Interface

Terminal Learning Objective

At the end of this topic, a student, given a wildland or wildland urban interface fire, suppression tools, and equipment, will be able to describe methods of reducing the threat of fire exposure to improved properties in order to protect them.

Enabling Learning Objectives

1. Describe wildland fire behavior within the wildland urban interface
2. Describe wildland fuel removal for structure preparation
3. Identify structure defense methods
4. Identify equipment and personnel capabilities within the wildland urban interface
5. Prepare a structure for structure defense
6. Conduct structure defense within the wildland urban interface

Discussion Questions

1. How can the S-FACTS be used to improve safety when operating in the wildland urban interface?
2. Why is it acceptable to leave a structure that is threatened by a wildland fire?
3. How is a TRA different from a safety zone?

Activities

1. Ask students to complete an assessment of structures and determine triage category and appropriate tactics to protect them.
2. Ask students to fill out a wildland placard ICS 231.

Instructor Notes:

1. Wildland Urban Interface Operations Handbook, CalFire
2. Field Operations Guide, Chapter 15, Firescope

CTS Guide Reference:

5-8

Topic 8-10: Mop-up Operations

Terminal Learning Objective

At the end of this topic, a student, given a wildland fire, suppression tools, water or other suppression agents, and equipment, will be able to mop up a fire area, locating and extinguishing burning fuels that threaten escape.

Enabling Learning Objectives

1. Describe principles, techniques, and standards for mop-up
   - Dry mop-up
   - Wet mop-up
2. Use basic tools to perform mop-up operations
3. Use basic techniques to perform mop-up operations

Discussion Questions

1. What are some critical elements of mop-up operations?
2. How will different fuels influence mop-up operations?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

5-9

Topic 8-11: Conducting Patrols

Terminal Learning Objective

At the end of this topic, a student, given a wildland fire, suppression tools, and equipment, will be able to patrol and maintain control of the fire area.

Enabling Learning Objectives

1. Describe the principles, techniques, and standards of patrol

Discussion Questions

1. What should a fire fighter look for during patrol operations?
2. What is the importance of conducting patrol operations?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

5-10

Unit 9: Hazardous Materials/WMD

Topic 9-1: Recognizing Hazardous Materials/WMD

Terminal Learning Objective

At the end of this topic, a student, given a hazardous materials incident, the DOT Emergency Response Guidebook or equivalent guide, shipper/manufacturer papers and contacts, material safety data sheets, and an assignment, will be able to recognize the presence of hazardous materials and the indicators of a hazardous materials incident, correctly identify the materials involved, take personal protective actions, initiate the appropriate notification process, and secure the area.

Enabling Learning Objectives

1. Define hazardous materials
2. Describe the risks associated with hazardous materials
3. Recognize the presence of hazardous materials in an emergency

4. Identify the hazardous materials involved
   - Placards
   - Labels
   - Containers
5. Recognize the presence of weapons of mass destruction
6. Identify procedures in the event of a WMD incident
7. Identify the potential outcomes associated with an emergency when hazardous materials are present
8. Identify the types of additional resources for a hazardous materials response
9. Identify mandatory notifications in accordance with AHJ
10. Describe the role of the fire fighter in the AHJ's emergency response plan, including site security and control zones
11. Describe the components of the DOT Emergency Response Guidebook or equivalent guide
12. Identify shipper/manufacturer papers and contacts
13. Identify hazardous materials, their potential hazards, and appropriate personal protective actions using material safety data sheets
14. Describe the process to preserve evidence
15. Use the DOT Emergency Response Guidebook or equivalent guide
16. Initiate protective actions to secure the area
17. Make appropriate notifications as directed by the AHJ
18. Use material safety data sheets to identify hazardous materials, their potential hazards, and appropriate personal protective actions

Discussion Questions

1. What factors might indicate a hazardous materials/WMD incident?
2. What role does the DOT Emergency Response Guidebook play in identifying a hazardous materials incident?

