

Automotive Technology 6th Edition

Chapter 6 SHOP SAFETY

Opening Your Class








KEY ELEMENT	EXAMPLES
Introduce Content	This Automotive Technology 6th text provides complete coverage of automotive components, operation, design, and troubleshooting. It correlates material to task lists specified by ASE and ASEEducation (NATEF) and emphasizes a problem-solving approach. Chapter features include Tech Tips, Frequently Asked Questions, Case Studies, Videos, Animations, and ASEEducation (NATEF) Task Sheets.
Motivate Learners	Explain how the knowledge of how something works translates into the ability to use that knowledge to figure why the engine does not work correctly and how this saves diagnosis time, which translates into more money.
State the learning objectives for the chapter or course you are about to cover and explain this is what they should be able to do as a result of attending this session or class.	Explain the chapter learning objectives to the students as listed: <ol style="list-style-type: none"> 1. Identify situations where hearing protection should be worn. 2. Describe the personal protective equipment (PPE) used by technicians. 3. Explain the safety tips for technicians and the cleaning methods and processes used in vehicle service. 4. Discuss shop safety procedures. 5. Discuss the purpose of fire extinguishers, fire blankets, and first aid and eye wash stations.
Establish the Mood or Climate	Provide a WELCOME , Avoid put downs and bad jokes.
Complete Essentials	Restrooms, breaks, registration, tests, etc.
Clarify and Establish Knowledge Base	Do a round robin of the class by going around the room and having each student give their backgrounds, years of experience, family, hobbies, career goals, or anything they want to share.

NOTE: This lesson plan is based on the 6th Edition Chapter Images found on Jim's web site @ www.jameshalderman.com

DOWNLOAD Chapter 6 Chapter Images: From

<http://www.jameshalderman.com/>

[automotive principles.html](#)NOTE: You can use Chapter Images or possibly Power Point files:

ICONS	Ch06 Shop Safety
         	<p data-bbox="630 289 1170 327">1. SLIDE 1 Ch06 Safety in Shop</p> <p data-bbox="591 457 1360 590">SAFETY IS NOT JUST A BUZZWORD ON A POSTER IN WORK AREA. SAFE WORK HABITS CAN REDUCE ACCIDENTS AND INJURIES, EASE WORKLOAD, AND KEEP EMPLOYEES PAIN FREE.</p> <p data-bbox="630 625 1398 741">Check for ADDITIONAL VIDEOS & ANIMATIONS @ http://www.jameshalderman.com/ WEB SITE IS CONSTANTLY UPDATED</p> <p data-bbox="591 793 719 831"><u>VIDEOS</u></p> <p data-bbox="591 968 1166 1077"><u>http://www.jameshalderman.com/automotive_principles.html</u> <u>DOWNLOAD</u></p> <p data-bbox="591 1079 1406 1150"><u>CROSSWORD PUZZLE (MICROSOFT WORD) (PDF)</u> <u>WORD SEARCH PUZZLE (MICROSOFT WORD) (PDF)</u></p> <p data-bbox="591 1178 1417 1287"><u>RESEARCH INTERNET FOR OSHA: HAVE STUDENTS RESEARCH & REPORT ON HISTORY OF OSHA & WHAT THEY DO TODAY.</u></p> <p data-bbox="591 1352 1414 1423"><u>GUEST SPEAKER: INVITE SERVICE TECHNICIAN TO DESCRIBE IMPORTANCE OF SAFETY IN SHOP</u></p> <p data-bbox="630 1528 1406 1644">2. SLIDE 2 FIGURE 6-1 EXPLAIN Safety glasses should be worn at all times when working on or around any vehicle or servicing any component.</p> <p data-bbox="591 1694 1341 1803">HOLD <u>DISCUSSION</u> ON PPE ASK STUDENTS TO TALK ABOUT THE MAJOR TYPES OF PPE THEY SHOULD WEAR IN SHOP</p>

ICONS

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3. **SLIDE 3 FIGURE 6-2 EXPLAIN** Steel-toed shoes are a worthwhile investment to help prevent foot injury due to falling objects.

4. **SLIDE 4 FIGURE 6-3 EXPLAIN** Protective gloves such as these vinyl gloves are available in several sizes.

