Fire Science

Exam Information

Exam number
5210

Items
100

Points
100

Prerequisites
None

Recommended course length
One Year

National Career Cluster
Law, Public Safety, Corrections, & Security

Performance standards
Included (Optional)

Certificate available
Yes

Description

The Fire Science industry certification exam assesses foundational knowledge relevant to the fire science pathway, recommended for learners in grades 11 and 12. It evaluates learners on major topics including orientation and organization, fire behavior, building construction, safety, communication, self-contained breathing apparatus (SCBA), extinguishers, ladders, hose and appliances, nozzles and streams, and water supply. Learners also have the opportunity to demonstrate their knowledge from the American Heart Association healthcare provider CPR certification. The exam lays the groundwork for pursuing the BOF certification after high school, given that learners meet minimum age requirements, complete additional coursework, and are employed or affiliated with the fire service, as well as preparing for post-secondary education in fire science.

Exam Blueprint

Standard	Percentage of exam
1. Orientations & Organization	10%
2. Fire Behavior	15%
3. Building Construction	15%
4. Safety	15%
5. Communications	5%
6. SCBA	15%
7. Extinguishers	5%
8. Ladders	5%
9. Hose & Appliances	5%
10. Nozzles & Streams	5%
11. Water Supply	5%

Standard 1

Students will understand orientation and organization.

Objective 1 Identify the organization of the fire department.

1. Organizational Principles:
    a. Unity of Command (Chain of Command)
    b. Span of Control
    c. Division of Labor
    d. Discipline
2. Organization charts showing (chain of command)
    a. Fire department organizational structure
3. ICS, Incident Command System
    a. Incident organizational structure
4. Fire Companies Functions:
    a. Engine
    b. Truck
    c. Rescue Squad/Company
    d. Brush Company
    e. Haz-Mat
    f. EMS
    g. Special Rescue

Objective 2 Identify the basic firefighter's role as a member of the fire service.

1. Firefighter Roles:
    a. Volunteer
    b. Paid-on-call
    c. Career
    d. Combination
    e. Federal and Military
    f. Private
2. Fire Companies Roles:
    a. Engine
    b. Truck
    c. EMS
    d. Brush Company

Objective 3 Identify the mission of the fire service.

1. Fire service mission — To save lives and protect property
    a. Saving people whose lives are threatened

b. Protecting the lives of firefighters involved in the incident
c. Programs to prevent fires can help accomplish the mission
    i. Fire prevention and code enforcement
    ii. Public education

2. Tactical
    a. Life Safety (protecting the lives of our firefighters and public) (Pets and Livestock)
    b. Incident Stabilization
    c. Property Conservation

Objective 4 Identify the primary functions of Standard Operating Procedures/Guidelines.

1. Policy
2. Procedure
3. Orders/Directives
4. S.O.P.'s

Standard 2

Students will understand fire behavior.

Objective 1 Define key terminology related to Fire.

1. Fire/Combustion
2. Heat
3. Ignition Temperature
4. Flammable Limits/Flammable Range
5. Vapor Density
6. Solubility (Miscibility)
7. Flash Point
8. BLEVE (Boiling Liquid Expanding Vapor Explosion)
9. Oxygen (Oxidizing Agent)
10. Oxidizer
11. Oxidation
12. Thermal Layering
13. Pyrolysis
14. Plume
15. Endothermic Reaction
16. Exothermic Reaction
17. Fire Triangle
18. Fire Tetrahedron
19. British Thermal Unit (BTU)
20. Fahrenheit (°F)
21. Celsius (°C)
22. Flameover (Rollover)

23. Flame Point (Fire Point)
24. Flashover
25. Lower Flammable Limit (LFL)
26. Smoke
27. Upper Flammable Limit (UFL)
28. Specific Gravity
29. Surface-to-Mass Ratio

Objective 2 Identify the components of the Fire Triangle and the Fire Tetrahedron.

1. Fire Triangle
    a. Heat
    b. Fuel
    c. Oxygen
2. Fire Tetrahedron
    a. Heat
    b. Reducing Agent (Fuel)
    c. Oxidizing Agent (Oxygen)
    d. Chemical Chain Reaction

Objective 3 Identify the relationship of the concentration of oxygen to combustibility and life safety.

1. Recognize that both fire and humans need oxygen for survival
2. As oxygen levels decrease, the survival of both humans and fire diminish

Objective 4 Identify the products of combustion commonly found in structure fires that create or indicate a hazard.

Essential topics:

1. Carbon Monoxide
2. Hydrogen Chloride
3. Hydrogen Cyanide
4. Carbon Dioxide
5. Phosgene
6. Ammonia
7. Chlorine

Objective 5 Identify the potential consequences of exposure to products of combustion.

1. Heat
2. Smoke

3. Elevated temperatures
4. Decreased oxygen levels
5. Fire gases
    a. Carbon monoxide (CO) - Toxin - impacts at cellular level binds with hemoglobin and inhibits body's use of oxygen. Accumulative effect. Requires medical intervention and time to recover.
    b. Hydrogen Cyanide (HCN) - Toxin - impacts at cellular level. Accumulative effect. Requires medical intervention and time to recover.
    c. Carbon dioxide (CO2) - Asphyxiate - displaces oxygen available to the body. Requires quality air to recover.

Objective 6 Identify the methods of heat transfer.

1. Conduction
2. Convection
3. Radiation

Objective 7 Identify the physical state of matter in which fuels are commonly found.

1. Solid
2. Liquid
3. Gas

Objective 8 Identify common fire conditions.

1. Fire development in a compartment
    a. Incipient stage
        i. Piloted ignition
        ii. Non-piloted ignition
        iii. Mushrooming
    b. Growth stage
        i. Thermal layering
        ii. Isolated flames (ghosting)
        iii. Rollover/flameover
        iv. Flashover
    c. Fully developed stage
    d. Decay stage (hot smoldering)
        i. Ventilation controlled
        ii. Back draft

Objective 9 Identify the process of thermal layering as it relates to a structure fire.

1. Thermal Layering - a tendency of gases to form into layers according to temperatures. (Also known as heat stratification and thermal balance.)
2. The hottest gases tend to be on the top layer, while cooler gases form the lower layer.

3. This takes place only within a compartment (structure fire).

Objective 10 Identify how to avoid disturbing thermal layering.

1. Key terms
   a. Thermal balance, heat stratification
   b. Neutral plane
   c. Inversion
2. Key concepts
   a. Direct fire attack method
   b. Solid fire stream, straight stream, narrow fog stream
   c. Coordinated fire attack and ventilation effort

Objective 11 Identify the development and prevention of a backdraft.

1. Development of backdraft
   a. Low oxygen level
   b. High heat
   c. High fuel concentration
   d. Smoldering fire
2. Prevention of backdraft
   a. Recognize warning signs
      i. Little or no visible flame
      ii. Grayish-yellow smoke
      iii. Pressurized smoke
      iv. Smoke-stained windows
      v. Inwardly drawn smoke
      vi. Puffing smoke
   b. Vertical ventilation

Standard 3

Students will understand building construction.

Objective 1 Identify common structural components of buildings.

1. Arch
2. Beam
3. Girder
4. Lintel
5. Column
6. Truss
7. Joist
8. Rafter
9. Ridge beam or ridgepole

Objective 2 Identify basic structural characteristics of the following types of building construction.

1. Fire Resistive (Type I)
2. Non-Combustible (Type II)
3. Ordinary (Type III)
4. Heavy Timber (Type IV)
5. Wood Frame (Type V)

Objective 3 Identify the methods of framing used in Type V construction.

1. Post and Beam Construction
2. Balloon Frame Construction
3. Platform Frame Construction
4. Lightweight Wood Frame Construction

Objective 4 Identify the components of a truss.

1. Top Chord
2. Bottom Chord
3. Web Members
4. Gusset Plates

Objective 5 Identify hazards associated with truss and lightweight construction.

1. Roof Collapse
    a. Bowstring
    b. Lightweight Truss Systems
2. Floor Collapse
    a. Lightweight Truss Systems
3. Time
    a. Limited time for fire operations

Objective 6 Identify dangerous conditions created by fire and fire suppression activities.

1. Conditions that contribute to the spread and intensity of the fire.
    a. Fuel Load
    b. Open Stairwells
    c. Open Floor Plans
    d. Wind Driven Fires
2. Conditions that make the building susceptible to collapse.
    a. Lightweight construction - wood and steel
    b. Age of building

c. Weather

d. Water weight - added by fire suppression operations

Objective 7 Identify indicators of building collapse.

1. Sagging Roofs or Floors
2. Leaning Exterior Walls
3. Fire Burning in Void Spaces
4. Truss Exposed to Fire
5. Steel Bar Joists Exposed to Fire
6. Plumbing Vent Pipes That Begin to Extend Up
7. Walls Out of Plumb
8. Multiple Floor Fire
9. Chimney Where the Adjoining Wall or Roof has Burned Away

Objective 8 Identify the effects of the fire on the building materials.

1. Wood - loses mass as the material burns, and the loss of mass weakens the wood member until it fails.
2. Masonry - subject to spalling (fragments of concrete dislodged under heat conditions caused by fire).
3. Cast Iron - may fracture or spall when exposed to high temperatures or when heated and cooled by fire streams.
4. Steel - when heated, the steel loses strength and expands (lengthens).

Objective 9 Identify the different types of wall construction.

1. Load-bearing Wall
2. Non-loadbearing Wall
3. Curtain Wall
4. Parapet Wall

Objective 10 Identify the types of loads as they apply to building construction.

1. Axial Load - pass through the center of a particular section or supporting member at a right angle to the cross section of the supporting member.
2. Torsional Load - are parallel to the cross section of the supporting member, typically a column that does not pass through the long axis of the structural member.
3. Eccentric Load - are imposed on a structural member at some point other than the center section of the supporting member.

Objective 11 Identify the types of loads that can be imposed on a structure.

1. Dead Load
2. Live Load
3. Impact Load
4. Fire Load

Objective 12 Identify the different types of floor construction.

1. Concrete Slab Floor
2. Terrazzo Floor
3. Dimensional Lumber Wood Joist Floor
4. Truss Floor
    a. Wood
    b. Steel

Standard 4

Students will understand safety.

Objective 1 Identify the importance of physical fitness and a healthy lifestyle to perform the duties of a firefighter.

1. Physical Fitness:
    a. More Productive
    b. Reduce Strains and Sprains (50% FF Injuries)
    c. Reduce Stress
    d. Reduce Heart Attack and Stroke
2. Healthy Lifestyle:
    a. Proper Nutrition
    b. Proper Exercise

Objective 2 Identify the responsibilities of a fire department as required by NFPA 1500, Standard on Fire Department Occupational Safety and Health Program.

1. Recognize Health and Safety as Official Objectives
2. Provide Safe and Healthy Work Environment
3. Promote Safety Throughout the Fire Service
4. Create Safety and Health Policies and Procedures
    a. Develop an Organizational Plan
    b. Develop a Risk Management Plan
    c. Develop a Safety and Health Policy

d. Define Roles and Responsibilities of Members
e. Establish a Safety and Health Committee
f. Keep Records of all Job-Related Accidents, Illnesses, Exposures, and Fatalities
g. Appoint a Department Health and Safety Officer
h. Develop Safety and Health related SOPs

Objective 3 Identify the function of the personal protective equipment.

1. Helmet - Protects the head from impact as well as from scalding water and other products of combustion.
2. Protective Hood - Protects portions of the firefighter's face, ears, and neck not covered by the helmet of coat collar from heat.
3. Protective Coat and Trousers (garments) - Protect trunk and limbs against cuts, abrasions, and burn injuries; protects from heat and cold, and provides limited protection from corrosive liquids.
4. Gloves - Protect the hands from cuts, abrasions, and burn injuries.
5. Safety Shoes or Boots (footwear) - Protect the feet from burn injuries and puncture wounds.
6. Eye Protection - Protects the wearer's eyes from hazards encountered during structural fire operations, such as flying particles or liquids.
7. Hearing Protection - Limits noise-induced hearing loss when firefighters engaged in structural firefighting are exposed to extremely loud environments, such as the use of power saws, pneumatic chisels, and gas-powered fans.
8. Self-Contained Breathing Apparatus (SCBA) (Respiratory Protection) - Protects the face and lungs from heat, smoke, and other toxic products of combustion, and airborne contaminants; also provides some eye protection.
9. Personal Alert Safety System (PASS) - Provides and audible means by which a lost, trapped, or incapacitated firefighter can be located.

Objective 4 Identify the care, maintenance, and limitations of personal protective clothing.

1. Protective Clothing must be maintained per Manufacturer’s Specifications
2. If Protective Clothing becomes contaminated, it Should Not be worn until properly laundered per the manufacturer's recommended maintenance procedure
3. Inspect and Clean PPE Regularly
4. Repair/Replace any Damage PPE
5. Clean outer shells and liners regularly to remove contamination, grime, and perspiration
6. Required to clean and dry PPE at least every six months in accordance with the manufacturer's recommendations

7. SCBA should be checked before and after each use, daily if possible, or weekly
8. SCBA Cylinder should filled to at least 90% of capacity
9. SCBA gauges, alarms, valves should be in good condition and working properly
10. SCBA harness and hose assemblies should be in good working condition
11. SCBA PASS device should be working properly
12. Clean SCBA and Sanitize Mask after each use

Objective 5 Identify procedures for safely operating at emergency scenes.

1. Requires an Incident Management System
   a. Most Departments Use NIMS-ICS
   b. Must Include Risk Management Plan
   c. Must Include Personnel Accountability System
2. Limit Emergency Operations to those that can be safely conducted by available personnel
3. Requires Rapid Intervention (RIT) for Firefighters in distress
4. Requires Rehab for Firefighters During Emergencies
5. Requires Limiting Firefighter Activities and Exposure to Violence During Civil Disturbances
6. Requires Post-Incident Analysis

Objective 6 Identify the hazards related to electric, gas and water emergencies and actions that can be taken to mitigate electric, gas, and water emergencies.

1. Electric
   a. Potential Electrical Shock Hazard
   b. De-Energize source can help extinguish fire
   c. Toxic fumes from burning electrical components
   d. Alternate/Secondary Power supplies/feeds
2. Gas
   a. Potential Explosion
   b. Ignition Source
   c. Vapor Density (Natural Gas/LPG)
   d. Contribute to fire intensity
3. Water
   a. Excess Water Damage
   b. Flooding Lower Areas
   c. Reaction with Electrical

Objective 7 Identify methods for shutting off utility services to a building.

1. Electrical
   a. Contact Service Provider

b. Utilize Maintenance Personnel
c. Shut Off Main Disconnect
d. Shut Off Main Circuit Breakers
e. Tag Out/Lock Out or Station a FF at Breaker Box
f. Pull Meter (Caution)

2. Gas
   a. Contact Service Provider
   b. Utilize Maintenance Personnel
   c. Shut Off Main Control Valve (Usually Quarter Turn)
   d. Shut Off Main Control Valve on Tank (LPG Tanks)

3. Water
   a. Contact Service Provider
   b. Utilize Maintenance Personnel
   c. Shut Off Main Supply Line (Entry Point)
   d. Shut Off Underground Valve (Curb Box - Special Wrench)

Objective 8 Identify safety equipment for riding on fire apparatus and its use.

1. Full Protective Clothing - Donned
2. Restraint Devices - Seatbelts for All Personnel
3. Hearing Protection - Noise Levels Exceed 90 dB
4. Non-Enclosed Cabs Also Require:
   a. Safety Bars or Gates
   b. Helmet
   c. Goggles

Objective 9 Identify the components of a firefighter rehabilitation system.

1. Rest – During Crew Rotation
    a. Sit Down
    b. Check Vital Signs
    c. Mentally Disengage from Event
2. Active Cooling
3. Hydration
4. Medical Monitoring
5. Nourishment

Objective 10 Identify the proper use of personal accountability system at an emergency incident.

1. Written Guidelines for Tracking and Inventory of All Members at Incident
2. All Members Must Actively Participate
3. IC is Responsible for Overall Accountability and Maintain an Accountability Worksheet Throughout the Incident
4. IC must Maintain an Awareness of the Location and Function of all Assigned Companies
5. Branch/Division/Group Supervisors must Supervise and Account for All Companies under their Command
6. Company Officers are Responsible for All Company Members
7. Accountability appropriate to size and complexity of incident must be maintained through Span-of-Control Requirements
8. Access to Scene Must be Controlled
9. Department Must Adopt a Personnel Accountability System and Use it on every Emergency Incident
10. Procedures Must be Adopted for Evacuating Personnel from an area where Imminent Hazards are Found
11. Must Appoint an Incident Safety Officer

Objective 11 Demonstrate the donning of the following articles of PPE as part of an ensemble in less than 60 seconds.

1. Helmet (With face shield)
2. Hood
3. Boots
4. Gloves
5. Protective Coat
6. Protective Trousers

Objective 12 Don the following articles of PPE.

1. PASS Device (If not integrated in SCBA)
2. Eye Protection
3. Hearing Protection

Objective 13 Demonstrate the proper doffing of the PPE ensemble and preparing it for reuse.

1. Remove PPE Protective Clothing
2. Inspect PPE for damage and need for cleaning
3. Clean Equipment as needed and remove damaged Equipment from service and report to Officer, if applicable
4. Place Clothing in a Ready state

Standard 4 Performance Evaluation included below (Optional)

Standard 5

Students will understand communication.

Objective 1 Distinguish between mutual aid and automatic aid.

1. Mutual Aid – Reciprocal assistance from one fire and emergency services agency to another during an emergency based upon a prearrangement between agencies involved and generally made upon the request of the receiving agency.
2. Automatic Aid – Written agreement between two or more agencies to automatically dispatch predetermined resources to any fire or other emergency reported in the geographic area covered by the agreement. These areas are generally where the boundaries between jurisdictions meet or where jurisdictional “Islands” exist.

Objective 2 Identify fire department radio procedures.

1. Routine Traffic:
    a. Use Clear Text
    b. No Open-Ended Communications
    c. Must Always Have a Response to any Communication
    d. Reply/Repeat any Order Communication
    e. Clear, Calm, Moderate Voice
    f. Avoid Excited Voice or Shouting
    g. Concise and to the Point Communications
2. Emergency Traffic:
    a. MAYDAY Emergency Communications
    b. Stop All Communications
    c. Clear Air Waves

d. LUNAR Report for MAYDAY
e. Location, Unit number, Needs/problem, Air level, Resources needed

3. Establish Evacuation Signals:
   a. Announcement Over Radio
   b. Audible Signals (3 Long Blasts on Air Horn)

Objective 3 Demonstrate the following prescribed fire department radio procedures: Routine traffic.

