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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** | Fire Prevention and Public Education  |
| **TEKS Student Expectations** | **130.335. (c) Knowledge and Skills**(9) The student explains the duties of a firefighter after a fire. (B) The student is expected to describe the duties for gathering information that may lead to the determination of the fire cause(D) The student is expected to describe the duties for fire and security surveillance during and after the fire |
| **Basic Direct Teach Lesson**(Includes Special Education Modifications/Accommodations and one English Language Proficiency Standards (ELPS) Strategy) |
| **Instructional Objectives** | The students will be able to:1. Perform a fire prevention inspection of the classroom2. Perform a fire prevention inspection of the school3. Create a fire-safety presentation4. Interview a firefighter about fire prevention inspections |
| **Rationale** | Every year, many firefighters die while performing their sworn duties. Technological changes, construction methods and materials, and everyday items used at home, school, and work continue to make firefighting a dangerous occupation. We can reduce the losses of life and property, if more emphasis is placed on educating the public about fire prevention. |
| **Duration of Lesson** | 6 hours |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* |  |
| **Materials/Specialized Equipment Needed** | * Fire Prevention and Public Education Key Terms
* Unofficial Fire Inspection Form
* Computers with computer-based presentation software or poster board and markers
* Fire Prevention and Public Education Key Terms Quiz and Key
* Fire Prevention and Public Education Quiz and Key
* Discussion Rubric
* Individual Work Rubric
* Presentation Rubric
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| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Divide the class into small groups. Have each group elect a note-taker to document the group’s responses. Have each group inspect the classroom for 10 minutes and list all of the items that may burn (e.g. fuel load) or that present a fire danger. Then have each group take turns reading its list to the class. While the students are reading, compile the lists on the white board (or a poster board) for all of the class to see. After the master list is complete, discuss the primary materials that would burn and ask the students how they would prevent these items from burning. (*Note:* If time allows, extend this activity into an inspection of the school.) Use the Discussion Rubric for assessment. |
| **Direct Instruction \*** | 1. Fire Prevention
	1. Inspections
		1. Requirement
			1. Personal
				1. Have ample knowledge of fire- and life-safety issues
				2. Have the ability to refer citizens to additional sources of information
				3. Present a well-groomed and professional appearance
				4. Wear a clean uniform in good condition
			2. Equipment
				1. General information

May need to conduct research before performing the inspectionMay need to use reference material, personal protective equipment (PPE), and/or special equipment during the inspection* + - * 1. Most pre-incident surveys include the following types of equipment

Writing (e.g. pencils)Drawing (e.g. graph paper)Other (e.g. flashlight)* + 1. Scheduling
			1. Most fire inspections and other fire prevention activities must be conducted during normal business hours
			2. Many fire departments schedule them at specific times on specific days of the week
			3. Types
				1. In advance with the owners at the most convenient and least disruptive time for them
				2. In a systematic block-by-block manner that works well for ordinary mercantile occupancies
		2. Conducting
			1. Follow the department’s Standard Operating Procedures (SOPs)
			2. Review the fire code requirements for the specific type of occupancy
			3. Represent the fire department favorably
			4. Enter the premises and contact the occupant’s representative
			5. Review the inspection process briefly
			6. Answer any questions
			7. Utilize the representative as a guide of the premises during the inspection
			8. Tactfully ask the guide to open all locked rooms and closets
			9. Report any refusals to the fire prevention officer so that an inspection warrant may be obtained or other appropriate action may be taken
			10. Begin the inspection by looking for hazards and observing the property (and its activities) from the exterior and then move to the interior
			11. Some examples of specific items to watch for include
				1. Access for fire personnel and apparatus to the structure and its fire protection equipment
				2. Building name and type of business
				3. Emergency contact numbers for the building owner or manager
				4. Address numbers clearly visible from the street
				5. Portable fire extinguishers in place, properly mounted, operable, and unobstructed
				6. Exit signs and emergency lighting operable
			12. Explain each code violation to the occupant’s representative
			13. Create and agree to a plan of correction if code violations are found
				1. Specify a reasonable deadline for violation correction(s)
				2. Specify a time for a follow-up inspection
			14. Have the occupant sign the inspection form
			15. Leave a copy of the form with the occupant
			16. Thank the occupant for his or her cooperation
			17. Leave a business card
	1. Surveys
		1. Firefighter skills required
			1. Interpersonal skills
				1. Communication
				2. Mitigation
				3. Facilitation
				4. Negotiation
				5. Mediation
			2. Technical knowledge and skills
				1. Building construction
				2. Fire and life safety requirements
				3. Fire code requirements
				4. Common and special hazards
				5. Building utilities
				6. Energy systems
				7. Fire protection appliances and systems
		2. Pre-incident planning surveys of public and commercial occupancies
			1. Purposes
				1. To gain information that can greatly increase firefighter and citizen safety
				2. To get this information in advance because it may not be available during a fire
				3. To document information that helps firefighters