Activities

1. Divide students into groups and ask them to list different factors that may indicate a hazardous materials incident in different methods of commercial transport.
2. Ask students to outline factors related to recognizing WMD incidents during initial response.

CTS Guide Reference:

6-1

Topic 9-2: Identifying/Analyzing Hazardous Materials/WMD Incidents

Terminal Learning Objective

At the end of this topic, a student, given a hazardous materials incident, recognized hazardous materials, department standard operating procedures, equipment readily available to personnel, and an assignment, will be able to protect persons, property, and the environment from further harm, initiate the appropriate communications process, and secure the area.

Enabling Learning Objectives

1. Define basic hazardous materials terms
2. Define health hazards and physical and chemical properties of hazardous materials
3. Describe basic hazard and risk assessment techniques
4. Describe procedures for initial hazardous materials/WMD response
5. Describe the incident command system used in hazardous materials incidents
6. Discuss standard operating procedures according to AHJ
7. Identify the containers and materials involved using the DOT Emergency Response Guidebook or equivalent guide
8. Identify damaged containers and the effects of release
9. Describe the process of evacuation and/or shelter in place
10. Determine if materials have been released
11. Evaluate the status of each incident response objective at a hazardous materials/WMD incident
12. Communicate the status of a hazardous materials/WMD incident
13. Limit access to the area

Discussion Questions

1. Given a chemical release, what are the important safety concerns related to weather and time of day for both fire fighters and the general public?
2. What are the basic roles and responsibilities of the fire fighter in a hazardous materials incident response?
3. What types of WMD agents might a fire fighter respond to?
4. What factors do you consider when deciding between evacuation and shelter in place?

Activities

1. Using the DOT Emergency Response Guidebook, ask students to identify proper emergency response practices when independently given a cargo container description, a four digit ID number, and a chemical name.

CTS Guide Reference:

6-2

Topic 9-3: Emergency Decontamination

Terminal Learning Objective

At the end of this topic, a student, given a hazardous material incident, an individual contaminated by a hazardous material that can be decontaminated by fire fighters in personal protective equipment, equipment readily available to fire fighters, standard operating procedures, and an assignment, will be able to perform emergency decontamination procedures, use appropriate personal protective equipment based on hazard, protect exposures, avoid hazards, decontaminate victims and responders, and identify contaminated items and products of contamination for subsequent control.

Enabling Learning Objectives

1. Identify capabilities and limitations of personal protective equipment provided by the AHJ

2. Identify ways that people, personal protective equipment, apparatuses, tools, and equipment become contaminated
3. Explain the importance and limitations of emergency decontamination procedures
4. Describe standard operating procedures for emergency decontamination
5. Prepare an emergency decontamination area
6. Perform emergency decontamination

Discussion Questions

1. What is the importance and proper methods of emergency decontamination for mass casualty incidents?
2. What consequences can arise from improper decontamination procedures?

Activities

1. To be determined by the instructor.

CTS Guide Reference:

6-3

Topic 9-4: Mitigating a Hazardous Materials/WMD Incident

Terminal Learning Objective

At the end of this topic, a student, given a hazardous materials incident, recognized hazardous materials, department standard operating procedures, equipment readily available to personnel, an assignment, and personal protective equipment, will be able to perform basic control, containment, and confinement techniques to control hazardous materials release, and protect emergency responders from contamination.

Enabling Learning Objectives

1. Describe product control operations including absorption, adsorption, damming, diking, dilution, retention, remote valve shutoff, and vapor dispersion
2. Identify tools and equipment for product control
3. Explain the technical decontamination process, according to AHJ
4. Perform basic control, containment, and confinement operations within the capabilities of the AHJ's resources and personal protective equipment

Discussion Questions

1. What are some different methods of control, containment, and confinement operations and how might these cause harm to fire fighters, the general public, and the environment?
2. What is the importance of containment and control during incidents near waterways, storm drains, and other routes of major water systems?
3. How is a WMD incident contained and the scene preserved for law enforcement?

Activities

1. Divide students into groups and assign each group a disaster. Given weather, topography, and their assigned disaster, ask students to outline a response and create a plan to control and contain the incident.