1. Select Proper Frequency
2. Monitor Radio Traffic until Clear
3. Hold Microphone 1 to 2 inches from Mouth at 45-degree angle
4. Depress and Hold Transmit Button until Through with Transmission
5. Announce Routine Radio Traffic
6. Release Transmit Button
7. Follow Department Routine Traffic SOPs

Objective 4 Demonstrate the following prescribed fire department radio procedures: Emergency traffic.

1. Select Proper Frequency
2. Hold Microphone 1 to 2 inches from Mouth at 45-degree angle
3. Depress and Hold Transmit Button until Through with Transmission
4. Announce “Emergency Traffic” for Break In Message Interrupting Air Traffic as Necessary
5. Transmit Emergency Traffic Message following Department SOPs
6. Release Transmit Button
7. Repeat Emergency Message Until Command Verifies Information Given

Objective 5 Demonstrate the following prescribed fire department radio procedures:

Emergency mayday.

1. Select Proper Frequency
2. Hold Microphone 1 to 2 inches from Mouth at 45-degree angle
3. Depress and Hold Transmit Button until Through with Transmission
4. Announce “MAYDAY” for Break in Message Interrupting Air Traffic as Necessary
5. i.e... MAYDAY, MAYDAY, MAYDAY
6. Transmit Emergency Traffic Message following Department SOPs
7. Release Transmit Button
8. Repeat Emergency Message Until Command Verifies Information Given
9. After Transmitting MAYDAY Activate PASS Device and follow Dept SOPs for Positioning

or Actions

Objective 6 Demonstrate the following prescribed fire department radio procedures: Emergency evacuation signal.

1. Select Proper Frequency
2. Hold Microphone 1 to 2 inches from Mouth at 45-degree angle
3. Depress and Hold Transmit Button until Through with Transmission
4. Announce “Emergency Traffic” for Break In Message Interrupting Air Traffic as Necessary
   a. i.e. Emergency Traffic, Emergency Traffic, Emergency Traffic
5. Transmit Emergency Traffic Message following Department SOPs
   a. Announce “Evacuation Order/Message”
   b. May Repeat “Evacuation Order/Message” Several Times to Make Sure Everyone Hears the “Evacuation Order/Message”
6. Release Transmit Button
7. Radio Orders may also include Audible Signals such as Air Horns or Sirens
8. Command Should Request a Personnel Accountability Report (PAR) When an Evacuation Signal is Ordered, to Account for ALL Companies/Personnel

Standard 5 Performance Evaluation included below (Optional)

Standard 6

Students will understand self-contained breathing apparatus.

Objective 1 Identify the hazardous environments requiring the use of respiratory protection.

1. Respiratory hazards
   a. Toxic atmospheres described as immediately dangerous to life or health are known as IDLH atmospheres.
   b. OSHA considers the interior of a burning building to be an IDLH atmosphere.
2. Four common respiratory hazards associated with fires and other emergencies:
   a. Oxygen deficiency
   b. Elevated temperatures
   c. Smoke
   d. Toxic atmosphere (with and without fire)

Objective 2 Identify the physical requirements of the SCBA user.

1. Physical Factors:
   a. Physical Condition
   b. Agility
   c. Facial Features
2. Medical Factors:

a. Neurological Functioning
b. Muscular/Skeletal Condition
c. Cardiovascular Conditioning
d. Respiratory Functioning

3. Mental Factors:
   a. Adequate Training in the Equipment used
   b. Self-confidence
   c. Emotional Stability

Objective 3 Identify the uses and limitations of SCBA.

1. Limitations of Equipment:
   a. Limited visibility
   b. Decreased ability to communicate
   c. Increased weight
   d. Decreased mobility
2. Limitations of user (air supply)
   a. Physical condition of user
   b. Degree of physical exertion
   c. Emotional stability of user
   d. Working condition of apparatus
   e. Cylinder pressure before use
   f. Training/experience of user
3. Air management
   a. The air supply left after low-air alarm sounds may not allow enough time to exit.
   b. Firefighters should comply with the accountability system in use, maintain situational awareness, and manage air supply.
   c. The ultimate responsibility for safety rests with the firefighter. Firefighters are responsible for managing their own air supply.

Objective 4 Identify the components, functions, and safety features of SCBA.

1. Open Circuit:

1. Harness Assembly
2. Air Cylinder(s)(minutes and pressures)
3. Regulator (RIC/UAC)
4. Face piece
5. PASS (personal alert safety system)

2. Open-Circuit Airline
3. Closed-Circuit

Objective 5 Identify the inspection procedures to be used when wearing and working with SCBA.

1. Cylinder pressure
2. All Gauges
3. Low-pressure Alarm
4. All hose connections
5. Face piece
6. Harness system
7. All valves
8. Any PASS devices

Objective 6 Identify safety procedures to be used when wearing and working with SCBA.

1. Determine need. Is there a problem?
2. Place left hand on face piece
3. Slide hand down mask - check regulator
4. Check air saver or "on" switch
5. Check by-pass or purge valve, is it open or closed?
6. Follow line from regulator to pressure reducer - check for problems. Is there a rip or tear in the line?
7. Check if cylinder valve is in open position
8. Check if cylinder is securely connected to high pressure line
9. Correct any problems found in check as you find them
10. If not able to correct problem, leave area at once with assistance to safe area (call for a "Mayday" and consider buddy breathing, this will be changed for different manufactures)

Objective 7 Identify the emergency procedures to be used in the event of SCBA failure.

1. SOPs for AHJ, and manufacture
2. Do Not Panic
3. Conservation of Air
4. Use Radio (Mayday, location-etc.)
5. Activate PASS Device
6. Change location from IDLH to a safe area

Objective 8 Identify the methods of donning and doffing an SCBA while wearing personal protective equipment.

1. Over the Head method
2. Coat method

Objective 9 Identify the techniques for exiting through a restricted opening.

1. Reduce Profile (loosen straps)

2. Dump Tank/Harness if absolutely necessary
    a. Maintain contact/control with regulator at all times
3. Swim Technique
4. Swim Method for Entanglement

Objective 10 Identify the procedure for changing a low/empty SCBA cylinder.

1. On the firefighter's back
2. Off the firefighter, on the ground

Objective 11 Identify the procedures for cleaning and sanitizing an SCBA.

1. Inspect for damage
2. Harness assembly
3. Air Cylinder
4. Regulator
5. Facepiece
6. PASS devices
7. Reassemble and inspect the entire SCBA before placing back in use.

Objective 12 Identify the components and purpose of an SCBA fill system.

1. Cascade system
2. Filled directly from Compressor, Air Fill Station

Objective 13 Identify the operating principles of an SCBA refilling system.

1. Shielded Fill Station
2. Control Overheating of Cylinders
3. Full Cylinder, not over pressurized

Objective 14 Demonstrate the donning of SCBA while wearing full protective equipment in less than 60 seconds using the over the head method.

1. The specific SCBA manufacturer's recommendations for donning and use of the SCBA should always be followed.
2. General procedure for donning of SCBA:
    a. Position of firefighter
    b. Open cylinder valve fully
    c. Check cylinder and regulator pressure gauges
    d. Grab the harness for proper lift up and over your head
    e. Proper release of harness for proper placement on your back
    f. Fasten all straps; chest, shoulders and then waist

g. Don facepiece
h. Test facepiece
i. Don hood
j. Connect air
k. Activate external PASS device
l. Finish donning PPE

Objective 15 Demonstrate the donning of SCBA while wearing full protective equipment in less than 60 seconds using the regular coat method.

1. The specific SCBA manufacturer's recommendations for donning and use of the SCBA should always be followed.
2. General donning procedures:
   a. Position yourself
   b. Open cylinder
      i. Listen for activation of the integrated PASS Alarm
3. Check cylinder and regulator pressure gauges
4. Grasp top of left shoulder strap of the SCBA with the left hand and raise the SCBA overhead
5. Guide left elbow through the loop formed by the left shoulder strap and swing SCBA around left shoulder
6. Guide right arm through the loop formed by the right shoulder strap allowing the SCBA to come to rest in proper position
7. Fasten all straps: chest, shoulders and waist
8. Don facepiece: straps, proper seal and operate exhalation valve
9. Don hood; no exposed skin
10. Connect air supply to facepiece
11. Activate external PASS device
12. Finish donning PPE

Objective 16 Demonstrate the donning of SCBA while wearing full protective equipment in less than 60 seconds with face piece – face piece mounted regulator.

1. Fully extend the straps on the facepiece
2. Place your chin in the chin pocket
3. Fit the facepiece to your face, bringing the straps and/or webbing over your head
4. Tighten the lowest two straps; if there are more straps, tighten the top straps last
5. Check for proper seal
6. Put protective hood up so it covers all bare skin. Don your helmet and secure the chin

strap
7. Install the regulator on your facepiece

Objective 17 Demonstrate the doffing of SCBA and placing it in the ready position while wearing full protective equipment.

1. Department's SOP and the manufacturer's recommendation
2. Off air
3. Remove SCBA, keeping control of the regulator, (in front of you)
4. Close cylinder valve completely
5. Bleed air from system
6. Check air cylinder pressure, replace if 90% or less rated capacity
7. Return all straps, valves and components back to ready state
8. Inspect SCBA and facepiece for damage
9. Clean equipment as needed and remove damaged equipment from service, and report to company officer
10. Place SCBA back in the proper storage area, for immediate use

Objective 18 Demonstrate and document the cleaning and sanitizing of SCBA components.

1. Prepare cleaning solution, buckets, etc. per manufacturer's guidelines and departmental policies
2. Clean all the SCBA components separately
3. After equipment is clean, inspect for damage, repair the damage and/or replace
4. Place all components in a manner and location so that they can dry
5. Reassemble all SCBA components, placing them in a state of readiness

Objective 19 Demonstrate the inspection procedures for the main components of SCBA.

1. Identify all components of the SCBA are present
2. Insect all components of SCBA for cleanliness and damage
3. Immediately clean dirty components if found. If damaged remove from service and report to an officer
4. Check that cylinder is full (90-100% of capacity)
5. Open the cylinder valve slowly; to verify operation of the low-air alarm and absence of audible air leaks
6. If air leaks are detected; determine corrections needed or if malfunction the SCBA shall be removed for service
7. Check all pressure gauges and/or indicators (i.e. heads-up display) are providing similar pressure readings (check with manufacturers' guidelines)
8. Check the function of all modes of PASS device
9. Don facepiece; to check for seal and operate the exhalation valve

10. Don regulator and check function by taking normal breaths
11. Check bypass and/or purge valve
12. Remove facepiece and prepare all the components of SCBA for immediate reuse

Objective 20 Demonstrate the use of the SCBA in conditions of obscured visibility.

1. Remain low, better your visibility; crawling, and if firefighter can see the floor a crouched or "duck" walk.
2. Check the environment and closely monitor conditions for change, use of thermal imaging technology, also probing with a tool.
3. Never remove the facepiece
4. Maintain an awareness of location
5. Ventilate as you advance if condition will allow
6. Check for outside openings; windows and doors (may provide means of escape)
7. Always maintain direct contact with your team and/or partner at all times, this can be done by use of a tagline between firefighters.
8. Never enter a hostile environment alone

Objective 21 Demonstrate the following emergency procedures to be used in the event of SCBA failure: Use of emergency bypass or purge valve.

1. Location of SCBA by-pass and/or purge valve
2. Don SCBA and facepiece
3. Use as directed by the manufacturer of SCBA
4. Operate by-pass and/or purge valve
    a. Using both hands, one at a time
    b. Using both hands, one at a time with eyes closed

Objective 22 Demonstrate the following emergency procedures to be used in the event of SCBA failure: Conservation of air.

Essential Topics:

1. Don SCBA and facepiece, On Air
2. Follow dept. SOPs for this situation
3. Do not panic
4. Control breathing
    a. In through your nose and out your mouth
    b. Crack your by-pass and/or purge valve for a short time
    c. Alert your partner that you have a problem

Objective 23 Demonstrate the following emergency procedures to be used in the event of SCBA failure: RIC/UAC.

1. RIC/UAC Rapid intervention team/Universal Air Connection
2. Filling unshielded cylinders while a firefighter is wearing the SCBA is prohibited. However, a Rapid intervention crew/team (RIC/RIT) rescuing a trapped or incapacitated firefighter may be granted an exception to this rule.
3. The following three criteria must be met before filling a worn SCBA:
    a. NIOSH-approved RIC Universal Air Connection (UAC) fill option are used
    b. A risk assessment has been conducted to limit safety hazards and ensure that necessary equipment is fully operational
    c. There is an imminent threat to the safety of the downed firefighter, and immediate action is required to prevent loss of life or serious injury

Objective 24 Demonstrate techniques for maximizing the use of the air capacity of a SCBA under work conditions.

1. Know your SCBA
2. Train with your SCBA
3. Know your work time, allowing for entry and exit time
4. Know that the standard rate for consumption for a typical adult under low exertion
5. Perform an Air Consumption test, to help with job/task efficiency
6. Know your personal limits and when to ask for help
7. Knowing your "point of no return"
8. Always remain calm, control your breathing rate (in through your nose and out your mouth), taking shallow breaths

Objective 25 Demonstrate the use of SCBA in exiting through areas with restricted openings in emergency situations: Shifting.

1. Don SCBA and facepiece, On Air
2. Check opening with your hand
3. Change your body position, rotate your body 45 degrees try again
4. Loosen right shoulder strap
5. Loosen waist strap
6. Shift their tank to your left shoulder, this will REDUCE PROFILE
7. On through with right shoulder first

Objective 26 Demonstrate the use of SCBA in exiting through areas with restricted

openings in emergency situations: Dumping.

1. Don SCBA and Facepiece, ON Air
2. Check opening with your hand
3. If nothing works to exit restricted opening, then “Dump Tank”
4. Firefighter rolls to your left side
5. Loosens right shoulder strap, loosen and remove waist strap
6. Roll out of the SCBA completely
7. Rotate the SCBA so that the cylinders valve is facing away from the firefighter
8. All straps need to be collected on top of the SCBA neatly, to aid in redonning
9. The firefighter should then move with the SCBA in front but keeping it close to the body to protect it and prevent the facepiece from being pulled off
10. The firefighter should NEVER lose contact with the SCBA
11. Know your surroundings
12. When clear of the obstacle, the firefighter can redon the SCBA by laying out the straps and rolling back into the SCBA

Objective 27 Demonstrate an air cylinder exchange while the SCBA is worn by a firefighter.

1. Don the SCBA and Facepiece, On Air
2. Firefighter On Air will lean forward in a stable position (hands on your knees)
3. Firefighter will disconnect the regulator from the facepiece
4. You will close the cylinder valve, fully
5. Firefighter will release the air pressure from the high and low pressure hose
6. You will disconnect the high-pressure line from the cylinder
7. You will loosen the cylinder strap, remove empty cylinder from harness assembly
8. You will inspect replacement cylinder to ensure the cylinder is 90-100 % of rated capacity
9. You place new cylinder in harness assembly
10. You check the cylinder valve opening and the high-pressure hose fitting for debris
11. You will connect high pressure line to the cylinder
12. You will slowly open cylinder valve fully, listen for audible alarm and leaks
    a. (On some SCBA’s an audible does not sound, know your equipment)
13. Firefighter will don regulator and take normal breaths
14. Firefighter will check the pressure on the remote gauge and/or indicators

Objective 28 Demonstrate an air cylinder exchange while the SCBA is not worn by a firefighter.

1. Place SCBA on a firm surface
2. Close cylinder valve
3. Bleed off air pressure from high- and low-pressure hoses
4. Disconnect high pressure coupling from the cylinder
5. Remove the empty cylinder from harness assembly
6. Verify the replacement cylinder is 90-100% of rated capacity

7. Check cylinder valve opening and high-pressure hose fitting for debris
8. Place the new cylinder into the harness assembly
9. Connect the high-pressure hose to the cylinder
10. Slowly open cylinder valve fully, listen for audible alarm and leaks
    a. (On some SCBA's an audible does not sound, know your equipment)
11. If air leaks are detected, determine if connections need to be tightened or if valves, donning switch, etc. need to be adjusted. Otherwise SCBA with audible leaks due to malfunction shall be removed from service, tagged, and reported.

Objective 29 Demonstrate the procedures for refilling SCBA cylinders from a Cascade System.

1. Check with manufacturers' procedures for this activity, for your equipment
2. Check the hydrostatic test date of the cylinder that is to be filled
3. Inspect the SCBA cylinder for damage, such as deep nicks, cuts, gouges, or discoloration from heat. Place the SCBA cylinder in a fragment-proof fill station
    a. If damaged or out of hydrostatic test date, remove it from service and tag it for future inspection and hydrostatic testing
    b. NEVER attempt to fill a cylinder that is damaged or that is out of hydrostatic test date
4. Place the SCBA cylinder in a fragment-proof fill station
5. Connect the fill hose to the cylinder and close bleed valve on fill hose
6. Open the SCBA cylinder valve
7. Open the valve at the fill hose, the valve at the cascade system manifold, or the valve at both locations if the system is so equipped
8. Open the valve of the cascade cylinder that has the least pressure but that has more than the SCBA cylinder
9. Close the cascade cylinder valve when the pressure of the SCBA and the cascade cylinder equalize
10. Close the valve or valves at the cascade system manifold and/or fill line if the system is so equipped
11. Close the SCBA cylinder valve
12. Open the hose bleeder valve to bleed off excess pressure between the cylinder valve and the valve on the hose
    a. (FAILURE to open the hose bleeder valve could result in O-ring damage)
13. Disconnect the fill hose from the SCBA cylinder
14. Remove the SCBA cylinder from the fill station
15. Return the SCBA cylinder to proper storage

Objective 30 Demonstrate the procedures for refilling SCBA cylinders from a compressor/purifying system.

1. Check with manufacturers' procedures for this activity, for your equipment
2. Check the hydrostatic test date of the cylinder that is to be filled

3. Inspect the SCBA cylinder for damage, such as deep nicks, cuts, gouges, or discoloration from heat. Place the SCBA cylinder in a fragment-proof fill station
    a. If damaged or out of hydrostatic test date, remove it from service and tag it for future inspection and hydrostatic testing.
    b. NEVER attempt to fill a cylinder that is damaged or that is out of hydrostatic test date.
4. Place the SCBA cylinder in a fragment-proof fill station
5. Connect the fill hose to the cylinder and close bleed valve on fill hose
6. Open the SCBA cylinder valve
7. Turn on the compressor/purifier and open the outlet valve
8. Set the cylinder pressure adjustment on the compressor (if applicable) or manifold to the desired full-cylinder pressure
9. Open the manifold valve (if applicable), and again check the fill pressure
10. Open the fill station valve and begin filling the SCBA cylinder
11. Close the fill station valve when the SCBA cylinder is full
12. Close the SCBA cylinder valve
13. Open the hose bleed valve to bleed off excess pressure between the cylinder valve and the valve on the fill station
    a. (FAILURE to open the hose bleeder valve could result in O-ring damage)
14. Disconnect the fill hose from the SCBA cylinder
15. Remove the SCBA cylinder from the fill station
16. Return the SCBA cylinder to proper

Standard 6 Performance Evaluation included below (Optional)

Standard 7

Students will be able to identify and use extinguishers.