Become familiar with the structures in their district, as well as their uses and hazardsRecognize existing hazardsVisualize the application of standard tacticsDevelop new tactics if necessary* + - 1. Conducting
				1. Have the initial meeting with the owner
				2. Survey the property’s exterior

Make general observationsComplete preliminary notesTake photographs* + - * 1. Include the following in the preliminary notes

Location of fire detection and suppression systems (e.g. fire hydrants and fire alarm control panels)Pertinent information about the building (e.g. type of construction and occupancy)Visibility of address numbersAccessibility from all sidesBarriers to aerial device operationsProblematic placement of trees or shrubsBarred windows or security doorsLocation of the utility shutoffsOverhead obstructions to ladder use* + - * 1. Move to the basement or roof
				2. Survey the interior systematically

Look at each floor in successionCreate floor plans if they are not availableNote and photograph hazards and unsafe conditions* + - * 1. Remember that more than one visit may be necessary
				2. Survey all of the buildings on a property separately, if more than one building is present
				3. Use and update the pre-existing survey floor plan to save time, if one is available
				4. Discuss the survey results and any fire- or life-safety concerns with the owner
			1. Making maps and drawings
				1. Update or create maps when needed
				2. Include the general arrangement of the property
				3. Note anything that might affect firefighting tactics
				4. Make the drawing neat, accurate, and to scale
				5. Use a clipboard, a ruler and/or graph paper if electronic mapping programs are not available
				6. Record data using common map symbols as much as possible
				7. Create cutaway views to show structural features (e.g. elevations) when necessary
			2. Taking photographs
				1. Obtain permission if necessary
				2. Take photos

From more than one angleFrom an elevated positionOf close-ups and the interior* + - * 1. Take video when possible and permitted
		1. Residential fire safety surveys
			1. Firefighter responsibilities
				1. Conduct surveys in teams of two
				2. Dress and act professionally
				3. Introduce yourself, your partner, and provide proper identification
				4. Explain the survey procedure
				5. Maintain a courteous attitude
				6. Focus on preventing fires and eliminating threats to fire safety
				7. Compliment the occupants when favorable conditions are found
				8. Offer constructive suggestions for eliminating hazards
				9. Survey all rooms including the garage
				10. Discuss the survey results with the occupant and answer any questions
				11. Thank the occupants for the invitation
				12. Keep the survey results confidential
				13. Provide occupants with fire- and safety-awareness information

Maintain clear exit pathwaysKeep a flashlight by the bedHave two exits availableNever leave an infant or toddler unsupervised in or near a bathtub or poolAlways turn over the range the handles of pans containing hot liquids* + - 1. Fire causes
				1. Malfunctioning heating appliances and water heaters
				2. Combustibles too close to heating appliances or lamps
				3. Unsafe cooking procedures
				4. Smoking materials
				5. Overloaded extension cords and multiple-outlet devices
				6. Exposed electrical wiring
				7. Defective electrical appliances
				8. Improper use of combustible or flammable liquids
				9. Poor housekeeping
				10. Untended candles
			2. Types of surveys
				1. Interior

Combustible materialsAppliancesElectrical wiring and equipmentPortable heating unitsWoodstoves or fireplacesHeating fuelGeneral housekeeping practicesSmoke alarmsElectrical distribution panelsGas appliancesOil-burning unitsFurnacesWater heatersShop or workroomsAccumulated wasteFlammable liquids* + - * 1. Exterior

RoofChimneys and spark arrestorsYard and porch areasBarbecues and fuelOutside waste burnersGarages, sheds, barns, and outbuildingsFlammable liquids and gasesLightening protectionSecurity devicesPower lines* 1. Fire hazards
		1. Fuel
			1. Ordinary combustibles
				1. Wood
				2. Cloth
				3. Paper
			2. Flammable and combustible gases
				1. Natural gas
				2. Liquefied petroleum gas (LPG)
				3. Compressed natural gas (CNG)
			3. Flammable and combustible liquids
				1. Gasoline
				2. Oils
				3. Lacquers
				4. Alcohol
			4. Chemicals
				1. Nitrates
				2. Oxides
				3. Chlorates
			5. Dusts
				1. Grain
				2. Wood
				3. Metal
				4. Coal
			6. Metals
				1. Magnesium
				2. Sodium
				3. Potassium
			7. Plastics, resins, and cellulose
		2. Heat sources
			1. Chemical heat energy – materials that are improperly stored may come in contact with each other and react or decompose and generate heat
			2. Electrical heat energy – caused by poorly maintained electrical appliances, exposed wiring, and lighting
			3. Mechanical heat energy – created by moving parts on machines, such as belts and bearings
			4. Nuclear heat energy – created by fission and is not commonly encountered by firefighters
		3. Common (higher probability)
			1. Obstructed electrical panels
			2. Poor housekeeping and improper storage of combustible materials
			3. Defective or improperly used heating, lighting, or power equipment
			4. Improper disposal of floor-cleaning compounds
			5. Misuse of fumigation substances and flammable or combustible liquids
		4. Special (risk due to processes or operations)
			1. Commercial occupancies
			2. Manufacturing facilities
			3. Public assembly venues
		5. Target Hazard Properties (higher risk)
			1. Lumberyards
			2. Bulk oil storage facilities
			3. Shopping malls
			4. Hospitals
			5. Theaters
			6. Nursing homes
			7. Rows of frame tenements
			8. Schools
			9. High-rise hotels/condominiums
1. Public Fire- and Life-Safety Education
	1. General considerations
		1. Accurate information is a necessity
		2. Positive messages are received best
			1. Positive: “crawl low under smoke”
			2. Negative: “do not stand up in smoke”
		3. Target the message to the specific audience and the priority issue
	2. Audience considerations
		1. Adult audience
			1. Utilize teachable moments (e.g. new home buyers, new-parent classes, etc.)
			2. Use the basic four step method of instruction
				1. Preparation

