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| **TEXAS CTE LESSON PLAN**[www.txcte.org](http://www.txcte.org) |
| **Lesson Identification and TEKS Addressed** |
| **Career Cluster** | Law, Public Safety, Corrections, & Security |
| **Course Name** | Firefighter II |
| **Lesson/Unit Title** | Rescue |
| **TEKS Student Expectations** | **130.335. (c) Knowledge and skills**(5) The student explains the purpose of the National Fire Protection Association standards applicable to fire service ground ladders. The student is expected to:1. explain and demonstrate proper ladder climbing techniques while transporting tools and equipment or assisting a person with a simulated injury.
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| **Basic Direct Teach Lesson**(Includes Special Education Modifications/Accommodations and one English Language Proficiency Standards (ELPS) Strategy) |
| **Instructional Objectives** | The student will be able to:* Explain the proper operation of fire service safety devices.
* Demonstrate the proper testing of fire service safety devices.
* Describe the elements of a personnel accountability system and the application of the system at an incident.
* Demonstrate techniques for action when trapped or disoriented in a fire situation or in a hostile environment.
* Safely demonstrate ten types of tools used for forcible entry, rescue, and ventilation.
* Identify potential hazards of structural fires and roadway emergency scenes.
* Describe procedures for safe operation at emergency scenes.
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| **Rationale** | It is critical that firefighters understand the proper use and importance of rescue devices within the fire service. Firefighting is an inherently dangerous job, but understanding how to properly don rescue apparel, use rescue tools, maintain rescue equipment, and utilize personnel accountability systems can reduce these dangers. Firefighters who understand these precautions may reduce the risks to their own safety while improving their ability to rescue fellow fighters and others.(Note: According to National Fire Protection Association (NFPA) data, from 1976 to 2006 the fire service experienced a 58 percent reduction in firefighter line-of-duty deaths. Over the same period, the country also saw a 54 percent drop in the number of structural fires, therefore reducing firefighters’ exposure to risk.) |
| **Duration of Lesson** | This lesson should take 6 hours. |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | None |
| **Materials/Specialized Equipment Needed** | * Rescue Equipment Worksheet and Key
* Rescue Facts Worksheet and Key
* Primary Search/Rescue Practice Drill
* Primary Search/Rescue Practice Drill handout
* Paper and writing utensil
* Full Complement of Personal Protective Equipment (PPE)
* Two Rescue Ropes
* SCBAs
* Radios
* Mask black out material (wax paper is recommended)
* Facility capable of housing a rescue drill
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Have a class discussion about firefighters’ day-to-day operational risks, including the various environments in which firefighters may work and the specific dangers unique to each location. Have the students list the safety preparation activities that firefighters can do before going on a rescue call and the actions that firefighters can take during a rescue call to decrease their chances of work related injury. Use the students’ lists to enhance the class discussion. Use the Discussion Rubric for assessment. |
| **Direct Instruction \*** | I. Rules of Engagement (Pulled from NFPA Standards 1500 and 1561)a. Rules for Firefightersi. Size up the sceneii. Determine whether people are known to be inside, assumed to be inside, or their location is unknown, and whether individuals could survive the current environmentiii. Do not risk your life for property. Do not risk your life for individuals that cannot be savediv. Extend limited risk only if property or lives are savablev. Always remember: two in, two out; never leave your partnervi. Maintain awareness of your surroundingsvii. Constantly monitor the radio for updates and size-upsviii. If you see a dangerous situation it is up to you to report it immediatelyix. Declare a MAYDAY the moment you think that there is troubleb. Rules for Incident Commandersi. Size up the scene and report findings to all companies and dispatchii. Determine whether people are known to be inside, assumed to be inside, or unknown, and whether individuals could survive the current environmentiii. Conduct an action planiv. Decide if the action plan is an offensive attack or a defensive attack. Do not make an offensive decision until you have all the staff and the equipment on the scenev. Do not risk firefighters’ lives for property. Do not risk lives for individuals that cannot be savedvi. Extend limited risk only if property or lives are savablevii. Monitor that two go in and two go outviii. If you see a dangerous situation it is up to you to report it immediatelyix. Maintain frequent communications with dispatch and companies at the location. Designate one channel for fire ground communications and another channel for dispatchx. Relay frequent updates and revised size-ups. Change the plan as neededxi. Ensure accurate accountability