Objective 1 Identify the system used to classify fire extinguishers including symbols and pictograms.

1. Class Name
    a. Ordinary Combustibles
    b. Flammable and Combustible Liquids and Gasses
    c. Electrical
    d. Combustible Metals
    e. Kitchen
2. Letter Symbol
    a. Green Triangle
    b. Red Square
    c. Blue Circle
    d. Yellow Star

e. Black Hexagon

3. Image Symbol
   a. Trash Can
   b. Flammable Liquid Container
   c. Electrical Outlet
   d. Machining Gear
   e. Frying Pan
4. Description
   a. Wood, paper, plastic
   b. Hydrocarbon and alcohol-based liquids and gasses
   c. Energized electrical equipment
   d. Magnesium, potassium, etc.
   e. Cooking oils.

Objective 2 Identify the portable extinguisher rating system.

1. Class A
   a. Agent
   b. Duration
   c. Range
   d. Test Fires
   e. 1A-40A
2. Class B
   a. Based on Square Footage
   b. 1B-640B
3. Class C
   a. Comprised of A or B Fires
   b. Rating confirms non-conductivity
   c. Assigned in addition to rating for class A or B
4. Class D
   a. Varies with type of metal being tested
   b. No numerical rating
   c. No multi-purpose rating
5. Class K
   a. Saponification
   b. Capable of extinguishing a minimum surface area of 2.25 square feet
6. Multiple Marking
   a. Suitable for more than one class of fire
   b. Three most common combinations
      i. Class A-B-C
      ii. Class A-B
      iii. Class B-C
   c. Ratings are independent

Objective 3 Identify the types of fire extinguishers.

1. Pump-Type Water Extinguishers
2. Stored-Pressure Water Extinguishers
3. Wet Chemical Stored-Pressure Extinguishers
4. Aqueous Film Forming Foam (AFFF) Extinguishers
5. Clean Agent Extinguishers
6. Carbon Dioxide Extinguishers
7. Dry Chemical Extinguishers
8. Handheld Units
9. Wheeled Units

Objective 4 Identify the appropriate extinguisher and its application technique for various classes of fire.

1. Selection Factors
    a. Classification
    b. Rating
    c. Hazards
    d. Atmospheric conditions
    e. Life hazards
    f. Ease of handling extinguisher
    g. Availability of trained personnel
2. Using Portable Fire Extinguishers
    a. Operational Check
    b. External condition
        i. Hose/nozzle
        ii. Weight
        iii. Pressure gauge
    c. PASS method of Application

Objective 5 Demonstrate the extinguishment of the following classes of fires using the appropriate portable fire extinguisher: Class A.

1. Size-up fire
2. Pull pin of extinguisher to break inspection band
3. Test to ensure proper operation
4. Carry extinguisher to within stream reach of fire
5. Aim nozzle toward base of fire
6. Discharge extinguishing agent and sweep slowly back and forth across entire width of

fire
7. Cover entire area with agent until fire is completely extinguished
8. Back away from the fire area
9. Tag extinguisher for recharge and inspection

Objective 6 Demonstrate the extinguishment of the following classes of fires using the appropriate portable fire extinguisher: Class B.

1. Size-up fire
2. Pull pin of extinguisher to break inspection band
3. Test to ensure proper operation
4. Carry extinguisher to within stream reach of fire
5. Aim nozzle toward base of fire
6. Discharge extinguishing agent and sweep slowly back and forth across entire width of fire avoiding splashing liquid fuels
7. Cover entire area with agent until fire is completely extinguished
8. Back away from the fire area
9. Tag extinguisher for recharge and inspection

Standard 7 Performance Evaluation included below (Optional)

Standard 8

Students will identify and use ladders.

Objective 1 Identify the primary materials used in the construction of ladders.

1. Metal Ladders
2. Wood Ladders
3. Fiberglass Ladders

Objective 2 Identify the components of a ladder.

1. Beam
2. Bed Section (base section)
3. Butt (heel or base)
4. Butt Spurs
5. Dogs (see Pawls)
6. Fly Section
7. Foot Pads
8. Guides
9. Halyard
10. Heat-sensor Label

11. Heel (see Butt)
12. Hooks
13. Locks (see Pawls)
14. Main Section (bed or base section)
15. Pawls (dogs or ladder locks)
16. Protection plates
17. Pulley
18. Rails
19. Rungs
20. Shoes (see footpads)
21. Stops
22. Tip (top)
23. Truss block

Objective 3 Identify techniques for safe ladder operations.

1. Develop and maintain adequate upper body strength
2. Wear a full body harness with belay line when training on ladders
3. Operate ladders according to departmental training and procedures
4. Wear protective gear, including gloves and helmet, when working with ladders
5. Choose the proper ladder for the job and load the ladder
6. Use leg muscles, not back or arm muscles, when lifting ladders below the waist
7. Use an adequate number of firefighters for each carry and raise
8. Do not raise any ladders to within 10 feet of electrical wires
9. Check ladder placement for the proper angle
10. Be sure that the hooks of the pawls are seated over the rungs
11. Be sure that the ladder is stable before climbing
12. Be careful when moving ladders sideways
13. Heel the ladder or secure it at the top
14. Climb smoothly and rhythmically
15. Do not overload the ladder
    a. One firefighter every 10 feet
    b. One per section
16. Tie in to ground ladders with a leg lock or ladder belt when working from the ladder
17. Do not relocate a positioned ladder unless ordered to do so
18. Use ladders for their intended purposes only
19. Inspect ladders for damage and wear after each use

Objective 4 Identify the types of ladders.

1. Single Ladders (wall or straight ladders)
2. Roof Ladders (single ladder equipped with folding hooks)

3. Folding Ladders (Attic Ladders)
4. Extension Ladders
5. Pole Ladders (Bangor Ladders)
6. Combination Ladders
7. Pompier Ladders (scaling ladders)

Objective 5 Identify the use of common types of ladders.

1. Single Ladders (wall or straight ladders) - Used for quick access to windows and roofs on one- and two-story buildings
2. Roof Ladders (single ladder equipped with folding hooks) - Used to anchor the ladder over the ridge of a pitched roof so that a firefighter may stand on the ladder for roof work (distributes the firefighter's weight and helps prevent slipping)
3. Folding Ladders (Attic Ladders) - Used for interior attic access
4. Extension Ladders - Used where a specific length adjustment is needed to access windows and roofs
5. Pole Ladders (Bangor Ladders) - Used when desired length exceeds the reach of standard extension ladders (40 feet or longer)
6. Combination Ladders - Used as a self-supporting step ladder (A-frame) and as a single or extension ladder
7. Pompier Ladders (scaling ladders) - Used to climb from floor to floor, via exterior windows, on a multistory building

Objective 6 Identify the selection process for using ladders.

1. Key concepts
    a. The base of the ladder should be placed away from the building approximately one-quarter of the vertical distance from the ground to the point of contact with the wall
    b. Typically, a residential story averages about 10 feet, and the distance from the floor to the windowsill averages about 3 feet
    c. Typically, a commercial story averages about 12 feet, and the distance from the floor to the windowsill averages about 4 feet
    d. When laddering to the roof, extend the ladder (three to five rungs) above the roof edge
    e. Place the tip of a ladder about even with the top of the window and to the windward side to gain access to a narrow window or for ventilation
    f. Place the tip of the ladder just below the windowsill for rescue
    g. For lengths of 35 feet or less, reach is approximately 1 foot less than the designated length
    h. For lengths over 35 feet, reach is approximately 2 feet less than the designated length
2. General selection guidelines
    a. First-story roof - 16 to 20 foot ladder
    b. Second-story window - 20 to 28 foot ladder

c. Second-story roof - 28 to 35 foot ladder
d. Third-story window or roof - 40 to 50 foot ladder
e. Fourth-story roof - over 50 foot ladder

Objective 7 Demonstrate selecting the following ground ladder based upon a given situation: Folding, roof, straight, extension, combination.

1. Selection dependent upon the following:
   a. Estimating height of window
   b. Estimating height of roofline
2. Placement affects size and type selection
   a. Tip must extend 5 rungs above roofline
   b. Ladders for window access must be longer than those for rescue
   c. Tip at ledge for rescue
   d. Tip even with top of window for access
   e. Need for deployment on roof or for interior attic access
   f. Roof ladders provide a means of anchoring ladder on roof ridge
   g. Folding ladders can be carried in narrow passageways and deployed in scuttle holes or small rooms

Objective 8 Demonstrate the one firefighter from an apparatus carry.

1. Ladder is mounted in bracket.
2. Center of ladder is located.
3. Firefighter places an arm between two rungs of the ladder just to one side of middle rung.
4. Beam of ladder is lifted and rested on shoulder.
5. Ladder is carried butt end first.

Objective 9 Demonstrate the one firefighter from the ground carry.

1. Ladder is standing on beam.
2. Center of ladder is located.
3. Firefighter places an arm between two rungs of the ladder just to one side of middle rung.
4. Beam of ladder is lifted and rested on shoulder.
5. Ladder is carried butt end first.

Objective 10 Demonstrate the two-firefighter method – low should carry from the flat racking.

1. Ladder is mounted in Flat Racked compartment.
2. Both firefighters are positioned on same side and face the compartment.
3. Firefighters slide the ladder out of the compartment (usually from the rear of the vehicle).

4. Firefighters will position themselves one near the butt and one near the tip (to position for carrying ladder).
5. Both firefighters place one arm between two rungs of ladder and on command lift the ladder onto their shoulders.
6. Ladder is carried butt first.
7. Firefighter at butt covers spur with gloved hand.

Objective 11 Demonstrate the two-firefighter method – low shoulder carry from vertical racking.

1. Ladder is mounted in bracket.
2. Both firefighters are positioned on same side and face the butt end.
3. Both firefighters place one arm between two rungs of ladder and on command lift the ladder onto their shoulders.
4. Ladder is carried butt first.
5. Firefighter at butt covers spur with gloved hand.

Objective 12 Demonstrate the two-firefighter suitcase carry.

1. Ladder is placed on ground on beam.
2. Both firefighters are positioned on same side and face the butt end.
3. Both reach down and grasp the upper beam of the ladder.
4. On command, both pick up ladder carry it , butt forward, at arm's length.
5. Firefighter at butt covers spur with gloved hand.

Objective 13 Demonstrate the three-fighter method – flat shoulder carry from the ground.

1. Ladder is placed flat on ground.
2. Two firefighters stand on one side of ladder at butt and tip ends.
3. The third firefighter is positioned on opposite side at middle of ladder.
4. All face tip end.
5. All bend down and grasp closest rung at arm's length.
6. On command, all pick up ladder and pivot toward butt when ladder reaches chest height.
7. Ladder beam is placed on shoulders.

Objective 14 Demonstrate the three-firefighter arm's length method – flat carry.

1. Ladder is placed flat on ground.
2. Two firefighters stand on one side of ladder at butt and tip ends.
3. The third firefighter is positioned on opposite side at middle of ladder.
4. All face butt end.
5. All bend down and grasp closest rung at arm's length.
6. On command, all pick up ladder and carry it at arm's length.
7. Firefighter at butt covers spur with gloved hand.

Objective 15 Demonstrate the three-firefighter suitcase carry.

1. Ladder is placed on beam on ground.
2. All firefighters are on same side.
3. A firefighter is positioned at the butt, tip and middle of ladder.
4. All face butt end.
5. All bend down and grasp upper beam of ladder.
6. On command, all pick up ladder and carry it at arm's length.
7. Firefighter at butt covers spur with gloved hand.

Objective 16 Demonstrate the four-firefighter arm's length – flat carry.

1. Bed section of ladder is flat on ground.
2. Firefighters stand at corners on each side of ladder, two at tip and two at butt.
3. All firefighters face butt end.
4. On leader's command, all kneel and grasp the closest rung at arm's length.
5. On command, all pick up ladder and carry butt end forward.
6. Spur is covered by firefighters at tip with gloved hand.

Objective 17 Demonstrate the four-firefighter flat shoulder carry.

1. Bed section of ladder is flat on ground.
2. Firefighters stand at corners on each side of ladder, two at tip and two at butt.
3. All firefighters face tip end.
4. On leader's command, all kneel and grasp the closest rung at arm's length.
5. On command, all stand, raising the ladder.
6. As ladder reaches chest height, all pivot and face butt end.
7. Ladder is placed on shoulders.
8. Spur is covered by firefighters at tip with gloved hand.

Objective 18 Demonstrate the roof ladder carry and raise.

1. Ladder carried to desired work area.
2. Hooks are deployed.
3. Ladder is faced outward against ground ladder.
4. Firefighter climbs ladder until shoulder is midpoint of the roof ladder.
5. Firefighter reaches through rungs.
6. Roof ladder is hoisted onto shoulder.
7. Firefighter climbs to top of ladder.
8. Use appropriate method of securing to ladder.
9. Roof ladder removed from shoulder.
10. Ladder is pushed hand-over-hand on beam onto roof and hooks away from ground ladder.

11. Ladder is pushed up roof with hooks down until edge of peak is cleared

Objective 19 Demonstrate the one firefighter extension ladder raise.

1. Work area visually inspected.
2. Ladder butt lowered to ground – butt spurs against wall.
3. Firefighter positions to raise ladder.
4. Ladder raised hand-over-hand until parallel against wall.
5. Ladder butt positioned for correct climbing angle.

Objective 20 Demonstrate the two-firefighter extension ladder raise.

1. Butt end is placed on ground by firefighter 1.
2. Firefighter 2 rests ladder beam on shoulder.
3. Ladder is heeled on bottom rung by firefighter 1.
4. Rung or beam is grasped from crouching position by firefighter 1.
5. Firefighter 1 leans back.
6. Firefighter 2 steps beneath the ladder.
7. Firefighter 2 grasps convenient rung with both hands.
8. Firefighter 2 advances hand-over-hand down the rungs to place the ladder in a vertical position.
9. Firefighter 1 grasps successively higher rungs as the ladder nears a vertical position.
10. Firefighter 1 and firefighter 2 face each other.
11. Ladder is heeled.
12. Firefighter 1 grasps the halyard.
13. Firefighter 1 extends the fly section with a hand-over-hand method until ladder tip reaches desire elevation.
14. Firefighter 2 grasps the beams.
15. Both firefighters lower the ladder against building at correcting climbing angle.
16. The halyard is tied off.

Objective 21 Demonstrate the two-firefighter extension ladder raise – TIP position.

1. Butt end is placed on ground by firefighter 1.
2. Firefighter 2 rests ladder beam on shoulder.
3. Ladder is heeled on bottom rung by firefighter 1.
4. Rung or beam is grasped from crouching position by firefighter 1.
5. Firefighter 1 leans back.
6. Firefighter 2 steps beneath the ladder.
7. Firefighter 2 grasps convenient rung with both hands.
8. Firefighter 2 advances hand-over-hand down the rungs to place the ladder in a vertical position.
9. Firefighter 1 grasps successively higher rungs as the ladder nears a vertical position.

10. Firefighter 1 and firefighter 2 face each other.
11. Ladder is heeled.
12. Firefighter 1 grasps the halyard.
13. Firefighter 1 extends the fly section with a hand-over-hand method until ladder tip reaches desire elevation.
14. Firefighter 2 grasps the beams.
15. Both firefighters lower the ladder against building at correcting climbing angle.
16. The halyard is tied off.

Objective 22 Demonstrate the two-firefighter ladder beam raise – HEEL position.

1. Ladder beam is placed on ground at butt end by firefighter 1.
2. Firefighter 2 rests ladder beam on shoulder.
3. Ladder is heeled on butt spur by firefighter 1.
4. Upper beam is grasped by firefighter 1. Back leg is extended for counterbalance.
5. Firefighter 2 advances hand-over-hand down the beam toward the butt end to place the ladder in a vertical position.
6. The ladder is pivoted to position the fly section toward the structure for wooden ladders, away from the structure for metal ladders.
7. The halyard is used to extend the ladder to the desired elevation.
8. Both firefighters lower the ladder against building at correct climbing angle.
9. The halyard is tied off.

Objective 23 Demonstrate the two-firefighter ladder beam raise – TIP position.

1. Ladder beam is placed on ground at butt end by firefighter 1.
2. Firefighter 2 rests ladder beam on shoulder.
3. Ladder is heeled on butt spur by firefighter 1.
4. Upper beam is grasped by firefighter 1. Back leg is extended for counterbalance.
5. Firefighter 2 advances hand-over-hand down the beam toward the butt end to place the ladder in a vertical position.
6. The ladder is pivoted to position the fly section toward the structure for wooden ladders, away from the structure for metal ladders.
7. The halyard is used to extend the ladder to the desired elevation.
8. Both firefighters lower the ladder against building at correct climbing angle.
9. The halyard is tied off. The ladder is pivoted to position the fly section toward the structure for wooden ladders, away from the structure for metal ladders.
10. The halyard is used to extend the ladder to the desired elevation.
11. Both firefighters lower the ladder against building at correct climbing angle.
12. The halyard is tied off.

Objective 24 Demonstrate the three-firefighter extension ladder raise – TIP #1 position.

1. Ladder beam is placed on ground at butt end by firefighter 1.
2. Firefighter 2 rests ladder beam on shoulder.
3. Ladder is heeled on butt spur by firefighter 1.
4. Upper beam is grasped by firefighter 1. Back leg is extended for counterbalance.
5. Firefighter 2 advances hand-over-hand down the beam toward the butt end to place the ladder in a vertical position.
6. The ladder is pivoted to position the fly section toward the structure for wooden ladders, away from the structure for metal ladders.
7. The halyard is used to extend the ladder to the desired elevation.
8. Both firefighters lower the ladder against building at correct climbing angle.
9. The halyard is tied off. The ladder is pivoted to position the fly section toward the structure for wooden ladders, away from the structure for metal ladders.
10. The halyard is used to extend the ladder to the desired elevation.
11. Both firefighters lower the ladder against building at correct climbing angle.
12. The halyard is tied off.

Objective 25 Demonstrate the three-firefighter extension ladder raise – TIP #2 position.