CTS Guide Reference:

6-4

Time Table

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Unit 1: Introduction			
Topic 1-1: Orientation and Administration			
Lecture	00:30		
Activity 1-1		00:00	
Topic 1-2: Fire Fighter I Certification Process			
Lecture	00:30		
Activity 1-2		00:00	
Topic 1-3: General Knowledge Requirements			
Lecture	3.00		
Activity 1-3		00:00	
Unit 1 Totals	**4:00**	**00:00**	**4:00**
Unit 2: Fire Fighter Safety			
Topic 2-1: Health and Safety			
Lecture	4:00		
Activity 2-1		00:00	
Topic 2-2: Structural Personal Protective Ensemble			
Lecture	2:00		
Activity 2-2		00:00	
Skills		5:00	
Topic 2-3: Self-Contained Breathing Apparatus			
Lecture	4:00		
Activity 2-3		00:00	
Skills		12:00	
Topic 2-4: Responding on an Apparatus			
Lecture	00:30		
Activity 2-4		00:00	
Skills		01:00	
Topic 2-5: Operating at an Emergency Scene			
Lecture	00:45		
Activity 2-5		00:15	
Skills		01:00	
Unit 2 Totals	**11:15**	**19:15**	**30:30**
Unit 3: Communications			
Topic 3-1: Operating a Phone in a Non-emergency Situation			
Lecture	00:15		

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Activity 3-1		00:10	
Skills		00:10	
Topic 3-2: Initiating a Response to an Emergency			
Lecture	00:45		
Activity 3-2		00:10	
Skills		00:30	
Topic 3-3: Operating Fire Department Radios			
Lecture	1:00		
Activity 3-3		00:30	
Skills		00:30	
Unit 3 Totals	**2:00**	**2:00**	**4:00**
Unit 4: Fire Tools and Equipment			
Topic 4-1: Ropes and Knots			
Lecture	2:00		
Activity 4-1		00:00	
Skills		6:00	
Topic 4-2: Hand and Power Tools			
Lecture	2:00		
Activity 4-2		00:30	
Skills		2:00	
Topic 4-3: Portable Electric and Lighting Equipment			
Lecture	1:00		
Activity 4-3		00:00	
Skills		2:00	
Topic 4-4: Maintenance			
Lecture	2:00		
Activity 4-4		00:00	
Skills		6:00	
Unit 4 Totals	**7:00**	**16:30**	**23:30**
Unit 5: Structural Fire Suppression			
Topic 5-1: Building Construction and Related Hazards			
Lecture	3:00		
Activity 5-1		1:00	
Topic 5-2: Fire Behavior			
Lecture	4:00		
Activity 5-2		00:00	

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Topic 5-3: Fire Extinguishers			
Lecture	2:00		
Activity 5-3		00:00	
Skills		5:00	
Topic 5-4: Water Supply Systems			
Lecture	2:00		
Activity 5-4		00:00	
Skills		6:00	
Topic 5-5: Fire Hose			
Lecture	8:00		
Activity 5-5		00:00	
Skills		36:00	
Topic 5-6: Utility Control at Emergencies			
Lecture	1:30		
Activity 5-6		00:00	
Skills		00:30	
Topic 5-7: Ground Ladder Operations			
Lecture	4:00		
Activity 5-7		00:00	
Skills		36:00	
Topic 5-8: Forcible Entry			
Lecture	2:00		
Activity 5-8		00:00	
Skills		6:00	
Topic 5-9: Structure Fire Search and Rescue Operations			
Lecture	2:00		
Activity 5-9		00:00	
Skills		8:00	
Topic 5-10: Structural Fire Fighting Operations			
Lecture	4:00		
Activity 5-10		00:00	
Skills		20:00	
Topic 5-11: Horizontal Ventilation Operations			
Lecture	1:30		
Activity 5-11		00:30	
Skills		4:00	
Topic 5-12: Vertical Ventilation Operations			
Lecture	4:00		