of all the staff on the scenexii. If a primary search has been completed and the fire is not under control (or if the situation is dangerous) do not hesitate to revise the strategy to a defensive attackxiii. Have a rapid intervention team (RIT) and a rehab team availableII. Search – looking for victims that need assistance to leave a dangerous area; this goes hand-in-hand with rescuea. Search-and-Rescue Size-Upi. Develop a search-and-rescue plan based on what is known, not on what is assumedii. Conduct a risk-benefit analysis1. Consider the risks and benefits of the operation2. In some situations, operations must be limited or cannot be performed because they pose a high risk to firefightersiii. Evaluate the occupancy factors1. Firefighters should first rescue occupants who are in the most immediate danger, followed by those who are in less danger2. Risk to occupants is determined by:a. Location of the fireb. Direction of the spreadc. Volume and intensity of the fired. Smoke conditions in different areas3. Occupants at greater risk include those who are:a. Close to the fireb. Above the firec. In the path of the fired. Asleep, unconscious, incapacitated, or trappede. Children and the elderlyf. Confined to a bed or to wheelchairsg. In residences at nighth. In offices on weekdaysi. In bars/clubs on Friday and Saturday nightsj. In unprotected, wood-frame buildingsiv. Make observations1. Look for clues that indicate whether a building is occupied and how many people are likely to be presenta. Are there cars in the driveway?b. Are there toys in the front yard?c. Is the mailbox full?d. Is the parking lot empty?e. Are the windows boarded up?v. Consider the occupant information1. Obtain accurate information from occupants who have escapeda. Can those outside verify that everyone is out?b. Ask specific questionsc. Be sure that you know who you are looking for and where you should be lookingvi. Consider the building size and arrangement1. Larger buildings may require more teams2. Knowing the floor plan is useful (though unlikely)3. Pre-incident plans include valuable information such as:a. Corridor layoutsb. Stairway locationsc. Special-function rooms or areas4. Note the floor numbering and apartment numbering systemb. Search Coordinationi. The Incident Commander (IC) makes assignments and serves as the search coordinatorii. Notify the IC when the search is completeiii. Notify the IC if a victim is located while performing other tasksiv. Keep track of those victims who may have already escaped but still need assistancec. Search Prioritiesi. The search begins where victims are at the greatest riskii. Search assignments should be based on a system of priorities:1. First, search the fire area, then the rest of the fire floor2. Second, search the area directly above the fire3. Next, search the top floor, then work your way down to the floor above the fire4. Areas below the fire are a lower priority but should be searched before the “all clear” is givend. Introduction to Search/Rescue Techniquesi. Searchers should always operate in teams of twoii. Partners must remain in visual, voice, or physical contactiii. Mayday must be given if partners are separatediv. At least one team member must have a radio and maintain contact with the incident commanderv. Teams must notify the IC when each search area is completely searchede. Types of Searchesi. Primary search – a quick attempt to locate any potential victims who are in danger1. The objective is to find any potential victims as quickly as possible and remove them from danger2. The phrase “primary search complete; all clear” is used to report that the primary search is complete3. Time is critical, and speed is important during the primary search4. Check all areas where victims have a high probability of being located, such asa. Beds, cribs, and chairsb. On the floor next to doors and windowsc. In closets, bathtubs, or showers, and under beds5. Firefighters must rely on their sensesa. Eyes (Can you see anything?)b. Ears (Can you hear someone calling for help?)c. Feel (Do you feel a victim’s body?)6. Use a hand tool to extend your reach7. Use a safety line secured at the point of entry so that your location may be found in the event of a mayday8. Follow the walls. Make note of obstacles, doors, and other landmarks in case you get stuck9. Once the search is complete, the search team should retrace its path to the entry point10. Identify secondary escape routes for emergencies11. Note locations of stairways, doors, and windows12. Remain in contact with the IC and give frequent updates on the situation and locationii. Secondary search – a thorough search conducted after the situation is under control1. Should be conducted by a second team, if possible2. Used to locate victims that might have been missed during the primary search3. Is more detailed and thorough than the primary search4. Is completed when the building conditions have improved but some hazards may still exista. Levels of carbon monoxide and other toxins may be above normal limitsb. The fire may rekindle during a secondary searchc. The structure may be unstable5. Is conducted slowly and methodically6. Must include all areas of the buildingf. Search Patternsi. In small rooms, searchers should follow walls around the