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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 I |
| **Lesson/Unit Title** | Forcible Entry Tools |
| **TEKS Student Expectations** | **130.334. (c) Knowledge and skills**(18) The student describes the handling of different types of accidents and hazards. The student is expected to:(A) Describe the procedures for terminating utility services to a building(B) Explain hazards that exist and describe procedures to be used in electrical emergencies(19) The student identifies safety procedures for ensuring a safe environment. The student is expected to:(E) Describe procedures for safe operation at emergency scenes |
| **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:* Safely demonstrate tools used for forcible entry
* Describe procedures for safe operation of those tools at emergency scenes
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| **Rationale** | * Forcible entry techniques are used by fire personnel to gain entry into buildings, vehicles, aircraft, and other areas of confinement when normal means of entry are locked or blocked (IFSTA)
* To effectively perform forcible entry, firefighters need to be familiar with the firefighter tools used to force entry and how to use them safely
* When done correctly, forcible entry minimizes property damage and provides quick access at the emergency scene. Forcible entry should only be done only when traditional means of access are not available. It needs to be done correctly and safely. This lesson will discuss the safe use of forcible entry tools and how to use them effectively
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| **Duration of Lesson** | This lesson should take 5 hours. |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* |  |
| **Materials/Specialized Equipment Needed** | * Assorted forcible entry tools
* Salvage cover
* Index cards
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Engage your students in a discussion on firefighter safety and effective tool use. Ask the students what tools are used for forcible entry, and ask them for specific examples of each tool’s use. Discuss what types of tools can be used for what building components and/or if they must be used only for specific purposes. Discuss safe uses for each, and identify bad habits that firefighters might develop if they become complacent with a tool. |
| **Direct Instruction \*** | I. Firefighting Tools Commonly Used for Forcible EntryA. Cutting tools1. Axesa. Pick-head axei. 6- or 8-pound headii. Very versatile tooliii. Often used in ventilation to open up roofs and create ventilation openingsiv. The pick of the axe can also be used to break windows for ventilationb. Flat-head axe i. 6- or 8-pound headii. Used to open up roofs and create ventilation openingsiii. Not as versatile as a pick-head axe2. Metal Cutting toolsa. Bolt cuttersi. Used on bolts, chains, lock hasps, padlocks, and shacklesii. Do not use on case-hardened steelb. Rebar cuttersi. Hydraulic or manualii. Can often cut metal items that bolt cutters cannotiii. Excellent for use on security barsc. Cutting torchesi. Effectively cut materials that other cutting tools cannotii. Oxyacetylene cutting torch(a) Burns oxygen and acetylene(b) Flame temperature of 5,700 degrees F(c) Unstable gas(d) Must be kept in an upright position(e) Use is diminishing in the fire serviced. Burning barsi. Also called exothermic cutting toolsii. Can cut through most metallic, semi-metallic, and composite materialsiii. Produces temperatures in excess of 10,000 degrees Fiv. Rods range from ¼ inch to 1 inch in diameter, and from 18 inches to 10 feet longe. Plasma cuttersi. Produce temperatures up to 25,000 degrees Fii. Require a power supply and a compressed gas like air, nitrogen, or other inert gas or gas mixturef. Cutting flaresi. Cut metal or concreteii. Exothermiciii. Approximately the size of highway flaresiv. Produce a 6,800 degrees Fv. No power supply is necessary and they are portable3. Handsawsa. Carpenter’s handsaw (rip and crosscut)b. Hacksawc. Drywall sawd. Keyhole saw4. Power sawa. Chain sawsi. Commonly used during ventilation operationsii. When equipped with a carbide tip they can cut rapidly through many different types of roofing materialsb. Rotary saws – have many uses, but if the blade is changed to cut wood, they are effective in ventilation operationsc. Reciprocating sawsi. Powerfulii. Versatileiii. Easy to controliv. Short, straight blade that moves in and outv. Use of different materials to be cutd. Circular sawsi. Originally designed for construction useii. Can be used when power (electrical) is readily availableiii. Small battery units are also availableB. Pushing/pulling tools – have very