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Activity 5-12		00:00	
Skills		8:00	
Topic 5-13: Property Conservation			
Lecture	2:00		
Activity 5-13		00:00	
Skills		8:00	
Topic 5-14: Overhaul			
Lecture	2:00		
Activity 5-14		00:00	
Skills		4:00	
Unit 5 Totals	**42:00**	**143:00**	**185:00**
Unit 6: Fire Fighter Survival			
Topic 6-1: Structural Fire Fighter Survival			
Lecture	4:00		
Activity 6-1		00:00	
Skills		12:00	
Unit 6 Totals	**4:00**	**12:00**	**16:00**
Unit 7: Suppression of Fires Outside of a Structure			
Topic 7-1:Exterior Fires			
Lecture	1:45		
Activity 7-1		00:15	
Skills		6:00	
Topic 7-2: Passenger Vehicle Fires			
Lecture	3:00		
Activity 7-2		00:00	
Skills		5:00	
Unit 7 Totals	**4:45**	**11:15**	**16:00**
Unit 8: Wildland Fire Suppression			
Topic 8-1: Wildland Response			
Lecture	00:30		
Activity 8-1		00:15	
Topic 8-2: Wildland Personal Protective Equipment			
Lecture	1:30		
Activity 8-2		00:30	
Skills		2:00	
Topic 8-3: Wildland Tools and Equipment			
Lecture	1:30		

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Activity 8-3		00:30	
Skills		1:15	
Topic 8-4: Wildland Fire Behavior			
Lecture	8:00		
Activity 8-4		00:00	
Topic 8-5: Wildland Fire Safety			
Lecture	6:00		
Activity 8-5		2:00	
Skills		1:00	
Topic 8-6: Human Factors on the Fireline			
Lecture	4:00		
Activity 8-6		00:00	
Topic 8-7: Wildland Suppression			
Lecture	4:00		
Activity 8-7		00:00	
Skills		14:00	
Topic 8-8: Reinforcing a Fireline			
Lecture	2:00		
Activity 8-8		00:00	
Skills		1:00	
Topic 8-9: Wildland Urban Interface			
Lecture	3:00		
Activity 8-9		00:00	
Skills		1:00	
Topic 8-10: Mop-up Operations			
Lecture	00:30		
Activity 8-10		00:00	
Skills		00:30	
Topic 8-11: Conducting Patrols			
Lecture	00:30		
Activity 8-11:		00:00	
Unit 8 Totals	**31:30**	**24:00**	**55:30**
Unit 9: Hazardous Materials/WMD			
Topic 9-1: Recognizing Hazardous Materials/WMD			
Lecture	3:00		
Activity 9-1		1:00	
Skills		2:00	

Segment	Lecture Time	Activity/Skills Time	Total Unit Time
Topic 9-2: Identifying/Analyzing Hazardous Materials/WMD Incidents			
Lecture	4:00		
Activity 9-2		1:00	
Skills		1:00	
Topic 9-3: Emergency Decontamination			
Lecture	2:00		
Activity 9-3		00:00	
Skills		2:00	
Topic 9-4: Mitigating a Hazardous Materials/WMD Incident			
Lecture	3:00		
Activity 9-4		1:00	
Skills		4:00	
Unit 9 Totals	**12:00**	**12:00**	**24:00**
Lecture, Activity, and Unit Totals:	**126:30**	**240:00**	**366:30**

Course Totals

Total Lecture Time (LT)	126:30
Total Skills/Activity Time (AT)	240:00
Testing Time	
• Fire Fighter I	24:00
• Wildland Fire Fighter I	8:00
• Hazardous Materials/WMD	4:00
Total Testing Time	36:00
Total Course Time	**402:30**

Note: Skills and activity time will vary depending on the number of students in the program. It is important to remember that the suggested skill hours are for up to 50 students. The following is a breakdown of what a program might look like if there were fewer students. These are just estimates, times may need to be adjusted based on student abilities.

40 – 50 Students 240 hours
30 – 40 Students 180 hours
20 – 30 Students 120 hours
1 – 20 Students 60 hours