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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. |
| **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. |
| **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 |
| **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 Firefighters  i. Size up the scene  ii. Determine whether people are known to be inside, assumed to be inside, or their location is unknown, and whether individuals could survive the current environment  iii. Do not risk your life for property. Do not risk your life for individuals that cannot be saved  iv. Extend limited risk only if property or lives are savable  v. Always remember: two in, two out; never leave your partner  vi. Maintain awareness of your surroundings  vii. Constantly monitor the radio for updates and size-ups  viii. If you see a dangerous situation it is up to you to report it immediately  ix. Declare a MAYDAY the moment you think that there is trouble  b. Rules for Incident Commanders  i. Size up the scene and report findings to all companies and dispatch  ii. Determine whether people are known to be inside, assumed to be inside, or unknown, and whether individuals could survive the current environment  iii. Conduct an action plan  iv. 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 scene  v. Do not risk firefighters’ lives for property. Do not risk lives for individuals that cannot be saved  vi. Extend limited risk only if property or lives are savable  vii. Monitor that two go in and two go out  viii. If you see a dangerous situation it is up to you to report it immediately  ix. Maintain frequent communications with dispatch and companies at the location. Designate one channel for fire ground communications and another channel for dispatch  x. Relay frequent updates and revised size-ups. Change the plan as needed  xi. Ensure accurate accountability of all the staff on the scene  xii. 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 attack  xiii. Have a rapid intervention team (RIT) and a rehab team available  II. Search – looking for victims that need assistance to leave a dangerous area; this goes hand-in-hand with rescue  a. Search-and-Rescue Size-Up  i. Develop a search-and-rescue plan based on what is known, not on what is assumed  ii. Conduct a risk-benefit analysis  1. Consider the risks and benefits of the operation  2. In some situations, operations must be limited or cannot be performed because they pose a high risk to firefighters  iii. Evaluate the occupancy factors  1. Firefighters should first rescue occupants who are in the most immediate danger, followed by those who are in less danger  2. Risk to occupants is determined by:  a. Location of the fire  b. Direction of the spread  c. Volume and intensity of the fire  d. Smoke conditions in different areas  3. Occupants at greater risk include those who are:  a. Close to the fire  b. Above the fire  c. In the path of the fire  d. Asleep, unconscious, incapacitated, or trapped  e. Children and the elderly  f. Confined to a bed or to wheelchairs  g. In residences at night  h. In offices on weekdays  i. In bars/clubs on Friday and Saturday nights  j. In unprotected, wood-frame buildings  iv. Make observations  1. Look for clues that indicate whether a building is occupied and how many people are likely to be present  a. 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 information  1. Obtain accurate information from occupants who have escaped  a. Can those outside verify that everyone is out?  b. Ask specific questions  c. Be sure that you know who you are looking for and where you should be looking  vi. Consider the building size and arrangement  1. Larger buildings may require more teams  2. Knowing the floor plan is useful (though unlikely)  3. Pre-incident plans include valuable information such as:  a. Corridor layouts  b. Stairway locations  c. Special-function rooms or areas  4. Note the floor numbering and apartment numbering system  b. Search Coordination  i. The Incident Commander (IC) makes assignments and serves as the search coordinator  ii. Notify the IC when the search is complete  iii. Notify the IC if a victim is located while performing other tasks  iv. Keep track of those victims who may have already escaped but still need assistance  c. Search Priorities  i. The search begins where victims are at the greatest risk  ii. Search assignments should be based on a system of priorities:  1. First, search the fire area, then the rest of the fire floor  2. Second, search the area directly above the fire  3. Next, search the top floor, then work your way down to the floor above the fire  4. Areas below the fire are a lower priority but should be searched before the “all clear” is given  d. Introduction to Search/Rescue Techniques  i. Searchers should always operate in teams of two  ii. Partners must remain in visual, voice, or physical contact  iii. Mayday must be given if partners are separated  iv. At least one team member must have a radio and maintain contact with the incident commander  v. Teams must notify the IC when each search area is completely searched  e. Types of Searches  i. Primary search – a quick attempt to locate any potential victims who are in danger  1. The objective is to find any potential victims as quickly as possible and remove them from danger  2. The phrase “primary search complete; all clear” is used to report that the primary search is complete  3. Time is critical, and speed is important during the primary search  4. Check all areas where victims have a high probability of being located, such as  a. Beds, cribs, and chairs  b. On the floor next to doors and windows  c. In closets, bathtubs, or showers, and under beds  5. Firefighters must rely on their senses  a. 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 reach  7. Use a safety line secured at the point of entry so that your location may be found in the event of a mayday  8. Follow the walls. Make note of obstacles, doors, and other landmarks in case you get stuck  9. Once the search is complete, the search team should retrace its path to the entry point  10. Identify secondary escape routes for emergencies  11. Note locations of stairways, doors, and windows  12. Remain in contact with the IC and give frequent updates on the situation and location  ii. Secondary search – a thorough search conducted after the situation is under control  1. Should be conducted by a second team, if possible  2. Used to locate victims that might have been missed during the primary search  3. Is more detailed and thorough than the primary search  4. Is completed when the building conditions have improved but some hazards may still exist  a. Levels of carbon monoxide and other toxins may be above normal limits  b. The fire may rekindle during a secondary search  c. The structure may be unstable  5. Is conducted slowly and methodically  6. Must include all areas of the building  f. Search Patterns  i. In small rooms, searchers should follow walls around the perimeter and sweep toward the center with hand tools, looking for a victim  ii. 