1. Firefighter 1 is located at the ladder butt.
2. Firefighters 2 and 3 are located at the ladder tip.
3. Verify visual check of terrain and overhead obstruction prior to placement and raise.
    a. Ladder beam at is placed on ground at butt end by firefighter 1. Firefighter 2 and 3 rest the ladder flat on their shoulders.
    b. Ladder is heeled at butt end by firefighter 1.
    c. Firefighter 1 grasps convenient rung from crouching position.
    d. Firefighter 1 leans back.
    e. Firefighters 2 and 3 advance in union with outside hands on beam and inside hands on rungs toward the butt end to raise the ladder to a vertical position.
    f. Firefighters 2 and 3 place foot against butt spur.
    g. Ladder is stabilized by firefighters 2 and 3 with both hands-on beam.
    h. Firefighter 1 grasps halyard.
    i. Firefighter 1 places the toe of one foot on butt spur.
    j. Firefighter 1 uses the halyard which is used to extend the ladder to the desired elevation.
    k. All firefighters lower the ladder against building.
    l. The halyard is tied off.

Objective 26 Demonstrate the three-firefighter extension ladder raise – HEEL position.

1. Firefighter 1 is located at the ladder butt.

2. Firefighters 2 and 3 are located at the ladder tip.
3. Verify visual check of terrain and overhead obstruction prior to placement and raise.
    a. Ladder beam at is placed on ground at butt end by firefighter 1. Firefighter 2 and 3 rest the ladder flat on their shoulders.
    b. Ladder is heeled at butt end by firefighter 1.
    c. Firefighter 1 grasps convenient rung from crouching position.
    d. Firefighter 1 leans back.
    e. Firefighters 2 and 3 advance in union with outside hands on beam and inside hands on rungs toward the butt end to raise the ladder to a vertical position.
    f. Firefighters 2 and 3 place foot against butt spur.
    g. Ladder is stabilized by firefighters 2 and 3 with both hands on beam.
    h. Firefighter 1 grasps halyard.
    i. Firefighter 1 places the toe of one foot on butt spur.
    j. Firefighter 1 uses the halyard which is used to extend the ladder to the desired elevation.
    k. All firefighters lower the ladder against building at desired climbing angle.
    l. The halyard is tied off.

Objective 27 Demonstrate the four-firefighter extension ladder flat raise – HEEL #1 position.

1. Firefighters 1 and 2 are located at the ladder butt.
2. Firefighters 3 and 4 are located at the ladder tip.
    a. Ladder beam is placed on ground at butt end by firefighters 1 and 2. Firefighters 3 and 4 rest the ladder flat at their shoulders.
    b. Ladder is heeled at butt end by firefighters 1 and 2.
    c. Firefighters 1 and 2 grasp convenient rung from crouching position.
    d. Firefighters 1 and 2 lean back.
    e. Firefighters 3 and 4 advance in union with outside hands on beam and inside hands on rungs toward the butt end to raise the ladder to a vertical position.
    f. All firefighters place foot against butt spur.
    g. Ladder is stabilized by firefighters 2, 3 and 4 with both hands on beam.
    h. Firefighter 1 grasps halyard.
    i. Firefighter 1 places the toe of one foot on butt spur.
    j. Firefighter 1 uses the halyard which is used to extend the ladder to the desired elevation.
    k. All firefighters lower the ladder against building at correct climbing angle.
    l. The halyard is tied off.

Objective 28 Demonstrate the four-firefighter extension ladder flat raise – HEEL #2 position.

1. Verify visual check of terrain and overhead obstruction prior to placement and raise.
2. Firefighters 1 and 2 are located at the ladder butt.
3. Firefighters 3 and 4 are located at the ladder tip.
    a. Ladder beam at is placed on ground at butt end by firefighters 1 and 2. Firefighters 3 and 4 rest the ladder flat at their shoulders.
    b. Ladder is heeled at butt end by firefighters 1 and 2.

c. Firefighters 1 and 2 grasp convenient rung from crouching position.
d. Firefighters 1 and 2 lean back.
e. Firefighters 3 and 4 advance in union with outside hands on beam and inside hands on rungs toward the butt end to raise the ladder to a vertical position.
f. All firefighters place foot against butt spur.
g. Ladder is stabilized by firefighters 2, 3 and 4 with both hands-on beam.

Objective 29 Demonstrate climbing the full length of each type of ladder.

1. Straight/Wall Ladder, Extension Ladder, Folding/Attic Ladder
   a. Verify climbing angle
   b. Minimize shifting/bouncing
   c. Eyes forward
   d. Proper Hand Placement
   e. Three points of contact

Objective 30 Demonstrate rising and placement of a ladder for hoseline deployment.

1. Position firefighter(s) on ladder with no more than one firefighter per ladder section
2. Firefighter operating nozzle secures to ladder with leg lock or safety harness
3. Place nozzle through rung of ladder, extending the hose at least one foot in front of firefighter's body
4. Tie off hose with a clove hitch
5. Ensure slack is secured in the hose
6. Ensure nozzle is opened when secured
7. Ensure fire stream is directed at the designated target
8. Ensure nozzle is opened and closed slowly to prevent water hammer

Objective 31 Demonstrate carrying hand tools while ascending and descending a ladder.

1. Wear full protective equipment properly
2. Check ladder for appropriate angle
3. Grasp tool securely in one hand and hold hand and tool against beam of ladder
4. Wrap other hand around beam and begin climb
5. Climb is smooth and safe
6. Maintain contact between free hand and beam by sliding tool along opposite beam

Objective 32 Demonstrate working off a ladder using appropriate safety devices and methods.

Essential Topics:

1. Verify correct climbing angle

2. Climb to desired height
3. Select use of ladder belt OR Leg Lock
    a. Step up one additional rung above desired height
    b. Extend leg between rungs on opposite side where work will take place
    c. Bend knee and bring foot back under rung and through to the climbing side of ladder
4. Secure foot against beam or next lower rung of ladder. Using this for support, step down one rung with opposite foot

Objective 33 Demonstrate raising and placement of a ladder for window ventilation operations.

1. Select correct raise for task at hand
2. Verify climbing angle
3. Ladder placement along side window on windward side
4. Tip of ladder set even with top of window

Objective 34 Demonstrate raising and placement of a ladder for flat roof ventilation operations.

1. Select correct raise for task at hand
2. Verify climbing angle
3. Ladder placement not blocking doors, openings, etc.
4. Tip of ladder set five rungs above roof line

Objective 35 Demonstrating mounting and dismounting a ladder from and into a window.

1. Select correct raise for task at hand
2. Verify climbing angle
3. Ladder placement not at doors, openings, etc.
4. Ensure point of entry is stable
5. Maintain 3 points of contact with ladder
6. When re-mounting utilize appropriate technique
    a. Smoke condition - back out feet first
    b. Better conditions sit on windowsill, legs out, rolling onto ladder

Objective 36 Demonstrate mounting and dismounting a ladder from and onto a roof.

1. Select correct raise for task at hand
2. Verify climbing angle
3. Ladder placement not at doors, openings, etc.
4. Maintain 3 points of contact with ladder
5. Ensure roof is stable before shifting weight from ladder

Objective 37 Demonstrate assisting a conscious victim down a ladder.

1. Correct ladder position
2. Ladder secured for climb
3. Victim lowered from window to rescuer on ladder
4. Victim positioned for carry
5. Rescuer and victim descend ladder

Objective 38 Demonstrate the inspection procedure for ground ladders.

After each use and monthly

1. Heat sensor labels
2. Rungs for damage and wear
3. Rung tightness
4. Bolts and Rivets
5. Welds
6. Beams and Rungs
7. Pawl assemblies
8. Halyard
9. Pulleys
10. Guides
11. Wooden ladders
    a. Finish
    b. Darkening of Varnish
    c. Deterioration
    d. Splintered parts
    e. Water damage
    f. Smooth shoes

Objective 39 Demonstrate the proper procedure for cleaning a ladder.

1. Soft bristle brush
2. Running water
3. Mild Soap
    a. Tar, grease, oil
4. Wiped Dry
5. Inspect for damage during cleaning

Objective 40 Demonstrate maintenance procedures for different types of ground ladders.

1. Kept free from moisture

2. Stored away from vehicle exhaust or engine heat
3. Stored away from exposure to elements
4. Not painted
    a. Exception is the top and bottom 18" for ID purposes

Standard 8 Performance Evaluation included below (Optional)

Standard 9

Students will understand hose and appliances.

Objective 1 Identify the construction features of a fire hose.

1. Materials (cotton, nylon, rayon vinyl, poly-mired vinyl, polyester)
2. Methods (braided, wrapped, woven, hard suction)

Objective 2 Identify the construction features of fire hose couplings.

1. Drop Forged
2. Extruded
3. Cast
4. Threaded
5. Storz

Objective 3 Identify the types and sizes of fire hose.

1. Small Diameter Hose
2. Medium Diameter Hose
3. Large Diameter Hose
4. Intake Hose

Objective 4 Identify the types and uses of hose rolls.

1. Straight Roll
2. Donut Roll
3. Twin Donut Roll
4. Self-locking Twin Donut Roll

Objective 5 Identify forward and reverse lays.

1. Forward Lay
2. Reverse Lay

Objective 6 Identify the appliances carried on a pumper as required by NFPA 1901, Standard for Pumper Fire Apparatus.

1. Valve
2. Wye
3. Siamese
4. Water Thief
5. Hydrant Valve
6. Fittings
7. Strainer
8. Master Stream Device
9. Foam Delivery Equipment
10. Tools

Objective 7 Demonstrate major types of hose rolls.

1. Straight Roll
2. Donut Roll
3. Twin Donut Roll
4. Self-Locking Twin Donut Roll

Objective 8 Demonstrate coupling and uncoupling techniques.

1. Single Firefighter Foot Tilt Method
2. Two Firefighter Method
3. Single Firefighter Knee Press Method
4. Two Firefighter Stiff Arm Method

Objective 9 Demonstrate methods to move hoselines into position.

1. Hose Carry/Shoulder Load (Flat or Horseshoe)
2. Hose Carry/Shoulder Load (Flat or Accordion)
4. Hose Drag Method 1
5. Hose Drag Method 2

Objective 10 Demonstrate the loading and deployment of hose loads.

1. Accordion Load
2. Horseshoe Load
3. Reverse Horseshoe Load
4. Flat Load
5. Minuteman Load

6. Dutchman

Objective 11 Demonstrate the function of a hose clamp.

1. Standard Hose Clamp
2. Field Hose Clamp Maneuver

Objective 12 Demonstrate the techniques for lengthening a hoseline using the following equipment.

1. Hose Clamp
2. Break – Apart Nozzle

Objective 13 Demonstrate techniques for replacing a section of hose.

1. Kink Method
2. Clamp Method

Objective 14 Demonstrate the use of key hose appliances.

1. 2½ inch Hydrant Valve
2. Double – Gated Reducing Leader Wye
3. Master Stream Device, 1000GPM Minimum
4. Double Male Adapter
5. Double Female Adapter

Objective 15 Demonstrate advancing a charged 1 ½ inch and 2 ½ inch attack line from a pumper as a member of a hose team.

1. Into a structure at ground level

Objective 16 Demonstrate carrying an attack line into a structure.

1. The duck walk
2. Nozzle positioning
3. Backup position
4. Door position duties during the advance

Objective 17 Demonstrate the procedures for cleaning and maintaining fire hose.

1. Visual Inspection hose and couplings
2. Wash dirty hose and dry hose

Objective 18 Demonstrate the procedures for cleaning and maintaining couplings.

1. Visual Inspection:
    a. Look for thread damage
    b. Look for pliable rubber gasket in female couplings
    c. Apply silicone lubricant to the swivel

Objective 19 Demonstrate connecting hoseline(s) from a fire pumper to a fire department connection.

1. Confirm Order with Officer to connect line(s) to FDC.
2. Extend hoseline from pumper discharge to the FDC with male thread toward FDC connection.
3. Lay down hose fitting at FDC, protecting male fittings.
4. Remove caps from FDC.
5. Inspect the FDC for debris, check threads, check gasket and replace if necessary.
6. Connect hoselines to the outlets. (Lowest First)
7. Tighten connections with spanner wrench.
8. Report to Officer the completion of assignment.

Objective 20 Demonstrate connecting a 3 inch or smaller hose to a hydrant.

1. As a Safety Precaution – Tighten Hydrant Caps Not used
2. Turn outlet nut counterclockwise and remove cap from one outlet
3. Connect 3 inch or smaller hose to hydrant outlet

Objective 21 Demonstrate connecting a 4 ½ inch or larger soft sleeve intake hose to a hydrant.

1. Examine hydrant
2. Remove hydrant cap and inspect threads
3. Look in nozzle (wet barrel) or barrel (dry barrel) for debris
4. Flush hydrant
5. Connect supply hose to hydrant
6. Open hydrant fully when told to do so

Objective 22 Demonstrate connecting a 4 ½ inch or larger hard intake hose to a hydrant.

1. Confirm order with officer to make hydrant connection
2. Remove intake hose from pumper
3. Connect the intake hose to the hydrant or apparatus (depending on local preference), turning connection clockwise and making hand tight
4. Connect opposite end to the hydrant or apparatus, turning connection clockwise and making hand tight

Objective 23 Demonstrate advancing a 1 ½ inch and 2 ½ inch attack line from a pumper as a member of a team: to an upper floor by hoisting.

1. Tie a closed clove hitch behind first coupling
2. Tie safety knot
3. Take a bight in the rope and pass it through the bale and over the nozzle

Objective 24 Demonstrate unloading non-preconnected wyed hoseline.

1. Hose load finishes (Reverse horseshoe load)
2. Grasp the inner fold of the load and nozzle in one hand
3. Grasp the wye appliance in the other hand
4. Step down from the tailboard and pull the hose assembly to the ground, positioning yourself in view of the driver's mirror
5. Anchor the hose assembly with one knee
6. Signal the driver to "Go"

Objective 25 Demonstrate unloading a pre-connected hoseline Flat Load.

1. Approach the bay
2. Place the larger dog ear around shoulder
3. Hold the small dog ear in one hand and the nozzle in the other hand
4. Walk away from the engine toward your destination
5. Drop the loop from your hand when it gets taut
6. Drop the loop from your shoulder when it becomes taut
7. Take the nozzle and move to your destination

Objective 26 Demonstrate unloading pre-connected hoseline Minuteman.

1. Grab entire hose bundle placing the bottom off the load and nozzle on shoulder
2. Make your way to your objective as the hose pays out with your forward progress
3. Flake out the rest of your working line
4. Call for water

Objective 27 Demonstrate hand laying 300 feet of supply line (2 ½ inch or 3 inch) from a pumper to a water source utilizing two or three firefighters.

1. FF # 1 - Attach a nozzle to the end of the hose if desired.
   a. FF #1 - Assist other FFs with loading hose on their shoulders.
2. FF # 2 - Position on the tailboard facing the direction of travel.
3. FF # 2 - Place the initial fold of hose over the shoulder so the nozzle can be held at chest height.

4. FF # 2 - Bring the hose from behind back over the shoulder so that the rear fold ends at the back of the knee.
5. FF # 2 - Make a fold in front that ends at knee height and bring the hose back over the shoulder.
    a. (Repeat Steps 4 & 5 until appropriate amount of hose is loaded on shoulder)
6. FF # 2 - Move forward approximately 15 feet.
7. FF # 3 - Position on the tailboard facing the direction of travel.
8. FF # 3 - Load hose onto the shoulder in the same manner as FF # 2, making knee-high folds, until an appropriate amount of hose is loaded on shoulder.
9. FF # 1 - Uncouple the hose from the hose bed, and hand the coupling to the last firefighter.

Objective 28 Demonstrate inspecting couplings for damage.

1. Visual Inspection-look for:
    a. Damaged threads
    b. Corrosion
    c. Slippage of the hose
    d. Swivel not rotating freely
    e. Missing lugs
    f. Loose external gasket

Standard 9 Performance Evaluation included below (Optional)

Standard 10

Students will understand nozzles and streams.

Objective 1 Define fire stream.

1. A stream of water or other extinguishing agent after it leaves a fire hose and nozzle, until it reaches the desired point

Objective 2 Identify the purpose of a fire stream.

1. Cooling
2. Provide Protection

Objective 3 Identify the various uses of water as an extinguishing agent.

1. Cooling
    a. Latent Heat of Vaporization
2. Smothering

Objective 4 Identify the types of fire stream nozzles.

1. Smooth Bore Nozzle

2. Fog Nozzle
3. Combination Nozzle

Objective 5 Identify the water flow/GPM of handlines and master streams.

1. Fire stream classification
    a. Low-volume stream - Less than 40 gpm
    b. Handline stream - 40 to 350 gpm
        i. 1 1/2" handline = 60-150 gpm
        ii. 1 3/4" handline = 95-200 gpm
        iii. 2 1/2" handline = 200-325 gpm
    c. Master stream - Greater than 350 gpm
        i. 3" supply line = 0-500 gpm
        ii. 4" supply line = 0-1,200 gpm
        iii. 5" supply line = 0-2,000 gpm

Objective 6 Define nozzle reaction.

1. Nozzle Reaction: As water is discharged and flowing from the nozzle, an equal and opposite reaction is realized by the nozzle operator.

Objective 7 Identify methods of water application.

1. Direct method of attack
2. Indirect method of attack
3. Combination method of attack

Objective 8 Identify the principles of both Class A and Class B foam as an extinguishing agent.

1. Class A Foam
2. Class B Foam (Synthetic & Protein)

Objective 9 Identify the methods by which foam prevents or controls a hazard.

1. Separating - Creates a barrier between the fuel and the fire
2. Cooling - Lowers the temperature of the fuel and adjacent surfaces
3. Smothering - Suppresses the release of flammable vapors reducing the possibility of ignition or reignition
4. Penetrating - Lowers the surface tension of water and allows it to penetrate deep-seated fires

Objective 10 Identify the principle by which foam is generated.

1. Key terms
    a. Foam concentrate-Raw foam liquid before the introduction of water and air
    b. Foam proportioned (educator)-Device that introduces foam concentrate into the water stream to make a foam solution
    c. Foam solution-Mixture of foam concentrate and water before the introduction of air
    d. Foam (finished foam)-Completed product after air is introduced into the foam solution
2. Key concepts
    a. Proportioning and aeration
    b. Foam expansion
    c. Foam concentrates
        i. Class A
        ii. Class B
        iii. Special application foams
3. Foam Proportioning methods
    a. Induction
    b. Injection
    c. Patch-mixing
    d. Premixing
4. Foam proportions
    a. Portable foam proportions
    b. Apparatus-mounted proportions
    c. Compressed-Air Foam Systems (CAFS)
5. Foam delivery devices
    a. Handline nozzles
    b. Medium- and high-expansion foam generating devices
6. Causes for poor-quality foam, or failure to generate foaM

Objective 11 Demonstrate the following methods of water application.

1. Direct
2. Indirect
3. Combination

Objective 12 Demonstrate the procedure of bleeding/purging air from a handline.