Learn the materialPractice the presentationKnow the audience* + - * 1. Presentation

Explain the informationUse visual aids (e.g. smoke alarm)Demonstrate techniques (e.g. stop, drop, and roll)* + - * 1. Application

Provide the opportunity for the audience to practice the material learnedTactfully correct mistakes that are made* + - * 1. Evaluation

Assess the effectiveness of the presentationIdentify the aspects that need improvement* + 1. Young children
			1. Children from birth to eight years old are especially at risk
			2. Remember that children
				1. Usually interpret information literally
				2. Have limited attention spans
				3. Often fidget and interrupt, so remain flexible
				4. Learn by doing, not listening
			3. Decide with the teachers in advance how to handle questions
			4. Build rapport by speaking at the children’s eye level
			5. Ask misbehaving children for help to provide redirection
			6. Communicate simple concepts using positive messages
			7. Do not use fear as a teaching tactic
	1. Presentation topics
		1. Stop, drop, and roll
			1. Action to take if a person’s clothing catches on fire
			2. Demonstrate the proper techniques
			3. Invite the audience to perform the technique
			4. Emphasize that a bystander may need to
				1. Help the person drop to the ground
				2. Smother the fire with nearby items such as coats, rugs, or blankets
		2. Home safety
			1. Persuade the audience to make safety a way of life
			2. Promote the following
				1. Escape plans
				2. Exit Drills in the Home (EDITH) program
				3. Other similar safety efforts
			3. Communicate fire and safety rules
				1. Keep bedroom doors closed while sleeping
				2. Have two emergency exits from every room
				3. Ensure that windows can be easily opened
				4. Train children to use fire escape ladders, especially in multi-story dwellings
				5. Roll out of bed to the floor if awakened by a smoke alarm signal
				6. Stay low to avoid heated gases that rise
				7. Crawl to the door, feel it with the back of your hand, use the window for escape if it is warm or hot to the touch
				8. Establish a meeting place outside of the home
				9. NEVER reenter the home after successfully exiting
				10. Call the fire department from a cellular phone or a neighbor’s house
				11. Use candles with caution

Place candles on heat-resistant surfacesAlways use a candle holder* + 1. Smoke alarms
			1. May be battery-operated or a part of a security alarm system
			2. Recommended placement includes
				1. In every bedroom
				2. At every level (each story)
			3. Minimum placement includes
				1. One in the hallway outside of each sleeping area and between the sleeping area and other rooms in the house
				2. Close enough to be heard through the closed bedroom door
				3. Usually mounted on the ceiling
			4. Should be installed, maintained, and tested according the manufacturer’s specifications
		2. Carbon monoxide detectors
			1. Are needed in addition to fire alarms
			2. Should be installed according the manufacturer’s specifications
	1. Some life-safety issues
		1. Eliminating fire hazards
		2. Escaping a fire
		3. Testing smoke alarms
		4. Installing a child safety seat correctly
		5. Wearing a bicycle helmet
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| **Guided Practice \*** | School Inspection – Accompany the students as they walk around and inspect the school. Have the students perform an inspection while they complete the Unofficial Fire Inspection Form. Then divide the class into small groups and have them discuss the results of their inspections, especially any hazardous processes or situations found and their suggested solutions. (*Note:* This activity may be extended into having the students compose a report and submit it to their Assistant Principal.) Use the Individual Work Rubric and the Discussion Rubric for assessment. |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** |  |
| **Lesson Closure** |  |
| **Summative/End of Lesson Assessment \***  | * Perform a fire prevention inspection of the classroom
* Perform a fire prevention inspection of the school
* Create a fire-safety presentation
* Interview a firefighter about fire prevention inspections
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| **References/Resources/****Teacher Preparation** | * ISBN: 0135151112, *Essentials of Firefighting* (5th Edition), International Fire Service Training Association (IFSTA), 2008.
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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 Skills1. Reasoning
	1. Consider arguments and conclusions of self and others.
	2. Construct well-reasoned arguments to explain phenomena, validate conjectures, or support positions.
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| **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, the students will contact a local fire department and interview a firefighter about his or her inspection experience. The students will summarize the interview in a brief paper. Use the Individual Work 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)