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 search  1. Clockwise search (left-handed search)  a. Turn left at the entry point  b. Keep the left hand in contact with the wall  c. Use the right arm (or tool held by right arm) to sweep the room  d. Turn right at each corner until you return to the entry point  2. Counterclockwise search  a. Move around the room in the opposite direction of the clockwise search, but follow the same steps  iii. Practice and use the standard system pattern adopted by the department  iv. Check the temperature of closed doors before opening them to determine if there is active fire on the other side  1. Do not open a hot door unless there is a hose line ready to douse the fire  v. Keep track of your position relative to the entry door  1. Always enter and exit through the same door  vi. Mark rooms to show if they have been searched  g. Search Equipment  i. Thermal Imaging Devices  1. Like a small camcorder, but used to show heat images rather than visible light images using Infra-red technology  2. 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 camera  3. May be used to determine whether fire is on other side of a door  ii. Search Ropes  1. Used to search large, open areas when it is impossible to cover the interior by following the walls  2. Used to search interconnected rooms or spaces  3. Used to search areas with multiple aisles  4. Provide a reliable return path to the entry point  5. Should be preloaded in easy-to-carry bags with quick connects for point of entry and fire personnel  III. Rescue Techniques  a. Introduction to Rescue Techniques  i. Rescue is the removal of a person who is unable to escape from a dangerous situation  ii. Rescue techniques include:  1. Assists  2. Drags  3. Carries  iii. 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 victim  iv. Always use the safest and most practical means of removal  b. Shelter-in-Place  i. Consider this option when occupants are conscious and in a part of the building that is protected from the fire  ii. Occupants may be exposed to more risk if they attempt to exit  iii. The incident commander must make this decision  c. Exit Assist  i. Simplest type of rescue  ii. Used when the victim is responsive and able to walk with little or no assistance  iii. Firefighters should take the victim’s arm or use a walking assist to ensure the victim does not fall or become lost  d. Simple Victim Carries  i. Used to move a victim who is conscious and responsive but unable to stand or walk  ii. Four simple carries can be used:  1. Two-person extremity carry  2. Two-person seat carry  3. Two-person chair carry  4. Cradle-in-arms carry  e. Emergency Drags  i. The most efficient method to remove an unconscious or unresponsive victim  ii. 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 carry  2. Blanket drag – used to move a victim who is not dressed or is dressed in flimsy clothing  3. Webbing sling drag – provides a secure grip around the upper part of a victim’s body for a faster removal  4. Firefighter drag – can be used if the victim outweighs the rescuer  5. 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 precautions  f. Removal of Victims by Ladders  i. Ladder rescues involve a considerable risk of injury to firefighters and occupants  ii. Ladder rescues require proper technique and physical strength and stamina  iii. Proper placement ensures that the occupant can easily mount the ladder  iv. Ladders used for rescue must be heeled or tied in  v. Ladders should be used only when it is impossible to use interior stairways or fire escapes  vi. Aerial ladders have several advantages over ground ladders:  1. Stronger  2. Have a longer reach  3. Wider and more stable  4. Reduce the risk of slipping and falling  IV. Personnel Accountability System – establish a procedure to effectively account for personnel at the scene of an emergency incident  a. NFPA Guidelines  i. All units will remain together, work as a team, and will operate under the direction of the IC  ii. All officers shall be aware of the position and function of all members under their command. This is done at the command center  iii. All members will have a personnel accountability tag that allows the IC to know who is on scene and working in what capacity  iv. An absent member of any unit will automatically be assumed lost or trapped in the hazard zone until otherwise determined safe  v. A Personnel Accountability Report (PAR) will be called when needed to make sure all members are accounted for  vi. Accountability will only work with a strong personal commitment to the Safety Systems by all personnel involved at the incident  vii. 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 Hazards  a. In the past unnecessary risks were taken and thought of as “part of the job.” This cultural perspective needs to change  i. Injuries and deaths are not “part of the business”  ii. The only acceptable level of injury and death is zero  b. Apparatus occupant safety  i. 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 repaired  iii. All driver operators need to undergo formal training. Requiring driver operators to have a CDL is a good idea  iv. Do not store loose tools in the cab area. They can become dangerous in the event of a collision  c. Roads, highways, and interstates are dangerous locations. Never turn your back to traffic and always wear easily visible clothing  d. Five most common causes of fire apparatus collisions  i. Failure to safely traverse intersections  ii. Apparatus backing operations  iii. Excessive speed  iv. Failure to keep apparatus wheels on the road surface  v. Failure to negotiate curves  e. 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 lights  f. 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 scene  i. Take up one additional lane in addition to the lane(s) containing the collision or incident  ii. Park in a manner that protects fire personnel from oncoming traffic  iii. Do not block access to late arriving emergency apparatuses  iv. Park the vehicle at a 45-degree angle with front wheels away from the emergency scene  v. Park additional apparatuses at 100’-200’ intervals  vi. When placing flares, do so while walking backwards and facing oncoming traffic so that you have additional time to react  vii. 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 Service  a. Hydraulic rescue tool  b. Halligan tool  c. Window punch  d. SCBA  e. Thermal Imaging Device  f. Rope/webbing  g. Door spreader  h. Ax/maul  i. K12 Saw  j. Ladder  k. Cutting torches  l. 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 |
| **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/> |
| **Additional Required Components** | |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** | Cross-Disciplinary Standards  II. Foundational Skills  C. Research across the curriculum  1. 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)