1. Prior to entering the fire area, the nozzle must be opened fully to let the air out and to make sure the line is supplied with sufficient water flow and pressure before commencing the attack.

Objective 13 Demonstrate the use of nozzles carried on a fire pumper.

1. Smooth Bore Nozzle
2. Combination Nozzle

Objective 14 Demonstrate the procedure of opening and closing a nozzle.

1. Open nozzle away from everyone
2. Open nozzle by pulling bale toward you
3. Open nozzle all the way
4. Keep nozzle open until all the air is out of hose
5. Close nozzle by pushing bale away from you
6. Open and close nozzle slowly so you don't create a water hammer effect

Objective 15 Demonstrate the procedure of adjusting the stream pattern on a fog nozzle.

1. Open nozzle away from everyone
2. Open nozzle by pulling bale toward you
3. Open nozzle all the way
4. Keep nozzle open until all the air is out of hose
5. Close nozzle by pushing bale away from you
6. Open and close nozzle slowly so you don't create a water hammer effect

Objective 16 Demonstrate the procedure of opening and closing a solid stream nozzle.

1. The nozzle bale should be a slightly bent arm's reach out in front of the nozzle operator
2. The line should be on the side of the nozzle operators dominant arm
3. The forward, or left, hand controls flow and directs the stream
4. The forward hand controls the bale
5. Once the bale has been operated, the hand moves to the hose behind the last male hose butt
6. The hand must be in an underhand position on the hose
7. Overcome reaction force when opening the nozzle
8. Open and close the bale slowly as to not cause a water hammer

Objective 17 Demonstrate the procedure of inspecting a nozzle.

1. Clean nozzles after each use
2. Inspect nozzles after each use:
    a. Check that the waterway is clear of obstructions
    b. Make sure the bale works properly
    c. Check to make sure there are no dents or nicks in the tip of the nozzle
    d. Make sure there are no missing parts
    e. Worn out gaskets must be replaced

Standard 10 Performance Evaluation included below (Optional)

Standard 11

Students will understand water supply.

Objective 1 Identify the water sources and the components of a water distribution system in the local community.

1. Ground Water:
    a. Aquifers
    b. Underground Rivers
    c. Springs
2. Surface Water:
    a. Rivers
    b. Lakes
    c. Ponds
3. Components of Water Distribution System:
    a. Means of Moving Water:
        i. Direct Pumping
        ii. Gravity Systems
        iii. Combination Systems
    b. Water Treatment Facilities:
        i. Remove Contaminants
        ii. Filter Particulates
        iii. Add Chlorine (Purification) (Haz-Mat)
        iv. Add Fluoride (Prevent Tooth Decay)
4. Elevated Water Storage Tanks:
5. Distribution Systems: (Mains)
    a. Primary Feeders
    b. Secondary Feeders
    c. Distributors
    d. Water Main Valves:
    e. Indicating Valves:
        i. OS&Y - Outside Stem & Yoke
        ii. PIV - Post Indicator Valve (Open /Shut)
        iii. Butterfly Valve
    f. Non-Indicating Valves:
        i. Gate Valve (Number of Turns)
        ii. Butterfly Valve

Objective 2 Identify the characteristics and operation of fire hydrants.

1. Fire Hydrant Characteristics:
    a. Outside Parts Cast Iron
    b. Internal Working Parts Bronze
    c. Valve Facings Rubber, Leather, Composite Materials
    d. Must Open/Close Slowly to Prevent Damage
    e. Dry Barrel Hydrant:
        i. Prolonged Periods of Subfreezing Weather
        ii. Main Valve located below Frost Line
        iii. Hydrant Barrel Empty between Top and Main Valve
        iv. Stem Nut Turned Counterclockwise to Open Main Valve
        v. Drain Holes are located near the bottom of the Hydrant
        vi. Must be Fully Opened or Fully Closed to Prevent “Undermining” the Hydrant Base through the Drain Holes
    f. Wet Barrel Hydrant:
        i. Known as Frost-Free Hydrants
        ii. Usually Installed in Warmer Climates
        iii. Horizontal Compression-Type Valves on Each Outlet
        iv. The Barrel is Always filled with Water
2. Fire Hydrant Operation:
    a. Dry Barrel Hydrant:
        i. Remove Caps from Ports being Used
        ii. Inspect Hydrant and Port for Debris and Damage
        iii. Turn Stem Nut Counter-Clockwise to begin Flow of Hydrant to Insure Flow of Water, and to Flush Hydrant
        iv. Turn Stem Nut Clockwise to Stop Water Flow of Hydrant
        v. Attach Supply Hose(s) to Hydrant Port(s)
        vi. Wait for Signal to Charge Hydrant
        vii. Fully Open Hydrant by Turning Stem Nut until Stem Nut will No Longer Turn
        viii. To Shut Down Hydrant Turn Stem Nut Clockwise Slowly until Valve Closes and the Stem Nut No Longer Turns
        ix. Relieve any Pressure
        x. Remove Supply Hoses from the Port(s)
        xi. Replace Caps on All Ports Except One
        xii. Insure Water Drains from the Barrel by verifying a Vacuum is Created at the Port
        xiii. Replace the Remaining Cap
    b. Wet Barrel Hydrant:
        i. Remove Caps from Ports being Used
        ii. Inspect Hydrant and Port for Debris and Damage
        iii. Turn Stem Nut Opposite Side of Port Counter-Clockwise to begin Flow of Hydrant to Insure Flow of Water, and to Flush Hydrant
        iv. Turn Stem Nut Opposite Side of Port Clockwise to Stop Water Flow of Hydrant

v. Attach Supply Hose(s) to Hydrant Port(s)
vi. Wait for Signal to Charge Hydrant
vii. Fully Open Hydrant by Turning Stem Nut Opposite Side of Port until Stem Nut will No Longer Turn
viii. To Shut Down Hydrant Turn Stem Nut Clockwise Slowly until Valve Closes and the Stem Nut will No Longer Turn
ix. Relieve any Pressure
x. Remove Supply Hoses from the Port(s)
xi. Replace All Caps on All Ports

Objective 3 Identify causes of increased resistance of friction loss in water distribution systems and hydrants.

1. Pipe Diameter
2. Pipe Materials
3. Mineral Encrustation
4. Sediment
5. Partially Closed Valves
6. Dead-End Hydrants

Objective 4 Identify conditions which may reduce hydrant effectiveness.

1. Main Pipe Diameter
2. Distribution System Pressure
3. Dead-End Hydrants
4. Partially Open Valves
5. Discharge Openings:
   a. 2-1/2 Ports
   b. Steamer Ports

Objective 5 Demonstrate connecting a small intake hose to a hydrant and fully opening and closing the hydrant.

1. As a safety precaution – tighten hydrant caps not used
2. Turn outlet nut counterclockwise and remove cap from one outlet
3. Connect small intake hose to hydrant outlet
4. Open the hydrant fully
5. Close the hydrant fully
6. Relieve pressure
7. Remove small intake hose from hydrant outlet
8. Replace cap on outlet

Objective 6 Demonstrate the hydrant to pumper hose connections for forward lay.

FF # 1

1. Grab sufficient amount of hose to reach the hydrant.
2. Step down from the tailboard and face the hydrant with all the equipment necessary to make the hydrant connection.
3. Approach the hydrant and loop the hydrant in accordance with SOPs.
4. Signal Driver/Operator to proceed driving to the fire.
5. Remove cap from hydrant.
6. Place the hydrant wrench on the valve stem operating nut.
7. Remove the hose loop from the hydrant.
8. Connect the hose to the outlet nearest the fire.
9. Open the hydrant fully when the appropriate order or signal is given.
10. Return to the apparatus, tighten leaking couplings, and push the hose toward the curb along the way.

FF # 2

1. After completing the hose lay to the scene, apply the hose clamp on the supply line 20 feet behind the apparatus.
2. Give the signal to charge the line.
3. Uncouple the hose from the bed (allowing enough hose to reach the pump inlet).
4. Connect the hose to the pump.
5. Release the hose clamp.

Objective 7 Demonstrate the hydrant to pumper hose connections for a reverse lay.

FF # 1

1. Pull sufficient hose to reach the intake valve on the attack pumper.
2. Anchor the hose.
3. Apply a hose clamp to the hose at the attack pumper.

FF # 2

1. After the pumper stops at the water source, make an intake hose connection.
2. Pull the remaining length of the last section of hose from the hose bed.
3. Disconnect the couplings and return the male to the hose bed.
4. Connect the supply hose to the discharge valve.

Objective 8 Demonstrate the proper procedure for making hydrant connections for a soft sleeve or large diameter hose.

1. Confirm order with officer to make hydrant connection.
2. Remove necessary equipment from the pumper.
3. Remove the hydrant cap by turning it counterclockwise and use a spanner wrench if the cap is tight.
4. Inspect the hydrant for exterior damage and check for debris or damage in inside outlet.
5. Place the hydrant wrench on hydrant nut, with handle pointing away from outlet.
6. If Necessary - Place reducer adapter (Steamer/Storz) on hydrant, turning clockwise and making hand tight.
7. Remove intake hose from the pumper.
8. Connect the intake hose to the pump intake, turning clockwise and making hand tight.
9. Stretch the intake hose to the hydrant, placing two full twists in the hose to prevent kinking.
10. Make the hydrant connection to the steamer outlet or outlet with adapter, turning clockwise and making hand tight.
11. Open the hydrant slowly until hose is full (Fully Open).
12. Tighten any leaking connections using rubber mallet or spanner wrench.

Fire Science Performance Standards (Optional)

Table of Contents

FS1-4.11: Don PPE For Use at an Emergency

Students will Demonstrate the donning of the following articles of PPE as part of an ensemble in less than 60 seconds: PASS device (if not integrated in SCBA), eye protection, hearing protection.

Overview

- Performance assessment in which an individual student demonstrates the ability to properly, safely, and efficiently don their personal protective equipment within the national accepted time allotment (The NFPA® requires that protective clothing be donned in one minute.)
- This is a baseline assessment that focuses on a specific, individual skill.
- The assessment typically would take place during the course.
- Students should be provided with the scorecard (next page) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Starting Position:

- The student will start the activity wearing the “station uniform” per local course requirements.
- The complete PPE ensemble should be laid out and checked for service ready to don for the start of this activity:
    - Bunker pants
    - Structural firefighting boots
    - Nomex hood (as available), see step #2 in scorecard
    - Turnout coat
    - Gloves (structural or utility/extrication)
    - Helmet
- When the student is ready the assessment administrator shall give the command “GO” and start the stopwatch.
- Throughout the activity, the assessment administrator will be evaluating the student using the performance task scorecard provided.
- At the completion of Step 5 (Don gloves), the assessment administrator will stop the stopwatch, then score Step 6 (time limit)

Equipment & Materials

- Full Protective clothing (excluding SCBA)
- Stopwatch

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
4.11 Demonstrate the donning of PPE as an ensemble in less than 60 seconds	12 points	11 points	8-10 points	< 8 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will confirm that:

- The student is wearing “station uniform” per local course requirements.
- The complete PPE ensemble is laid out and checked for service, ready to don:
    - Bunker pants
    - Structural firefighting boots
    - Nomex hood (as available), see step #2 in scorecard
    - Turnout coat
    - Gloves (structural or utility/extrication)
    - Helmet
- When the student is ready the assessment administrator shall give the command “GO” and start the stopwatch.
- Observe the student’s performance and record the appropriate score and any comments for each step.

- At the completion of Step 5 (don gloves), the assessment administrator will stop the stopwatch, then score Step 6 (time limit)

Table 1. Criteria Scorecard: Donning PPE For Use at An Emergency

Criteria Scorecard: Donning PPE For Use at An Emergency		2 points each	Comments
1	• Don boots and pants including inside and outside closures and suspenders in place (2 points) • If boots and pants are on, but inside and outside closures not fastened and/or suspenders not up (1 point)		
2	• Don hood (may be down around the neck) (2 points) • If no hood is available, student should state aloud that he/she would don hood to receive points.		
3	• Don coat, including inside and outside closures and collar up with closure fastened (2 points) • If coat is on, but inside and outside closures are not fastened and/or collar down or not fastened (1 point)		
4	• Don helmet fastening chin strap and having flaps down. (2 points) • If helmet is on, but chin strap not fastened or flaps up (1 point)		
5	Don gloves (over gauntlets if equipped) (2 points)		
6	Donning shall be completed in 60 seconds or less (2 points)		
ASSESSMENT TOTAL		**12 POINTS POSSIBLE**	

FS1-4.13: Doff PPE and Prepare for Reuse

Students will demonstrate the proper doffing of the PPE ensemble and preparing it for reuse

Overview

- Performance assessment in which an individual student demonstrates the ability to properly doff their PPE, inspect it for damage, identify when the PPE needs to be laundered and what to do if the PPE needs repair. The student shall place their PPE in a ready state so they may don the PPE when needed.
- This is a baseline assessment that focuses on a specific, individual skill.
-

- The assessment typically would take place during the course.
- Students should be provided with the scorecard (next page) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Step #3: Student should state factors that would require laundering

In the classroom/assessment setting, visible contamination, grime, perspiration, or soot (factors that require laundering) typically would not be found. Therefore, during this step THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT FACTORS MAY BE PRESENT THAT WOULD REQUIRE LAUNDERING?"

Step #4: The student should state the appropriate method of cleaning

THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT IS THE APPROPRIATE METHOD OF CLEANING THE PPE?"

Step #5: The student should state action to take if damage is found.

In the classroom/assessment setting, equipment typically would not be damaged. Therefore, during this step THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT SHOULD YOU DO IF DAMAGE TO PPE IS FOUND?"

Step #6: Place clothing in a ready state.

Before starting the assessment, the assessment administrator should inform or remind the student the local instructions for the designated area where the PPE components should be placed

Starting Position:

- The student will start the activity with complete PPE ensemble on:
    - Bunker pants
    - Structural firefighting boots
    - Nomex hood (as available)
    - Turnout coat
    - Gloves (structural or utility/extrication)
    - Helmet
- When the student is ready the assessment administrator shall give the command "GO" and start the assessment.

Equipment & Materials

- Full Protective clothing donned (excluding SCBA)

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
4.13 Demonstrate the proper doffing of the PPE ensemble and preparing it for reuse	12 points	11 points	8-10 points	< 8 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Confirm that the student is wearing the complete PPE ensemble:
    - Bunker pants
    - Structural firefighting boots
    - Nomex hood (as available)
    - Turnout coat
    - Gloves (structural or utility/extrication)
    - Helmet
- Inform/remind the student the designated area where the PPE components should be placed (Step #6)
- Tell the student, “During the assessment you will need to verbally state answers to questions I ask.”
- When the student is ready the assessment administrator shall give the command “GO” and start the assessment.
- The assessment administrator shall:
    - Observe the student’s performance and record appropriate score and any comments for each step.
    - Ask the student questions during Steps #3, #4, and #5 as indicated on the scorecard.

Table 2. Criteria Scorecard: Doff PPE and Prepare for Reuse

Criteria Scorecard: Doff PPE and Prepare for Reuse		2 points each	Comments
1	Remove protective clothing in the reverse order of donning their PPE: Gloves, Helmet, Hood, Coat, Pants, Boots (2 points)		
2	Inspect all components of PPE for damage and the need for cleaning. ● Full points for putting hands on all the components of the PPE, to inspect it for cleanliness and damage. ● No points for only doing a visual, without putting hands on all the components of the PPE.		
3	Identify factors and the appropriate times when PPE needs to be laundered (2 points) **THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, “WHAT FACTORS MAY BE PRESENT OR TIME WOULD REQUIRE LAUNDERING?”** Full points for stating any visible contamination, grime, perspiration, or soot, or a minimum of twice a year.		

5	State the procedure that would be followed if damage to PPE is found. **THE ASSESSMENT ADMINISTRATOR ASKS STUDENT, "WHAT SHOULD YOU DO IF DAMAGE TO PPE IS FOUND?** Full points if they state that damaged PPE shall be removed from service, tagged, and reported to the officer (2 points)		
6	Place clothing in a ready state. Full points if pants are pushed around boots with suspenders on top, jacket hung on proper hanger, helmets hung and gloves and hood stored properly (2 points)		
ASSESSMENT TOTAL		**12 POINTS POSSIBLE**	
Criteria Scorecard: Doff PPE and Prepare for Reuse		**2 points each**	**Comments**
4	State the procedure for laundering the PPE. **THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT IS THE APPROPRIATE METHOD OF CLEANING THE PPE?"** Students should describe the appropriate method of cleaning their PPE including removing the liners from the shells and turning the liners inside out (2 points)		

FS1-5.3: Routine Radio Traffic

Students will demonstrate the following prescribed fire department radio procedures: Routine traffic.

Overview

Radio communication is a critical component of fire department operations. This performance evaluation guides the student through the proficiencies required in the task of transmitting a routine radio message that is clear and understandable.

Students should be provided with the scorecard (next page) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

One of the following types of routine radio messages should be used for the assessment:

- Command from Engine 1. Do you have an assignment for us?
- Dispatch from Engine 1 we are on scene.
- Operations from Engine 1. We have water on the fire.

- Operations from Truck 1. Ventilation has been completed.

Step #1: The assigned frequency will be determined by the course instructor, as appropriate for situation/location where assessment takes place. Students and other assessment administrators (as applicable) should be informed of this frequency at the time of the assessment.

Step #5: The appropriate language for department codes, SOPs, or class procedures to be used for this assessment will be determined by the course instructor. Students and other assessment administrators (as applicable) should be informed in advance by instructor on what message to communicate during drill.

Equipment & Materials

- Portable radios issued to students by instructor

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
5.3 – Routine Radio Traffic	10 points	9 points	7-8 points	< 7 points

Assessment Instructions

At the time of the assessment, the instructor/assessment administrator will:

- Take the radio equipment to the assessment site.
- Let the student know the assigned radio frequency to be used for this assessment.
- Tell the student the message they should communicate in Step #5 (see list on page 1)
- Tell the student to begin. Observe the student's performance for each step. Record appropriate scores and any comments.

Table 3. Criteria Scorecard: Routine Radio Traffic

	Criteria Scorecard: Routine Radio Traffic	2 points each	Comments
1	Rotate the selector knob to assigned frequency. ● Correctly rotates the selector knob on portable radio to the assigned frequency as specified by the assessment administrator (2 points)		
2	Monitor for radio traffic until air is clear. ● Monitors radio traffic until clear before transmitting a message (2 points)		

Criteria Scorecard: Routine Radio Traffic	2 points each	Comments

3	Hold the microphone: in transmit position, 1 to 2 inches (25 mm to 50 mm) from your mouth, at a 45- degree angle ● Holds the microphone correctly in all three aspects (2 points)		
4	Depress the transmit button, holding down until through with transmission ● Depresses the transmit button, holding down until through with transmission (2 points)		
5	Transmit the assigned routine traffic message using appropriate language for department codes, SOPs, or class procedures (per assessment administrator instructions). ● Transmits a routine traffic message, correctly using department codes, SOPs, or class procedures (2 points)		
ASSESSMENT TOTAL		**10 POINTS POSSIBLE**	

FS1-5.5: Emergency Radio Traffic (Mayday)

Students will demonstrate the following prescribed fire department radio procedures: Emergency Mayday signal

Overview

Radio communication is a critical component of fire department operations. This performance evaluation guides the student through the proficiencies required in the task of transmitting an emergency Mayday radio message that is clear and understandable.

Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Step #1: The assigned frequency will be determined by the course instructor, as appropriate for situation/location where assessment takes place. Students and other assessment administrators (as applicable) will be informed of this frequency at the time of the assessment.

Steps #4 and #5a: The appropriate language for department codes, SOPs, or class procedures to be used for this assessment will be determined by the course instructor. Students and other assessment administrators (as applicable) will be informed in advance of the message to be used during this assessment.

Step #6: Verification of message will be accomplished by the assessment administrator responding to message stating the message was received.

Equipment & Materials

- Portable radios issued to students by instructor

- PASS alarm attached to self-contained breathing apparatus (SCBA)

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
5.5 Emergency Mayday	18	16-17	13-15	< 13

Assessment Instructions

At the time of the assessment, the instructor/assessment administrator will:

- Confirm that the radio equipment is ready to use at the assessment site.
- Tell he student the assigned radio frequency to be used for this assessment.
- Tell the student the message they should communicate in Steps #4 and #5a.
- Inform the student that you will verify the message in Step 6.
- Tell the student to begin. Observe the student's performance for each step. Record appropriate scores and any comments.

Criteria Scorecard		2 points each	Comments
1	Correctly rotates the selector knob on portable radio to the assigned frequency as specified by the assessment administrator (2 points)		
2	Holds the microphone correctly in all three aspects: in transmit position, 1 to 2 inches (25 mm to 50 mm) from your mouth, at a 45-degree angle		
3	Depress the transmit button, holding down until through with transmission Depresses the transmit button, holding down until through with transmission (2 points)		
4	Announce "emergency traffic" (or department's standard emergency traffic break-in message), interrupting air traffic as necessary.		
5	Transmit emergency traffic message following department's SOPs, using department' codes, SOPs, or class procedures.		

	Call a Mayday and communicate all LUNAR aspects with Command: (LUNAR) location, unit, name, assignment, resources needed.		
6	Repeat message until Command verifies by repeating that the message is understood. **NOTE: ASSESSMENT ADMINISTRATOR WILL VERIFY INFORMATION**		
7	Activate PASS device in “alarm” mode after communicating with Command and follows departmental guidelines) (2 points)		
	Follow departmental guidelines on positioning or actions completely and accurately.		
ASSESSMENT TOTAL		**18 POINTS POSSIBLE**	

FS1-6.14: Donning of SCBA

Students will demonstrate the donning of SCBA while wearing full protective equipment in less than 60 seconds using the over the head method (OSFM 2-6.15, NFPA 1001 5.3.1B)

Overview

- This performance assessment guides the student through the proficiencies required in the task of donning of SCBA while wearing full protective gear, using the over the head method in 60 seconds or less.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.
- The steps given in this skill sheet are general procedures for donning an SCBA. The specific SCBA manufacture’s recommendations for donning and use of SCBA should always be followed.

- Students should complete this assessment using the same type of equipment used during instruction, for which they have already learned the manufacturer's recommendations.
- Other assessment administrators (as applicable) should be informed by the instructor of recommendations for this equipment.

Starting Position:

- The student will start the activity with the following protective gear on:
  - Bunker pants
  - Structural firefighting boots
  - Turnout coat
  - Nomex hood
- The students' helmet and structural firefighting gloves are at their side ready to be donned at the end of the activity
- The complete SCBA with face shield should be laid out and checked out for service ready to don for the start of this activity.

When the student is ready the assessment administrator shall give the command "GO" and start the stopwatch. Throughout the activity, the assessment administrator will be evaluating the student using the performance task check list provided.

At the completion of Step 9 (hood, helmet, and gloves), the assessment administrator will stop the stopwatch, then score Step 10 (time limit)

Equipment & Materials

- Full protective gear (see above list)
- Complete SCBA with face shield
- PASS device (if available)
  - If this device is not available, clarify step #8 with student – that they are to state they are checking this even though it is not there
- Stopwatch

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
6.14 Donning SCBA	30 points	27-29 points	21-26 points	< 21 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will confirm that:

- The student is wearing the following protective gear:
  - Bunker pants
  - Structural firefighting boots
  - Turnout coat
  - Nomex hood

- The students' helmet and structural firefighting gloves are at their side ready to be donned at the end of the activity
- The complete SCBA with face shield is laid out and checked out for service ready to don for the start of this activity.
- If the unit does not have a PASS device, tell the student that at the appropriate point (Step #8) they should verbally state that they would be activating this device.
- When the student is ready the assessment administrator shall give the command "GO" and start the stopwatch.
- Observe the student's performance and record the appropriate score and any comments for each step.
- At the completion of Step 9 (hood, helmet, and gloves), the assessment administrator will stop the stopwatch, then score Step 10 (time limit).

Table 4. Criteria Scorecard: Donning SCBA

Criteria Scorecard: Donning SCBA		2 points each	Comments
1	• Position SCBA with valve end of the cylinder away from the body • Full points for positioning the SCBA with the valve of the cylinder away from the student. • In the instance a student puts the cylinder down with the valve toward them, no points deducted if when the student stands up the SCBA to open and read the pressure, the harness is toward the student		

2	**Open Valve Slowly** ● Full points for opening the valve of the cylinder slowly, student shall now call out the pressure on the cylinder. ● Cylinder at least 90% full, student should call out the pressure on the cylinder. ● Full points for the student that states the psi numbers of the cylinder ● No points if the student does not call out the psi numbers of the cylinder, the statement “full” is not the correct response. **Low Pressure Alarm Sounds** ● Full points for the student who waits to hear the low-pressure alarm as opening the valve. **Valve Fully Open** ● Full points for the student opening the valve fully. Assessment administrator will check the valve to see if the valve is open fully, deduct 2 points if found not completely opened.		

Criteria Scorecard: Donning SCBA		2 points each	Comments
3	● Raise the SCBA overhead while guiding elbows into the loops formed by shoulder straps. Grasp both sides of the harness assembly. ● Full points for grasping both sides of the harness assembly to raise the SCBA overhead while guiding elbows into the loops of the shoulder straps. ● No points if anything other than the harness is grabbed for this activity.		

4	Release the harness assembly and allow the SCBA to slide down the back. ● Full points for releasing the harness assembly and allowing the SCBA to slide down the back into position. ● No points if the SCBA is dropped at this point of the activity or if a strap is missed		

5	Fasten chest strap, buckle waist strap, and adjust shoulder straps. ● Full points for fastening shoulder/chest straps, then buckling waist strap, and then adjusting shoulder/chest straps if needed. ● No points if not completed in this exact order.		
6	**Don facepiece** ● Full points for donning facepiece correctly per manufacturer's recommendations. ● Check facepiece seal (negative seal check) No air leakage. ● Full points for donning facepiece with no leak and performing the negative seal check per manufacturer's recommendations. ● No points if the student does not perform the negative seal check.		
7	Connect air supply to face shield. Take normal breaths. ● Full points for connecting the regulator to the face shield, in proper position according to manufacturer's recommendations, then taking a normal breath to open the air flow for breathing.		

	● No points if the regulator is not locked into position.		
8	**Activate PASS device** ● Full points for activating PASS device. ● If a PASS device is not available to activate, full points if student verbally states that they are activating the device. ● No points if this step is missed.		

9	**Don hood, helmet, and gloves** ● Full points donning the hood now, then helmet, and then gloves to finish the activity ● No points if not done in this exact order. ● No skin exposed around face shield ● Full points if the hood is in proper position with no skin exposed around face shield ● No points if skin is exposed anywhere around the face shield.		

10	Donning shall be completed in 60 seconds or less Full points for donning of the SCBA by the over the head method in 60 seconds or less No points if donned in more than 60 seconds.		
ASSESSMENT TOTAL		**30 POINTS POSSIBLE**	

FS1-6.19: Inspecting SCBA

Students will demonstrate the inspection procedures for the main components of SCBA.

Overview

This performance evaluation will guide the student through the proficiencies required in the task of inspecting SCBA and preparing the SCBA for reuse. Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

The steps given in this assessment are general procedures for inspecting SCBA and preparing SCBA for reuse. The specific SCBA manufacture's recommendations should always be followed.

- Students should complete this assessment using the same type of equipment used during instruction, for which they have already learned the manufacturer's recommendations. They should be reminded to always follow the recommendations for the specific SCBA unit that your class is using. For example, on some SCBA, the audible alarm does not sound when the cylinder valve is opened and not all facepieces are designed for a seal check without the regulator being attached and activated.
- Other assessment administrators (as applicable) should be informed by the instructor of recommendations for this equipment.

- **Step #3:** Student states what to do if dirty or damaged components are found
- In the classroom/assessment setting, dirty or damaged components typically would not be found. Therefore, during this step THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT SHOULD YOU DO IF YOU DIRTY OR DAMAGED COMPONENTS ARE FOUND?"
- **Step #6:** The student should state the procedure that would be followed if a leak is detected and the malfunction cannot be corrected in the field.
- In the classroom/assessment setting, a leak typically would not be detected. Therefore, during this step THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT SHOULD YOU DO IF A LEAK

IS DETECTED AND THE MALFUNCTION CANNOT BE CORRECTED IN THE FIELD?"

- **Step #13:** Place SCBA components so that they can be accessed quickly for donning in the event of a reported emergency. If the location is not available, student should state the location where the components should be placed
- Before starting the assessment, the assessment administrator should inform or remind the student the local instructions for the designated area where the SCBA components should be placed

Equipment & Materials

- Full protective gear (Optional, as determined by instructor)
- Complete SCBA with facepiece
- PASS device (if available) If this device is not available, clarify step #8 with student – they are to state they are checking this even though it is not there.

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
6.19 Inspecting SCBA	26 points	23-25 points	18-22 points	< 17 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Confirm that the SCBA equipment is ready to be inspected at the assessment site.
- Inform/remind the student the designated area where the SCBA components should be placed after the assessment (Step #13)
- If the SCBA unit does not have a PASS device, tell the student that at the appropriate point during the inspection (Step #8) they should verbally state what they would be doing to check this device.
- Tell the student when they should begin, stating, "You should start by identifying and verbally naming the main components of the SCBA. You then should inspect each component and prepare the SCBA for reuse. You may begin."
- Observe the student's performance and record the appropriate score and any comments for each step.
- Ask the student questions during Steps #3 and #6 as indicated on the scorecard.

Table 5. Criteria Scorecard: Inspecting SCBA

Criteria Scorecard: Inspecting SCBA		2 points each	Comments
1	Identify all components of SCBA are present: harness assembly, cylinder, facepiece, PASS device. ● Full points for identifying all four components. All points shall be deducted for any one missing component		
2	Inspect all components of SCBA for cleanliness and damage. ● Full points for putting hands on all the components of the SCBA unit, to inspect it for cleanliness and damage. ● No points for only doing a visual, without putting hands on all the components of the SCBA unit.		
3	Student states what to do If dirty or damaged components are found. **THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT SHOULD YOU DO IF YOU DIRTY OR DAMAGED COMPONENTS ARE FOUND?** ● Full points if student states that dirty components are to be cleaned immediately and if damage is found, removed from service and tagged and reported to an officer. ● No points if the student does not state both.		
4	Student checks the cylinder and states that it is full at 90%-100% of capacity. ● Full points if the student visibly checks the cylinder pressure and verbally states that the cylinder is full at 90 to 100% of capacity. ● No points if the student does not both visibly check and state.		

5	Open the cylinder valve slowly; verify the operation of the low air alarm and the absence of audible air leaks. ● Full points for opening the cylinder valve slowly, verifying the operation of the low air alarm and the absence of audible air leaks.		

	● No points if any part of this step is missed		
6	The student should state the procedure that would be followed if a leak is detected and the malfunction cannot be corrected in the field. **THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT SHOULD YOU DO IF A LEAK IS DETECTED AND THE MALFUNCTION CANNOT BE CORRECTED IN THE FIELD?"** ● Full points if they state that an SCBA with audible leaks due to malfunctions shall be removed from service, tagged, and reported to the officer.		
7	Check that gauges and/or indicators (i.e. heads-up display) are providing similar pressure readings. Manufacturer's guidelines determine the acceptable range. ● Full points if the student visibly checks that gauges and/or indicators provide similar pressure readings (Generally within 100 psi.) ● No points if the student does not check all gauges and/or indicators.		
8	Check function (all modes) of PASS device. If there is no PASS device on the unit, the student should verbally state that they would check the PASS device at this point. ● Full points for the student that checks the functions (all Modes) of the PASS device of their unit. ● If a PASS device is not available to check, full points if student states that they are checking the device ● No points if not checked for the unit that is in use or stated.		

9	Don facepiece and check for proper seal. ● Full points for demonstrating proper donning of the facepiece and checking for proper seal. ● No points if student does not perform a proper seal check for the unit that they are using, per manufacturer's recommendations.		

10	Don regulator and check function by taking several normal breaths. ● Full points for demonstrating proper donning of the regulator and checking for functionality of the unit by taking several breaths. ● No points if the student does not both don the regulator and take several normal breaths.		
11	Check bypass and/or purge valve. ● Full points for demonstrating that bypass and/or purge valve operate by opening the valve to allow air into the facepiece. Then turn the valve off. ● No points for the student that cannot demonstrate this procedure, per manufacturer's recommendations.		
12	Remove facepiece and prepare all components for immediate reuse. ● Full points for the student that can demonstrate the removal of the facepiece and prepare all the components for immediate reuse. This includes: cylinder valve turned off, system bled off, PASS device reset (if there is one on the unit), and all straps extended. ● No points if any one of these items is missed.		

13	Place SCBA components so that they can be accessed quickly for donning in the event of a reported emergency. If the location is not available, student should state the location where the component should be placed. ● Full points for demonstrating or stating the proper location for stowing of the SCBA so that it can be accessed quickly for donning in the event of a reported emergency, per local instructor/classroom. ● No points if the student cannot demonstrate or tell you the location.		
ASSESSMENT TOTAL		**26 POINTS POSSIBLE**	

FS1-6.25: Shifting SCBA

Students will demonstrate the use of SCBA in exiting through areas with restricted openings in emergency situations: Shifting

Overview

This performance assessment guides the student through the proficiencies required in the task of exiting through areas with restricted openings in emergency situations. Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Students must be familiar with the SCBA used in their school/area.

Remind the student that the scenario that is used forces them to pass through a restricted opening to exit a possible hazardous atmosphere. This performance task is an extreme situation and is meant to also teach the student the ability to call a MAYDAY and attempt to rescue themselves. Remind students to remain calm, think about their surroundings, and think about their options.

Step #7: In the classroom/assessment setting, students typically would be able to pass through the restricted opening. Therefore, during this step the assessment administrator asks the student what they should do if they are unable to pass through the restricted opening.

Equipment & Materials

- Obstacle course with constricted openings/exits/passage: The obstacle course used should have a standard stud wall that should be used to teach and assess this skill. The studs should be spaced 16 inches (406 mm) on center.
- Full protective gear
- SCBA

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
6.25 Shifting SCBA	22 points	19-21 points	14-18 points	< 14 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Confirm that the protective gear, SCBA, and constricted passage (stud wall 16” on center) are ready to use for the assessment.
- Inform/remind the student to follow the recommendations for the specific equipment and to always follow the instructor’s directions and all safety procedures of the classroom.
- When it’s time to start, tell the student, “This performance task simulates an extreme situation. It is important to remain calm, think about your surroundings, and think about your options. You will start by donning the protective gear and SCBA. You’ll then proceed through the constricted passage and follow the appropriate procedures to adjust the equipment. After exiting the area you’ll doff the gear. At that point, I will ask you some questions. You may begin.”
- Observe the student’s performance and record the appropriate score and any comments for each step.
- Ask the student the questions during Step #7 as indicated on the scorecard

Table 6. Criteria Scorecard: Shifting SCBA

Criteria Scorecard: Shifting SCBA		2 points each	Comments
1	Don full personal protective gear and SCBA properly, on air, ready to enter constricted passage area, ready to work safely. ● Full points for the student who dons his/her gear properly, ready to enter the obstacle course. ● No points if the student has not donned his/her PPE and SCBA properly, ready to work safely.		
2	Enter the constricted passage area, studs spaced 16" on center. Check opening with hand(s) before attempting to negotiate the obstacle. ● Full points for the student that enters the intended obstacle area and checks the opening with their hand (s) before attempting to negotiate the obstacle. ● No points if they do not check with their hands first.		
3	Change body position, rotate body 45 degrees and try to get through the constricted passage without any change in SCBA. ● Full points for the student who repositions their body properly to attempted to negotiate the constricted passage, without any change in the SCBA. ● No points if the student does not attempt the opening before changing/shifting their SCBA		
4	Reduce profile and attempt to pass through constricted passage. Full points (8 possible) for the student who can perform the task of "Reduced Profile" and complete the performance task without missing any one of the following parts: ● Loosen right shoulder strap ● Loosen waist strap ● Shift tank to your left shoulder ● On through with your right shoulder first		
5	Exit hazardous area and verbally notify Command when safe.		

Criteria Scorecard: Shifting SCBA		2 points each	Comments
	• Full points for the student who states they have notified the IC that they are out and in a safe area. • No points if there is if verbal notification is not given		

6	Student states that they are clear of the hazardous area and can now doff SCBA and personal protective gear. Doff the gear. • Full points for the student who states that they are clear of the hazardous area and then doffs their SCBA and PPE • No points if the student does not state that they are now clear of the hazardous area, before doffing their gear.		
7	THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, “WHAT IF YOU CANNOT PASS THROUGH THE RESTRICTED OPENING? WHAT SHOULD YOU DO?”		
	• Student states that they would communicate with Command and call a Mayday, using (LUNAR) location, unit, name, assignment, resources needed. • Full points to the student who states all the components: notify IC, call a Mayday and communicate LUNAR • No points if any one of these is not stated		
	• Student states that they would activate PASS device in “alarm” mode after communicating with Command. • Full points to the student who states that they would activate PASS device in “alarm” mode after communicating with IC. • No points if this is not verbally stated		
ASSESSMENT TOTAL		**22 POINTS POSSIBLE**	

FS1-6.28: Changing SCBA Cylinder, Single Person

Students will demonstrate an air cylinder exchange while the SCBA is not worn by a firefighter.