perimeter and sweep toward the center with hand tools, looking for a victimii. In large rooms, one member should be in contact with the wall while the other moves toward the center in search of individuals. Both rescuers must remain in visual/oral contact throughout the entire search1. Clockwise search (left-handed search)a. Turn left at the entry pointb. Keep the left hand in contact with the wallc. Use the right arm (or tool held by right arm) to sweep the roomd. Turn right at each corner until you return to the entry point2. Counterclockwise searcha. Move around the room in the opposite direction of the clockwise search, but follow the same stepsiii. Practice and use the standard system pattern adopted by the departmentiv. Check the temperature of closed doors before opening them to determine if there is active fire on the other side1. Do not open a hot door unless there is a hose line ready to douse the firev. Keep track of your position relative to the entry door1. Always enter and exit through the same doorvi. Mark rooms to show if they have been searchedg. Search Equipmenti. Thermal Imaging Devices1. Like a small camcorder, but used to show heat images rather than visible light images using Infra-red technology2. Can “see” an image of the room’s contents or a person through smoke and darkness; the warmer an object, the brighter it shines in the camera3. May be used to determine whether fire is on other side of a doorii. Search Ropes1. Used to search large, open areas when it is impossible to cover the interior by following the walls2. Used to search interconnected rooms or spaces3. Used to search areas with multiple aisles4. Provide a reliable return path to the entry point5. Should be preloaded in easy-to-carry bags with quick connects for point of entry and fire personnelIII. Rescue Techniquesa. Introduction to Rescue Techniquesi. Rescue is the removal of a person who is unable to escape from a dangerous situationii. Rescue techniques include:1. Assists2. Drags3. Carriesiii. Types of rescues range from very basic techniques, such as directing occupants toward an exit, to very demanding, complex operations, such as extricating a trapped, unconscious victimiv. Always use the safest and most practical means of removalb. Shelter-in-Placei. Consider this option when occupants are conscious and in a part of the building that is protected from the fireii. Occupants may be exposed to more risk if they attempt to exitiii. The incident commander must make this decisionc. Exit Assisti. Simplest type of rescueii. Used when the victim is responsive and able to walk with little or no assistanceiii. Firefighters should take the victim’s arm or use a walking assist to ensure the victim does not fall or become lostd. Simple Victim Carriesi. Used to move a victim who is conscious and responsive but unable to stand or walkii. Four simple carries can be used:1. Two-person extremity carry2. Two-person seat carry3. Two-person chair carry4. Cradle-in-arms carrye. Emergency Dragsi. The most efficient method to remove an unconscious or unresponsive victimii. Five emergency drags can be used:1. Clothes drag – used to remove a victim who is on the floor and is too heavy for one rescuer to lift and carry2. Blanket drag – used to move a victim who is not dressed or is dressed in flimsy clothing3. Webbing sling drag – provides a secure grip around the upper part of a victim’s body for a faster removal4. Firefighter drag – can be used if the victim outweighs the rescuer5. Emergency drag from a vehicle – performed when the victim must be removed quickly from a vehicle to save his or her life; often violates c-spine precautionsf. Removal of Victims by Laddersi. Ladder rescues involve a considerable risk of injury to firefighters and occupantsii. Ladder rescues require proper technique and physical strength and staminaiii. Proper placement ensures that the occupant can easily mount the ladderiv. Ladders used for rescue must be heeled or tied inv. Ladders should be used only when it is impossible to use interior stairways or fire escapesvi. Aerial ladders have several advantages over ground ladders:1. Stronger2. Have a longer reach3. Wider and more stable4. Reduce the risk of slipping and fallingIV. Personnel Accountability System – establish a procedure to effectively account for personnel at the scene of an emergency incidenta. NFPA Guidelinesi. All units will remain together, work as a team, and will operate under the direction of the ICii. All officers shall be aware of the position and function of all members under their command. This is done at the command centeriii. All members will have a personnel accountability tag that allows the IC to know who is on scene and working in what capacityiv. An absent member of any unit will automatically be assumed lost or trapped in the hazard zone until otherwise determined safev. A Personnel Accountability Report (PAR) will be called when needed to make sure all members are accounted forvi. Accountability will only work with a strong personal commitment to the Safety Systems by all personnel involved at the incidentvii. Personnel who may become trapped, disoriented, or otherwise unable to respond to the IC’s call for a PAR should immediately activate his or her Personal Alarm Safety System (PASS)V. Roadway Hazardsa. In the past unnecessary risks were taken and thought of as “part of the job.” This cultural perspective needs to changei. Injuries and deaths are not “part of the business”ii. The only acceptable level of injury and death is zerob. Apparatus occupant safetyi. Seatbelts are nonnegotiable. Do not move until all occupants are seated and wearing seatbelts (NFPA 1500)ii. All vehicles need to be checked every morning. Any unsafe conditions need to be reported and the apparatus needs to be taken out of service until it is repairediii. All driver operators need to undergo formal training. Requiring driver operators to have a CDL is a good ideaiv. Do not store loose tools in the cab area. They can become dangerous in the event of a collisionc. Roads, highways, and interstates are dangerous locations. Never turn your back to traffic and always wear easily visible clothingd. Five most common causes of fire apparatus collisionsi. Failure to safely traverse intersectionsii. Apparatus backing operationsiii. Excessive speediv. Failure to keep apparatus wheels on the road surfacev. Failure to negotiate curvese. NFPA 1500 gives guidelines on when an apparatus must make a complete stop. Know them, and when in doubt come to a complete stop. There are very few instances when an emergency vehicle can legally run intersections, stop signs, and red lightsf. When parking an apparatus on a roadway for an emergency call:i. Shut down at least one lane in addition to the lanes occupied by the incident.ii. Keep front wheels turned away from any citizens, vehicles, or patients so that if the apparatus were to roll or be hit it would roll away from the scene and not into it.g. Parking on scenei. Take up one additional lane in addition to the lane(s) containing the collision or incidentii. Park in a manner that protects fire personnel from oncoming trafficiii. Do not block access to late arriving emergency apparatusesiv. Park the vehicle at a 45-degree angle with front wheels away from the emergency scenev. Park additional apparatuses at 100’-200’ intervalsvi. When placing flares, do so while walking backwards and facing oncoming traffic so that you have additional time to reactvii. Do not be afraid to call for the assistance of allied agencies (police, department of transportation, cranes, hazmat, etc.)VI. Common Rescue Equipment in the Fire Servicea. Hydraulic rescue toolb. Halligan toolc. Window punchd. SCBAe. Thermal Imaging Devicef. Rope/webbingg. Door spreaderh. Ax/mauli. K12 Sawj. Ladderk. Cutting torchesl. Pinch/pry bars |
| **Guided Practice \*** | Have students complete the Primary Search/Rescue Practice Drill. Use the Primary Search/Rescue Practice Drill handout as a guide. Use the Discussion Rubric and/or the Writing Rubric for assessment. |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Have students identify various rescue equipment using the Rescue Equipment Worksheet. Use the Rescue Equipment Worksheet Key for assessment. |
| **Lesson Closure** | None |
| **Summative/End of Lesson Assessment \***  | * Rescue Quiz and Key
* Rescue Equipment Worksheet Key
* Rescue Facts Worksheet Key
* Discussion Rubric
* Individual Work Rubric
* Research Rubric
* Writing Rubric
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| **References/Resources/****Teacher Preparation** | * ISBN: 0135151112, *Essentials of Firefighting* (5th Edition), International Fire Service Training Association (IFSTA).
* Dallas Fire Department Manual of Procedures Revision 01/2013 National Incident Management System Manual of Procedures Dallas Fire Department Standard Operating Procedures Dallas Fire Station 19A shift personnel
* <https://www.usfa.fema.gov/>
* <https://www.fema.gov/>
* <http://www.safetyandhealthweek.org/>
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| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** | Cross-Disciplinary StandardsII. Foundational SkillsC. Research across the curriculum1. Understand which topics or questions are to be investigated.2. Explore a research topic. |
| **Recommended Strategies** |
| **Reading Strategies** |  |
| **Quotes** |  |
| **Multimedia/Visual Strategy****Presentation Slides + One Additional Technology Connection** |  |
| **Graphic Organizers/Handout** |  |
| **Writing Strategies****Journal Entries + 1 Additional Writing Strategy** |  |
| **Communication****90 Second Speech Topics** |  |
| **Other Essential Lesson Components** |
| **Enrichment Activity**(e.g., homework assignment) | Have students research the following then write a four-paragraph paper summarizing their research (one paragraph each):* Give a brief synopsis of a line-of-duty death
* State the cause of the death
* Clarify if NFPA standards/rules violations led to the death or injury
* Describe what can be done in the future to ensure that the same tragedy does not happen again

Use the Individual Work Rubric, the Research Rubric, or the Writing Rubric for assessment. |
| **Family/Community Connection** |  |
| **CTSO connection(s)** | SkillsUSA |
| **Service Learning Projects** |  |
| **Lesson Notes** |  |

1. Visit the Texas College and Career Readiness Standards at <http://www.thecb.state.tx.us/collegereadiness/CRS.pdf>, Texas Higher Education Coordinating Board (THECB), 2009. [↑](#footnote-ref-1)