limited use in forcible entry1. Pike pole – used for pushing or pulling down ceilings in ventilation operations to provide a path for smoke, heat, and fire gases to exit the building through established ventilation openings2. Roofman’s Hook – used to sound roofs and can be used to pry roof shingles if necessary3. Clemens hook4. Plaster hook5. Drywall hook6. San Francisco hook7. Multipurpose hook8. Rubbish hookC. Prying tools1. Manual prying toolsa. Crowbarb. Halligan bar – part of a “set of irons” (when paired with a flat-head axe)c. Pry bard. Hux bare. Claw toolf. Kelly (through the lock) toolg. Pry axeh. Flat bar (nail puller)i. Ram bar2. Hydraulic Prying Toolsa. Rescue toolsi. Spreaders used for vehicle extrication can spread up to 32 inchesii. Hydraulic ram bars have a spreading range from 36 to 63 inchesiii. Hydraulic door openerII. Tool SafetyA. Cutting tools1. Make sure you have the correct tool for the job2. Wear your personal protective equipment (PPE) while doing the job. Gloves, eye protection, and hearing protection should all be used3. Maintain situational awareness4. Keep unauthorized people out of the work areaB. Metal cutting tools1. Bolt cutters – firefighters should wear face shields and eye protection to protect their eyes and face2. Rebar cutters – make sure that they are operated according to the manufacturer’s specifications3. Cutting torchesa. Oxyacetylene Cutting Torchi. Flame temperature of 5,700 degrees Fii. Unstable gasiii. Must be kept in an upright position4. Burning barsa. Also called exothermic cutting toolsb. Produces temperatures in excess of 10,000 degrees F5. Plasma cutters –temperatures up to 25,000 degrees F6. Cutting flares –temperatures up to 6,800 degrees FC. Handsaws – be aware of sharp edges and keep hands and extremities away from the bladesD. Power saws1. Operate in accordance with the manufacturer’s specifications and safety instructions2. Be aware of sharp edges and blades, and keep hands and extremities away from the blades3. Wear gloves as well as eye and hearing protectionE. Pushing/pulling tools1. When pushing or pulling ceilings with a pike pole, be aware of falling ceiling and roofing material2. Don’t use prying tools as pulling tools or pulling tools as prying tools. Use the tools how they are intended3. Maintain tool handles to avoid splinters and other damageIII. Scene Safety/Life Safety Hazards Associated With Forcible EntryA. The first consideration is always life safety, both the lives of the firefighters and the building occupants1. Understand the different types of security barriers and the hazards associated with each2. Select the appropriate tool for the job3. Wear the proper Personal Protective Equipment (PPE) |
| **Guided Practice \*** |  |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | * Have students complete some assigned reading from the text about forcible entry tools and tool safety. After reading the assignment, have students describe the safe operations of at least 10 tools used at emergency scenes. Use the Writing Rubric for assessment.
* Lay out a salvage cover and place examples of forcible entry tools on the cover. Pass out index cards with the name and use of a forcible entry tool on each. Have students match the card(s) handed out to them with the appropriate tool. Students will then demonstrate the safe operation of each tool (simulate if necessary). Use the Individual Work Rubric for assessment.
* Demonstrate for the students the Forced Entry through an Outward-Swinging Door Wedge-End Method. Then partner students and have them take turns demonstrating the skill using the Forced Entry through an Outward-Swinging Door Checklist as a guide and assessment.
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| **Lesson Closure** |  |
| **Summative/End of Lesson Assessment \***  | * Forcible Entry Quiz and Key
* Forced Entry through an Outward-Swinging Door Checklist
* Discussion Rubric
* Individual Work Rubric
* Writing Rubric
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| **References/Resources/****Teacher Preparation** | * ISBN: 0135151112, *Essentials of Firefighting* (5th Edition), International Fire Service Training Association (IFSTA).
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| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** | Cross-disciplinary StandardsI. Key Cognitive SkillsC. Problem solving1. Analyze a situation to identify a problem to be solved.2. Develop and apply multiple strategies to solve a problem. |
| **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) | Students will participate in situational awareness exercises, and classroom discussion and training exercises. |
| **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)