Overview

This performance assessment guides the student through the proficiencies required in the task of changing an SCBA cylinder. Changing cylinders can be either a one-person or a two-person job. This assessment is for the one-person method for changing a cylinder.

Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Reminders verbally given to all students immediately prior to the assessment:

- Remind the student to always follow the recommendations for the specific cylinders your department uses. On some SCBA, the audible alarm does not sound when the cylinder valve is opened. Students must know the operation of the unit that they are using.
- Remind the student that they should always check the cylinders' capacity to maintain a 90-100% on the cylinders' capacity, their life may depend upon it!
- Remind the student to not cut corners! The student should follow a consistent routine for all aspects of PPE/SCBA.

Step #6: Remove the empty cylinder from harness assembly. Before starting the assessment, the assessment administrator should inform or remind the student the local instructions for (1) how to mark the spent cylinder and (2) the designated area where the spent cylinder should be placed.

Step #8: Checking for debris in line. In the classroom/assessment setting, debris typically would not be found in the line. Therefore, during this step the assessment administrator asks the sutdnet what they should do if they find debris in the line.

Step #12: Malfunction that cannot be corrected in the field. The assessment administrator should ask the student what they should do if an audible leak is detected and the malfunction cannot be corrected in the field.

Equipment & Materials

- Full protective gear (optional), determined by assessment administrator
- SCBA unit, as determined by instructor
- Replacement cylinder 90-100% of capacity
- Salvage cover – the designated area where spent cylinder should be placed

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
6.28 Changing cylinder	28 points	25-27 points	19-24 points	< 19 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Take the SCBA equipment to be changed to the assessment site.
- Inform/remind the student the local instructions for (1) how to mark the spent cylinder and (2) the designated area where the spent cylinder should be placed (Step #6)
- When it's time to begin, tell the student, "Your task is to change the SCBA cylinder following the recommendations for this type of cylinder, as learned in class. You should always check the cylinder's capacity to maintain a 90-100% capacity, your life may depend upon it! When you get to this part of the

process, you should verbally state the capacity. Do not cut corners! You may begin."

- Observe the student's performance for each step. Record the appropriate scores and any comments.
- Ask the student questions during Steps #8 and #12 as indicated on the scorecard.

Table 7. Criteria Scorecard: Changing cylinder

Criteria Scorecard: Changing cylinder		2 points each	Comments
1	Place the SCBA unit on a firm surface ● Full points for placing the SCBA unit laying down on any solid surface ● Standing the SCBA unit up should be a one point deduction, because this is not a recommended practice		
2	Close the cylinder valve ● Full points for closing the cylinder valve fully by pushing in on the valve and then turning clockwise. ● If the student does not get the valve closed fully, but self- corrects before continuing to the next step: no deductions.		
3	Bleed air pressure from high- and low-pressure hoses. ● Full points for bleeding the air pressure from high and low pressure hoses, down to the point when the low air alarm stops sounding. ● No points if the unit is not bled to the point when the alarm sounds.		
4	Disconnect the high-pressure line from the cylinder. ● Full points for disconnecting the high-pressure line from the cylinder. ● No points if student attempts to disconnect the high-pressure line/coupling nut without having bled the pressure in step #3.		
5	Release clamp(s) on empty cylinder ● Full points for releasing the clamp (s) on empty cylinder. No points if clamps are not released. **Note: Steps 4 and 5 can be done in reverse order without any deductions (i.e., Step 5 can be done first, followed by Step 4.)**		

Criteria Scorecard: Changing cylinder		2 points each	Comments
6	Remove the empty cylinder from harness assembly. Mark the spent cylinder, per local instructions. Place on ground or salvage cover, in designated area, per local instructions. ● Full points for removing the empty cylinder from the harness, marking it appropriately, and placing it in the proper location. ● One point deducted for not marking the empty cylinder correctly, per local instructions ● One point deducted for not placing the empty cylinder in the designated area, per local instructions		
7	State that the replacement cylinder is 90-100% of rated capacity. ● Full points for checking the replacement cylinder and stating that it is 90-100% of rated capacity. ● No points if not both checked and verbally stated at this point in the task.		
8	Check the cylinder valve opening and the high-pressure hose fitting for debris ● Full points for checking the cylinder valve opening and the high-pressure hose fitting for debris. ● One point deduction if the student only does one and not the other. **THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT SHOULD YOU DO IF YOU FIND DEBRIS IN THE LINE?** The student should state the procedure that would be followed if debris was found in the high-pressure line. ● Full points for stating they should quickly open and close cylinder valve ● No points if they state an incorrect procedure.		

9	Place the new cylinder into the backpack with the cylinder outlet in the correct position. Lock the cylinder in place. ● Full points for proper placement of the new, full, cylinder into the harness. ● Full points for completing both points of lock down. ● One point deduction if the student misses either of the points of lock down.		
10	Connect the high-pressure hose to the cylinder and hand-tighten ● Full points for connecting the high-pressure hose to the cylinder, hand tighten only. ● No points if cross threading		
11	Slowly and fully open the cylinder valve and listen for an audible alarm and leaks as the system pressurizes. ● Full points for slowly and fully opening of the cylinder valve and listening for audible alarm(s) and leaks as the system pressurizes ● No partial points. All or none.		

12	THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, “WHAT IF AN AUDIBLE LEAK IS DETECTED AND THE MALFUNCTION CANNOT BE CORRECTED IN THE FIELD?” The student should state the procedure that would be followed if a leak is detected and the malfunction cannot be corrected in the field. ● Full points if the student states that the SCBA should be removed from service, tagged, and reported to the officer. ● No points if the student does not state any one of the three actions or states any other procedure.		
ASSESSMENT TOTAL		**28 POINTS POSSIBLE**	

FS1-7.5: Demonstrate Extinguishment of CLASS A Fire

Students will demonstrate the extinguishment of the following classes of fires using the appropriate portable fire extinguisher: Class A

Overview

- A firefighter needs to be aware of the distinct types of fire extinguishers, their use and limitations, and proper and effective application.
- In this performance assessment, an individual student demonstrates the ability to properly and safely use a stored pressure water extinguisher to extinguish a CLASS A fire.
- Baseline assessment that focuses on a specific, individual skill.
- Assessment takes place during the course.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- Full Protective clothing
- Stored pressure water extinguisher
- Small Class A fire or facsimile, suitable size for an extinguisher
- Tags for labeling spent cylinder

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
FS1-7.5 Demonstrate extinguishment of CLASS A fire	20 points	17-19 points	13-16 points	< 13 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Take the stored pressure water extinguisher and tag to the assessment site.
- Prepare the small Class A fire or facsimile.
- Tell the student to begin. Observe the student's performance for each step. Record the appropriate scores and any comments.

Table 8. Criteria Scorecard: Extinguishment of CLASS A fire

	Criteria Scorecard: Extinguishment of CLASS A fire	**2 points each**	**Comments**
1	Size up fire, ensuring that it is safe to fight with an extinguisher. ● Full points for stating why the fire is safe to fight with a Class A Extinguisher (2 points)		
2	Pull pin at top of extinguisher to break the inspection band (2 points)		
3	Test to ensure proper operation. ● Point nozzle horn in safe direction (1 point) ● Discharge very short test burst (1 point)		

Criteria Scorecard: Extinguishment of CLASS A fire		2 points each	Comments
4	Carry extinguisher to within stream reach of fire. • Appropriate escape route identified and stated (1 point) • Approach upwind of fire (1 point)		
5	Aim nozzle toward base of fire (2 points)		
6	Discharge extinguishing agent (2 points) • Squeeze handle and sweep slowly back and forth across entire width of fire (2 points)		
7	Cover entire area with water until fire is completely extinguished (2 points)		
8	Exit fire area in safe manner, ensuring situational awareness/does not turn away from fire area (2 points)		
9	Tag extinguisher for recharge and inspection (2 points)		
ASSESSMENT TOTAL		**20 POINTS POSSIBLE**	

FS1-7.6: Demonstrate Extinguishment of CLASS B Fire

Students will demonstrate the extinguishment of the following classes of fires using the appropriate portable fire extinguisher: Class B (OSFM 2-7.7, NFPA 1001 5.3.16B)

Overview

- A firefighter needs to be aware of the diverse types of fire extinguishers, their use and limitations, and proper and effective application.
- In this performance assessment, an individual student demonstrates the ability to properly and safely use a dry chemical (ABC) extinguisher to extinguish a CLASS B fire.
- Baseline assessment that focuses on a specific, individual skill.
- Assessment takes place during the course.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- Full Protective clothing
- Dry Chemical (ABC) extinguisher
- Small Class B fire or facsimile, suitable size for an extinguisher
- Tags for labeling spent cylinder

Task Assessment Growth Levels

	Proficient 100%	Developing 90-99%	Marginal 70-89%	Unsatisfactory

				< 70%
FS1-7.6 Demonstrate extinguishment of CLASS B fire	20 points	17-19 points	13-16 points	< 13 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Take the dry chemical (ABC) extinguisher and tag to the assessment site.
- Prepare the small Class B fire or facsimile.
- Tell the student to begin. Observe the student's performance for each step. Record the appropriate scores and any comments.

Criteria Scorecard: Operating a Dry Chemical (ABC) Extinguisher		2 points each	Comments
1	Size up fire, ensuring that it is safe to fight with an extinguisher. ● Full points for stating why the fire is safe to fight with a dry chemical (ABC) extinguisher (2 points)		
2	Pull pin at top of extinguisher to break the inspection band (2 points)		
3	Test to ensure proper operation. ● Point nozzle horn in safe direction (1 point) ● Discharge very short test burst (1 point)		
4	Carry extinguisher to within stream reach of fire. ● Appropriate escape route identified (1 point) ● Approach upwind of fire (1 point)		
5	Aim nozzle toward base of fire (2 points)		
6	Discharge extinguishing agent (2 points) ● Squeeze handle and sweep slowly back and forth across entire width of fire (2 points)		
7	Cover entire area with water until fire is completely extinguished (2 points)		

8	Exit fire area in safe manner, ensuring situational awareness/does not turn away from fire area (2 points)		
9	Tag extinguisher for recharge and inspection (2 points)		
ASSESSMENT TOTAL		**20 POINTS POSSIBLE**	

FS1-8.11: Demonstrate the Two-Firefighter Low Shoulder Carry *Students will demonstrate the two firefighter-low shoulder carry.* Overview

- Performance assessment in which students, as part of a two-person team, demonstrate the ability to properly and safely remove/carry an extension or single ladder.
- Baseline assessment that focuses on satisfactory demonstration of skill as part of a two-person team.
- Assessment takes place during the course.
- Each student shall be evaluated in the role of "Firefighter #1" and as "Firefighter #2". Students will perform this carry two times, with one of the students as Firefighter #1 the first time and the other as Firefighter #1 the second time.
- For the assessment, TWO copies of pages 2-4 of this document will be needed:
    - Two scorecards (pages 2-3) Complete one scorecard during each performance.
    - Two student "Score Summary Sheets" (page 4) Fill out one summary sheet for each student after the two performances are done.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- Full Protective clothing
- One 24-foot (8 m) extension or single ladder

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
8.11 Demonstrate the two firefighter-low shoulder carry	34 points	27-33 points	24-26 points	< 24 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Take the ladder and two copies of the scorecard to the assessment site.
- Explain to the two students that they will perform this carry two times, with one of them as Firefighter #1 the first time and the other as Firefighter #1 the second time.
- Clarify which student will begin as Firefighter #1. Label the scorecard accordingly.

- Tell the students to begin.
- Observe the students' performance for each step. Record the appropriate scores and any comments for both students.
- Repeat with the roles reversed. Use the second scorecard.
- Transfer the scores earned by each student to a "Score Summary Sheet" (page 4) for that individual student. Share the scorecards with details with both students.

Table 9. Criteria Scorecard: Demonstrate the two firefighter-low shoulder carry

Criteria Scorecard: Demonstrate the two firefighter-low shoulder carry		2 points each		Comments
		Firefighter 1	Firefighter 2	
1	Both Firefighters: Kneel on the same side of the ladder facing the tip (2 points).			
2	Both Firefighters: Grasp a convenient rung with the near hand, palm forward (2 points).			
3	Both Firefighters: Stand the ladder on edge (2 points)			
4	Firefighter #1: Give the command to “shoulder the ladder” (2 points).			
5	Both Firefighters: Stand, starting in a squat position and lifting the ladder with the legs, rather than the back (2 points)			
6	Both Firefighters: Tilt the far beam upward as the ladder and the firefighters rise (2 points)			
7	Both Firefighters: Pivot and place the free arm between two rungs. • Both firefighters facing the butt (1 point) • Lifting smoothly and continuously (1 point)			
8	Both Firefighters: Place the upper beam on the shoulders (2 points).			
ASSESSMENT TOTAL		18 points possible	16 points possible	**34 points possible**

FS1-8.20: Two Firefighter Extension Ladder Raise (Flat Raise)

Demonstrate the two-firefighter extension ladder raise (flat raise) Overview

- Performance assessment in which students, as part of a two-person team, demonstrate the ability to properly and safely position, raise, and secure a 24-foot or 28-foot extension ladder.
- Baseline assessment that focuses on satisfactory demonstration of skill as part of a two-person team.
- Assessment takes place during the course.

- Each student shall be evaluated in the role of “Firefighter #1” and as “Firefighter #2”. Students will perform this carry two times, with one of the students as Firefighter #1 the first time and the other as Firefighter #1 the second time.
- For the assessment, TWO copies of pages 2-4 of this document will be needed:
    - Two scorecards (pages 2-3) Complete one scorecard during each performance.
    - Two student “Score Summary Sheets” (page 4) Fill out one summary sheet for each student after the two performances are done.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- Full Protective clothing (excluding SCBA)
- One 24-foot or 28-foot extension ladder

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
FS1-8.20 – Demonstrate the two-firefighter extension ladder raise (flat raise)	38 points	34-37 points	27-33 points	< 27 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Take the ladder and two copies of the scorecard to the assessment site.
- Explain to the two students that they will perform this carry two times, with one of them as Firefighter #1 the first time and the other as Firefighter #1 the second time.
- Clarify which student will begin as Firefighter #1. Label the scorecard accordingly.
- Tell the students to begin.
- Observe the students’ performance for each step. Record the appropriate scores and any comments for both students.
- Be prepared to intervene as needed for safety, especially in Steps 9, 10 and 11 when the ladder is in vertical position
- Repeat the performance with the roles reversed. Use the second scorecard.
- Transfer the scores earned by each student to a “Score Summary Sheet” (page 4) for that individual student. Share the scorecards with details with both students.
- **Note: Assessment administrator should intervene if necessary, to maintain safety**

Table 10. Criteria Scorecard: Demonstrate the two firefighter-low shoulder carry

Criteria Scorecard: Demonstrate the two- firefighter extension ladder raise (flat raise).		2 points each		Comments
		Firefighter 1	Firefighter 2	
1	Firefighter #1: Place the butt end on the ground (2 points).			
2	Firefighter #2: Rest the ladder beam on a shoulder (2 points).			
3	Firefighter #1: Heel the ladder by standing on the bottom rung (2 points).			
4	Firefighter #1: Crouch down to grasp a convenient rung or the beams with both hands (2 points).			
5	Firefighter #1: Lean back (2 points)			
6	Firefighter #2: Step beneath the ladder (2 points)			
7	Firefighter #2: Grasp a convenient rung with both hands (2 points)			
8	Firefighter #2: Advance hand-over-hand down the rungs toward the butt end until the ladder is in a vertical position (2 points)			
9	Firefighter #1: Grasp successively higher rungs or higher on the beams as the ladder comes to a vertical position until standing upright (2 points)			
10	Both Firefighters: Face each other (2 points) **Ladder should be in a vertical position.**			
11	Both Firefighters: Heel the ladder by placing toes against the beams (2 points) **Ladder should be in a vertical position.**			
12	Firefighter #1: Grasp the halyard (2 points)			
13	Firefighter #1: Extend the fly section with a hand-over-hand motion until the			

Criteria Scorecard: Demonstrate the two- firefighter extension ladder raise (flat raise).		2 points each		Comments
		Firefighter 1	Firefighter 2	
	tip reaches the desired elevation. Engage the ladder locks (2 points)			
14	Firefighter #2: Grasp the beams (2 points)			
15	Both Firefighters: Lower the ladder gently onto the building. • Place one foot against a butt spur or on the bottom rung using the proper heeling method (2 points)			
16	Firefighter #2: Ties the halyard utilizing a clove hitch with safety (2 points)			
ASSESSMENT TOTAL		20 points possible	18 points possible	**38 points possible**

FS1-9.7: Hose Rolls

Students will demonstrate the following types of hose rolls: straight roll, donut roll, twin donut roll, and self- locking twin donut roll

Overview

- Performance and Product assessment in which an individual student demonstrates abilities to properly roll the hose in each of four ways: Straight Roll, Donut Roll, Twin Donut Roll, and Self-Locking Twin Donut Roll
- This is an intermediate assessment. It is a structured task that requires two or three specified baseline skills
- Assessment takes place during the course.
- For this assessment, students will take a 50-foot section of hose and roll it in accordance to the given objective. Certain rolls require a step by step process to accomplish the task. These steps must be done in order.
- The assessment emphasizes the quality of the final, rolled hose. Various techniques can be used to do the rolls, depending on what has been taught in class.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Straight Roll, Step 1

THE ASSESSMENT ADMINISTRATOR REQUESTS EITHER AN IN-SERVICE OR AN OUT-OF-SERVICE STRAIGHT

ROLL. This should be randomly determined. Possible techniques:

- Print each option on a 3X5 card. Student draws.
- Student rolls a dice/die
  - Even number = in-service
  - Odd number = out-of-service
- Student flips a coin
  - Head = in-service
  - Tail = out-of-service

Equipment & Materials

- 50-foot section of 1¾", 2½", and/or 3" hoseline
- A pair of gloves (leather, utility, or structural firefighting)

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
9.7 Hose Rolls: Straight Roll, Donut Roll, Twin Donut Roll, and Self-Locking Twin Donut Roll	28 points	25-27 points	19-24 points	< 19 points

Using a technique taught in class, the student will achieve a quality straight roll as requested: in- service or out of service.

Table 11. Criteria Scorecard: Hose Rolls: In-Service or Out of Service - Straight Roll

Criteria Scorecard: Hose Rolls: In-Service or Out of Service - Straight Roll		**2 points each**	**Comments**
1	**THE ASSESSMENT ADMINISTRATOR REQUESTS EITHER AN IN-SERVICE OR AN OUT-OF-SERVICE STRAIGHT ROLL.** Based on the type of roll requested, student starts at one coupling and rolls the hose along the ground until they get to the other coupling. • In-Service: Student begins at the male coupling and rolls toward the female coupling (2 points); OR • Out of Service: Student begins at the female coupling and rolls hose toward		

	the male coupling (2 points)		
2	Tight, flat roll • Hose is tight (1 point) • Hose is flat (no cinnamon roll) (1 point)		
ASSESSMENT TOTAL		**4 points possible**	

Using a technique taught in class, the student will achieve a quality donut roll.

