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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, and Security |
| **Course Name** | Firefighter I |
| **Lesson/Unit Title** | Emergency Operations with Self Contained Breathing Apparatus (SCBA) |
| **TEKS Student Expectations** | **130.334. (c) Knowledge and Skills**(12) The student demonstrates confidence in performing firefighting skills while wearing a self-contained breathing apparatus.(H) The student is expected to perform firefighting skills while wearing the self-contained breathing apparatus with a fully charged cylinder(I) The student is expected to demonstrate the use of the self-contained breathing apparatus to manage a restricted passage in conditions of obscured visibility(J) The student is expected to demonstrate emergency procedures to be used in the event of failure of the self-contained breathing apparatus |
| **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:1. Demonstrate confidence in performing firefighting skills while wearing Self Contained Breathing Apparatus (SCBA)
2. Perform firefighting skills while wearing full SCBA, with a fully charged cylinder
3. Demonstrate the use of SCBA in conditions of obscured visibility in a restricted passage
4. Demonstrate emergency procedures to be used in the event of an SCBA failure
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| **Rationale** | Firefighters encounter smoke and other toxic inhalants in atmospheres that are hazardous to their respiratory functions and their lives. Understanding the need for and use of SCBA is critical to a firefighter’s survival. Failing to use SCBA correctly could ultimately cause failure of the mission and fire ground fatalities. Knowing how to properly don, doff, care for, and maintain SCBA, and how to react to an equipment failure are all responsibilities of a well-trained and prepared firefighter. |
| **Duration of Lesson** | 4 hours |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* |  |
| **Materials/Specialized Equipment Needed** | * Personal Protective Equipment (PPE)
* Self-Contained Breathing Apparatus (SCBA)
* Emergency Operations with SCBA Quiz and Key
* Negotiating a Restricted Opening While Wearing SCBA Checklist
* SCBA Regulator Failure/Emergency Operation Checklist
* Discussion Rubric
* Writing Rubric
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Use the following questions for a class discussion. Begin by discussing situational awareness in which firefighters must be able to perform the functions of their jobs wearing SCBA.* Why is confidence and preparation so important?
* Why is it necessary to be proficient in the use of SCBA in confined spaces and restricted passages?
* Could complacent attitudes sometimes be responsible for failures on the fire ground?
* Why is it necessary that firefighters be able to demonstrate emergency procedures during an equipment failure on the fire ground?

Use the Discussion Rubric for assessment. |
| **Direct Instruction \*** | 1. Performing firefighting skills wearing SCBA with a full cylinder A. Understanding SCBA restrictions and limitations
	* 1. Physical factors that can affect confidence
			1. Poor physical condition – as a firefighter you must be in good physical condition to maximize your work performance and extend your air supply
			2. Agility – recognize that your SCBA can limit movement and affect balance. It is important that firefighters have good balance. Conditioning exercises can minimize the effect of SCBA on your agility
			3. Facial features – maintaining a good face seal can affect your confidence in SCBA while firefighting. That is why industry standards don’t allow for firefighters to have facial hair that prevents a good seal. Eyeglasses and contact lenses can also be a problem if not worn according to industry standards (See standards NFPA 1500 and OSHA CFR 1919.134.)
2. Using SCBA in confined spaces, obscured visibility, and restricted passages
	1. Confined spaces and inherent hazards
		1. Oxygen-deficient atmospheres
		2. Atmospheres with less than 18.5% oxygen
		3. Grain storage bins
		4. Caves and underground tunnels
		5. Basements and cellars with limited access or egress
		6. Extreme temperatures
		7. Cave-ins and collapsed buildings
		8. Areas flooded with standing water or other liquids
	2. Anticipation of problems can be provided by
		1. Pre-incident planning
		2. Training
		3. Incident Action Plans (IAPs) – an air management system should be part of the department’s IAP to prevent firefighters from advancing into confined spaces further than their air supply will safely allow them to safely
	3. Delay entrance
		1. Until an IAP is developed
		2. Stage the Incident Commander (IC) outside hot zones because of inherent hazards at the scene (not obstructing the entrance)
		3. Understand the tactical problems that exist
			1. Ventilation
			2. Rescue
			3. Lighting
	4. Negotiating restricted openings
		1. Slip out of the SCBA backpack and harness while leaving the face piece in place
		2. Put the backpack and harness assembly back on after negotiating the restricted area. While doing so
			1. Reduce your profile
			2. Push the SCBA in front of yourself while maintaining control always
			3. Continue to breathe through your face piece (do not remove it)
	5. Areas of Limited Visibility
		1. Move about by staying low (crawling)
		2. Feel with a tool as you move slowly, negotiating where you are
		3. If you can see the floor, you may be able to “duck walk” or walk in a crouched position. This is faster, but more dangerous than crawling
		4. Always operate in teams of two or more
		5. Use a tag line

III. Emergency procedures for SCBA failure* 1. Conserve air and retreat immediately
	2. SCBA regulator malfunction
		1. Intermittently open and close the bypass (purge) valve to allow air into your face piece
		2. Close it after each breath to conserve air, and open it again when another breath is needed
	3. Recommended actions
		1. Remain calm
			1. Control breathing
			2. Alert team members
		2. Withdraw to a safe atmosphere
			1. With other members of your team
			2. Use available exits or create one if necessary
		3. Use your radio to declare a “Mayday”
		4. Follow your department’s Standard Operating Procedure (SOP)
		5. Activate your Personal Alert Safety System (PASS) device

 * + 1. You may be able to follow the fire hose by using the couplings to indicate the direction of travel (male indicates the direction of exit)
		2. Crawl in one direction, making all right-hand or all left-hand turns; be consistent
		3. Make noise; get someone’s attention
		4. Lay flat and stay close to a wall so you can be easily found
		5. If you become separated from your crew
			1. Follow your department SOP
			2. Describe your surroundings
			3. Control your environment as best you can (example: keep doors closed unless it is an escape route)
			4. Slow your breathing as much as possible to conserve air

*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **Guided Practice \*** | Have students review the Negotiating a Restricted Opening While Wearing SCBA Checklist and the SCBA Regulator Failure/Emergency Operation Checklist. Have students complete the skills under the supervision of an instructor.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Assign a reading on the subject SCBA. Have each student write three questions demonstrating knowledge of the emergency procedures used while wearing SCBA with a charged cylinder while experiencing obscured visibility, a SCBA failure, and a restricted opening or passage. Use the Writing Rubric for assessment.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*NONE |
| **Lesson Closure** |  |
| **Summative/End of Lesson Assessment \***  | Emergency Operations with SCBA Quiz and KeyNegotiating a Restricted Opening While Wearing SCBA ChecklistSCBA Regulator Failure/Emergency Operation ChecklistDiscussion RubricWriting Rubric*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:***Accommodations for Learning Differences:**Students will participate in peer teaching (mentoring) and team learning, participate in guided research and note-taking (web-based), and keep journals (keywords and definitions). |
| **References/Resources/****Teacher Preparation** | 0135151112, *Essentials of Firefighting* (5th Edition), International Fire Service Training Association (IFSTA) |
| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** | English Language ArtsIV. ListeningB. Listen effectively in informal and formal situations.1. Listen critically and respond appropriately to presentations.2. Listen actively and effectively in one-on-one communication situation3. Listen actively and effectively in group discussions  |
| **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) | For enrichment, students will participate in an oral exam, skill demonstration, or written test. |
| **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)