Table 12. Criteria Scorecard: Hose Rolls: Donut Roll

Criteria Scorecard: Hose Rolls: Donut Roll		2 points each	Comments
1	Hose position. Start in appropriate position depending on the technique being used. • Laid straight, offset from center (2 points); OR • Male coupling pulled back within 3 feet of female coupling (2 points); OR • Straight line, starting 2 feet toward the male (2 points); OR • Another acceptable method, per instructor (2 points)		
2	Joined couplings • Male coupling's thread ends up on the inside of the female coupling and is protected (1 point) • Male coupling at 12 o'clock, female in 3 o'clock to 6 o'clock position (90 to 180 degrees) (1 point)		
3	• Hose is tight (1 point) • Hose is flat (no cinnamon roll) (1 point).		
ASSESSMENT TOTAL		**6 points possible**	

Using a technique taught in class, the student will achieve a quality twin donut roll.

Table 13. Criteria Scorecard: Hose Rolls: Donut Roll

Criteria Scorecard: Hose Rolls: Twin Donut Roll		2 points each	Comments
1	Fold the hose in half so male and female couplings are side by side (2 points)		
2	Roll the hose toward the couplings, forming two rolls side by side (2 points)		

3	• Hose is tight (1 point) • Hose is flat (no cinnamon roll) (1 point).		

Criteria Scorecard: Hose Rolls: Twin Donut Roll	2 points each	Comments
ASSESSMENT TOTAL	**6 points possible**	

Using a technique taught in class, the student will achieve a quality self-locking twin donut roll.

Table 14. Criteria Scorecard: Hose Rolls: Self-Locking Twin Donut Roll

Criteria Scorecard: Hose Rolls: Self-Locking Twin Donut Roll		2 points each	Comments
1	Fold the hose in half and leave the male and female couplings. • Two equal rolls of the same hose, one with the male coupling, and the other with the female coupling (2 points)		
2	Grab the folded end and move it forward about 3 feet. • Create two large loops on each side (2 points)		
3	Roll the hose back toward the couplings, forming two rolls side by side (2 points)		
4	Complete the roll and grab one of the loops and pull some of the slack through, making one large loop and one small loop (2 points).		
5	Feed the large loop through the small loop and pull tight, making a self-locking loop that forms a carrying loop (2 points).		
6	• Hose is tight (1 point) • Hose is flat (no cinnamon roll) (1 point)		

ASSESSMENT TOTAL	12 points possible

Score Summary	
Hose Roll Type	**Possible Points**
Straight	4
Donut	6
Twin Donut	6
Self-Locking Twin Donut	12
TOTAL	**28**

FS1-9.10: Hose Loads

Students will demonstrate the loading of the following hose loads: Accordion, Horseshoe, Flat, Minuteman, and Dutchman

Overview

- Performance and Product assessment in which an individual student demonstrates abilities to properly load and deploy the following five hose loads: Accordion, Horseshoe, Flat, Minuteman, and Dutchman
- This is an intermediate assessment. It is a structured task that requires two or three specified baseline skills

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
9.10 Hose Loads: Accordion, Horseshoe, Flat, Minuteman, Dutchman	52 points	47-51 points	36-46 points	< 36 points

- Assessment takes place during the course.
- The assessment emphasizes the quality of the final, loaded hose. Various techniques can be used to do the loads, depending on what has been taught in class.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- 1 ¾”, 2 ½”, and/or 3” hose

- Smooth Bore or Combination Nozzle
- Fire Engine
- A pair of gloves (leather, utility, or structural firefighting)

Using a technique taught in class, the student will achieve a quality accordion hose load.

Table 15. Criteria Scorecard: Hose Load: Accordion

Criteria Scorecard: Hose Load: Accordion		2 points each	Comments
1	For the Accordion Load start by placing the coupling at the rear of the hose bed, along either the left or right edge. Lay the hose on its edge, toward the front of the hose bed. ● Coupling is at the rear of the hose bed; hose is layered on its edge toward the front of the hose bed (2 points)		
2	Upon reaching the front of the hose bed, fold the hose back over itself and lay it back toward the rear of the bay ● Hose is folded back over itself and laid back toward the rear of the bay (2 points)		
3	Continue this pattern until the entire hose bay is full. ● Entire hose bay is filled with one layer of hose (2 points)		
4	For a second layer, offset the last fold to elevate the layer and continue loading in an accordion fashion. ● Second layer is elevated and continues in an accordion fashion (2 points)		
5	Finish the load so the coupling is near the end of the bed and can be reached from the ground, but back far enough so it is secure. ● Coupling is near end of the bed, can be reached from the ground, back far enough to be secure (2 points)		
ASSESSMENT TOTAL	**10 points possible**		

Using a technique taught in class, the student will achieve a quality Horseshoe Hose Load.

Table 16. Criteria Scorecard: Hose Loads: Horseshoe

Criteria Scorecard: Hose Loads: Horseshoe		2 points each	Comments
1	Start by placing the coupling at the back of the hose bed, along either the left or right edge. Lay the hose on its edge toward the front of the hose bed. ● Coupling is placed at back of bed to start and hose is laid on edge (2 points)		
2	Upon reaching the front of the hose bed, continue along the perimeter of the hose bed, on the front and opposite sides. ● Hose load continues the front and opposite sides (2 points)		
3	Upon reaching the front of the hose bed, continue along the perimeter of the hose bed, on the front and opposite sides. ● After reaching front of hose bed, hose continues along perimeter of hose bed on the front and opposite sides (2 points)		
4	When you reach the rear of the hose bed, fold the hose back on itself and return along the perimeter of the hose bed to the other side. ● Hose is folded back on itself and returns to other side (2 points)		
5	Continue until you have filled the hose bed. ● Single layer of hose fills the bed (2 points)		
6	For a second layer of hose, continue the hose from the center of the bed, where you finished the first load, to the edge of second layer. ● Second layer of hose continues from the center of the bed where the first load finished, and starts on the edge (2 points)		
7	Finish the load so the coupling is near the end of the bed and can be reached from the ground, but back far enough so it is secure. ● Coupling is near end of the bed, can be reached from the ground, back far enough to be secure (2 points)		

ASSESSMENT TOTAL	**14 points possible**	

Using a technique taught in class, the student will achieve a quality flat hose load.

Table 17. Criteria Scorecard: Hose Loads: Flat

Criteria Scorecard: Hose Loads: Flat		2 points each	Comments
1	Start by placing the coupling at the front of the hose bed, along either the left or right edge. Lay the hose flat toward the rear of the bed. ● Coupling at front and hose lays flat (2 points)		
2	At the rear of the bed, fold the hose over on itself, laying it flat up to the front of the hose bed. ● Hose folds over on itself (2 points)		
3	When folding the hose over for the second pass, offset the rear fold to lay the hose next to the previous fold. ● The rear fold is offset (2 points)		
4	Continue this pattern, moving back and forth along the hose bed, until the hose is completely loaded. ● Pattern continues throughout the load (2 points)		
5	For a second layer of hose, continue the hose from the center of the bed, where you finished the first load, to the edge of the second layer. ● Second layer of hose continues from the center of the bed where the first load finished, and starts on the edge (2 points)		
6	Finish the load so the coupling is near the end of the bed and can be reached from the ground, but back far enough so it is secure. ● Coupling is near end of the bed, can be reached from the ground, back far enough to be secure (2 points)		

ASSESSMENT TOTAL	12 points possible

Using a technique taught in class, the student will achieve a quality Minuteman hose load.

Table 18. Criteria Scorecard: Hose Loads: Minuteman

Criteria Scorecard: Hose Loads: Minuteman		2 points each	Comments
1	Start by connecting the first 50 ft. length to proper discharge, load a portion of the hose on the bottom of the bed, place the remainder of the length aside for later loading. ● Hose connects to proper discharge and places remainder aside (2 points)		
2	Next, join the remaining two lengths together, forming a 100 feet length. Place a nozzle on the male end and place the nozzle in the pre- connected bed on the side of the direction of pull. ● Hose lengths are joined together, with nozzle on male end and nozzle placed on side of direction of pull (2 points)		
3	Once the nozzle is placed, flat load the rest of the 100-ft. length on top of the nozzle. ● Length is on top of nozzle (2 points)		
4	Once all the 100-ft. length is loaded, couple the female coupling to the male coupling from the first 50 ft. length. ● Male and female are coupled together at the correct location (2 points)		
5	Finally, flat load the rest of the original 50 ft. length of 1 1/2” or 1 3/4” attack hose with the nozzle attached. The finished load should be flat upon completion with no twists. ● Nozzle is attached and hose is flat (2 points)		
ASSESSMENT TOTAL		**10 points possible**	

Using a technique taught in class, the student will achieve a quality Dutchman hose load.

Table 19. Criteria Scorecard: Hose Loads: Dutchman

Criteria Scorecard: Hose Loads: Dutchman		2 points each	Comments
1	Explain the purpose of this load. **THE ASSESSMENT ADMINISTRATOR ASKS THE STUDENT, "WHAT IS THE PURPOSE OF THIS LOAD? WHAT ARE YOU TRYING TO AVOID?"** • States that this load is used to try to avoid a coupling from flipping in the hose bed when deployed (2 points)		
2	Fold over an extra length of hose, thus shortening the hose. • Extra length of hose is folded over and hose is shortened appropriately (2 points)		
3	Reposition the coupling to allow it to deploy directly off the hose bed and will not flip when it comes out of the bed. • Coupling is repositioned to allow it to deploy directly off the hose bed without flipping (2 points)		
ASSESSMENT TOTAL		**6 points possible**	

Score Summary	
Hose Load Type	**Possible Points**
Accordion	10
Horseshoe	14
Flat	12
Minuteman	10
Dutchman	6
TOTAL	**52**

FS1-9.26: Deploying Minuteman

Demonstrate unloading pre-connected hoseline Minuteman

Overview

- Performance and Product assessment in which an individual student demonstrates abilities to properly demonstrate deploying the Minuteman Load.
- This is an intermediate assessment. It is a structured task that requires two or three specified baseline skills

- Assessment takes place during the course
- The assessment emphasizes the demonstration of deploying a minuteman load.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Step #2. Move toward your objective indicated by the assessment administrator, as the hose plays out with your movement. **Before starting the assessment, the assessment administrator should inform the student the location of the objective.**

Equipment & Materials

- 1¾" hoselines
- Smooth Bore or Combination Nozzle
- Fire Engine
- A pair of gloves (leather, utility, or structural firefighting)

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
9.16 Deploying Minuteman	8 points	7 points	6 points	< 6 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Confirm that the needed equipment and materials are ready for the student's use at the assessment site.
- Inform/remind the student the objective location.
- Tell the student to begin. Observe the student's performance. Record the appropriate score and any comments for each step.

Table 20. Criteria Scorecard: Deploying the Minuteman Load

Criteria Scorecard: Deploying the Minuteman Load		**2 points each**	**Comments**
1	Grab the entire bundle from the hose bed, placing the bottom of the load and nozzle on your shoulder. ● Entire bundle of hose on shoulder (2 points)		
2	Move toward your objective (location indicated by the assessment administrator) as the hose plays out with your movement. ● Moving toward objective while hose plays out (2 points)		

Criteria Scorecard: Deploying the Minuteman Load		2 points each	Comments
3	Upon arrival of objective, flake out the remainder of the working line that is left on your shoulder. ● All hose is flaked out (2 points)		
4	Hold on to nozzle and call for water. ● Water is received at nozzle (2 points)		
ASSESSMENT TOTAL		**8 points possible**	

FS1-10.11 Methods of Fire Attack: Direct, Indirect, Combination

Students will demonstrate proficiencies required for applying three types of water application for fire attack: direct, indirect, and combination.

Overview

- The student will take an attack line and demonstrate each type of water application. Each type requires a step by step process to achieve the different methods of fire attack.
- This is an intermediate assessment. It is a structured task that requires two or three specified baseline skills
- Assessment takes place during the course.
- Students should be provided with the scorecard (next pages) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- 1 ¾" or 2 ½" hoseline
- Smooth Bore Nozzle or Combination Nozzle
- Fire Engine
- Prop to simulate burning solid fuel (direct method)
- Prop to simulate concealed space with small opening where no life hazard is present (indirect method)
- Prop to simulate space with floor, walls, ceiling (combination method)

Task Assessment Growth Levels				
	Proficient 100%	**Developing 90-99%**	**Marginal 70-89%**	**Unsatisfactory < 70%**
10.11 Methods of Fire Attack: direct, indirect, combination	20 points	18-19 points	14-17 points	< 14 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Confirm that the needed equipment and materials are ready for the student's use at the assessment site
- Inform/remind the student the location of the Prop to simulate burning solid fuel (direct method)
- Inform/remind the student the location of the Prop to simulate concealed space with small opening where no life hazard is present (indirect method)
- Inform/remind the student the location of the Prop to simulate space with floor, walls, ceiling (combination method)
- Inform/remind the student the location of the small opening into a concealed space where no life hazard is present.
- Tell the student to begin. Observe the student's performance. Record the appropriate score and any comments for each step.

Table 21. Criteria Scorecard: Fire Attack Method: Direct

Criteria Scorecard: Fire Attack Method: Direct		2 points each	Comments
1	Open the Smooth Bore or Combination Nozzle set on straight stream (turned to the right) slowly by pulling handle back towards you. • Student opens the smooth bore nozzle or combination nozzle set on straight stream (turned to the right) and slowly pulls the handle back toward them (2 points) • Student opens the smooth bore or combination nozzle set on straight stream (turned to the right) and does not pull the handle back slowly (1 point).		
2	Applies a solid stream directly on the burning solid fuels or simulation of burning solid fuels (2 points)		
3	Shut Smooth Bore Nozzle or Combination down slowly by pushing handle away from you • Correctly shuts smooth bore nozzle down slowly by pushing handle away from them (2 points) • Shuts smooth bore or combination nozzle down but pushes handle down fast (1 point)		
ASSESSMENT TOTAL		**6 POINTS POSSIBLE**	

Table 22. Criteria Scorecard: Fire Attack Method: Indirect

Criteria Scorecard: Fire Attack Method: Indirect		2 points each	Comments
1	Open the Combination Nozzle (turned slightly to the left) slowly by pulling handle back towards you.		

Criteria Scorecard: Fire Attack Method: Indirect		2 points each	Comments
	• Student opens the combination nozzle (turned slightly to the left) slowly by pulling handle back toward them (2 points) • Student open the combination nozzle (turned slightly to the left) by pulling the handle back fast (1 point)		

2	Applies stream through small opening into a concealed space where no life hazard is present for 1 minute (2 points).		
3	• Shuts combination nozzle down slowly by pushing handle away from them (2 points) • Shut combination nozzle down by pushing handle away fast (rather than slowly) (1 point)		
4	Cover opening with a fog pattern of water to allow the water to be converted into steam (2 points)		
ASSESSMENT TOTAL		**8 POINTS POSSIBLE**	

Table 23. Criteria Scorecard: Fire Attack Method: Combination

Criteria Scorecard: Fire Attack Method: Combination		**2 points each**	**Comments**
1	Open the Smooth Bore Nozzle or Combination Nozzle set on straight stream (turned to the right) slowly by pulling handle back towards you. • Student opens the smooth bore nozzle or combination nozzle and set on straight stream (turned to the right) slowly by pulling handle back toward them (2 points) • Student opens the smooth bore nozzle or combination nozzle and set on straight stream (turned to the right) by pulling the handle back toward them fast (0 points)		
2	Rotate stream in a clockwise manner hitting the ceiling, walls, and floor. • Rotates stream in a clockwise manner hitting the ceiling, walls, and floor (2 points)		

Criteria Scorecard: Fire Attack Method: Combination	**2 points each**	**Comments**

	• If direction is not clockwise or if any one portion (ceiling, walls, or floor) is not hit correctly (1 point) • Incorrect direction and/or more than one portion incorrect (0 points)		
3	Shut Smooth Bore or Combination Nozzle down slowly by pushing handle away from you • Student shuts smooth bore or combination nozzle down slowly by pushing handle away from them (2 points) • Student shuts smooth bore or combination nozzle down by pushing handle away fast (1 point)		
ASSESSMENT TOTAL		**6 POINTS POSSIBLE**	

Score Summary	
Fire Attack Type	**Possible Points**
Direct	6
Indirect	8
Combination	6
TOTAL	**20**

FS1-10.14 Opening and Closing a Nozzle

Students will demonstrate abilities to properly open and close a nozzle, using a charged attack line.

Overview

- Performance assessment in which an individual student demonstrates abilities to properly open and close a nozzle, using a charged attack line.
- Baseline assessment that focuses on a specific, individual skill.
- Assessment takes place during the course.
- Students should be provided with the scorecard (next page) in advance, with corresponding instruction and opportunity for practice using the same equipment they will use for the assessment.

Equipment & Materials

- Smooth Bore or Combination Nozzle
- 1¾”, 2½”, and/or 3” hoselines
- Fire Engine

Task Assessment Growth Levels

	Proficient 100%	Developing 90-99%	Marginal 70-89%	Unsatisfacto ry < 70%
FS1-10.14 Opening and closing a nozzle	6 points	5 points	4 points	< 4 points

Assessment Instructions

To begin the assessment, the instructor/assessment administrator will:

- Confirm that the needed equipment and materials are ready for the student's use at the assessment site.
- Tell the student to begin. Observe the student's performance. Record the appropriate score and any comments for each step.

Table 24. Criteria Scorecard: Opening and closing a nozzle

Criteria Scorecard: Opening and closing a nozzle		2 points each	Comments
1	Holds the nozzle so that the bale is at arm's length while maintaining a solid stance (2 points)		
2	• Opens the water supply by pulling the bale toward them slowly (2 points) • Opens the water supply by pulling the bale toward them fast (1 point)		
3	• Turns off the nozzle by pushing forward on the bale. When shutting down the nozzle, does so slowly to prevent water hammer (2 points) • Turns off the nozzle by pushing forward on the bale fast (1 point)		
ASSESSMENT TOTAL		**6 POINTS POSSIBLE**	

Fire Science

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of 8 or higher on the rating scale. Students may be encouraged to repeat the objectives until they average 8 or higher.

Student's Name: _____

Class: _____

Performance standard average score:

Evaluator Name: _____

Evaluator Title: _____

Evaluator Signature: _____

Date: _____