5. **SLIDE 5 FIGURE 6-4 EXPLAIN** One version of a bump cap is this padded plastic insert that is worn inside a regular cloth cap.



6. **SLIDE 6 FIGURE 6-5 EXPLAIN** Remove all jewelry before performing service work on any vehicle.



EXPLAIN TECH TIP: Professional Behavior Is a Must

To be respected as a professional service technician and for safety, always behave in a professional manner. These behaviors include, but are not limited to following:

- **Show respect to other technicians and employees. For example, shop owner or service manager may not always be right, but they are always the boss.**
- **Avoid horseplay or practical jokes.**
- **Act as if a customer is observing your behavior at all times because this is often case.**










DISCUSSION ON LONG HAIR IN SHOP: ASK STUDENTS ABOUT SAFETY HAZARD OF HAVING LONG HAIR AND HOW TO DEAL WITH IT



DEMONSTRATE: HOOKING UP EXHAUST HOSE: DEMONSTRATE HOW TO CONNECT AN EXHAUST HOSE TO A VEHICLE. THEN HAVE YOUR STUDENTS PERFORM THIS TASK

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  	<p>7. SLIDE 7 FIGURE 6-6 EXPLAIN that you MUST always connect an exhaust hose to the tailpipe of engine of vehicle to be run inside building.</p> <p>8. SLIDE 8 FIGURE 6-7 EXPLAIN magnetic tray is a helpful item to keep tools needed up where they can be easily reached without having to bend over saving time.</p> <p>HANDS-ON TASK COMPLETE SHOP SAFETY CHECKLIST TASK SHEET</p> <p>9. SLIDE 9 FIGURE 6-8 EXPLAIN electric pusher used to push vehicles into or around the shop.</p>
   	<p><u>SAFETY SHOP CLOTH DISPOSAL</u> ALWAYS DISPOSE OF OILY SHOP CLOTHS IN AN ENCLOSED CONTAINER TO PREVENT A FIRE. • SEE FIGURE 6–9. WHENEVER OILY CLOTHS ARE THROWN TOGETHER ON THE FLOOR OR WORKBENCH, A CHEMICAL REACTION CAN OCCUR, WHICH CAN IGNITE THE CLOTH EVEN WITHOUT AN OPEN FLAME. THIS PROCESS OF IGNITION WITHOUT AN OPEN FLAME IS CALLED SPONTANEOUS COMBUSTION..</p> <p>10. SLIDE 10 FIGURE 6-9 EXPLAIN All oily shop cloths should be stored in a metal container equipped with a lid to help prevent spontaneous combustion.</p> <p>EXPLAIN TECH TIP: <u>Pound with Something Softer</u> If you must pound on something, be sure to use a tool that is softer than what you are about to pound on to avoid damage. Examples are given in the table. ON PAGE 45</p>
	<p>11. SLIDE 11 FIGURE 6-10 EXPLAIN Jumper cable usage guide</p> <p>12. SLIDE 12 FIGURE 6-11 EXPLAIN The air pressure going to the nozzle should be reduced to 30 PSI or less.</p>

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	<p><u>SAFETY . COMPRESSED AIR SAFETY</u> IMPROPER USE OF AN AIR NOZZLE CAN CAUSE BLINDNESS OR DEAFNESS. COMPRESSED AIR MUST BE REDUCED TO LESS THAN 30 PSI (206 KPA). • SEE FIGURE 6–11. IF AN AIR NOZZLE IS USED TO DRY AND CLEAN PARTS, MAKE SURE THE AIR STREAM IS DIRECTED AWAY FROM ANYONE ELSE IN THE IMMEDIATE AREA. ALWAYS USE AN OSHA-APPROVED NOZZLE WITH SIDE SLITS THAT LIMIT THE MAXIMUM PRESSURE AT THE NOZZLE TO 30 PSI. COIL AND STORE AIR HOSES WHEN THEY ARE NOT IN USE</p>
	<p>13. SLIDE 13 FIGURE 6-12 EXPLAIN fire extinguisher designed to be used on type class A, B, or C fires.</p> <p>14. SLIDE 14 FIGURE EXPLAIN 6-13 CO₂ fire extinguisher being used on fire set in an open steel drum during demonstration at a fire department training center</p>
	<p><u>RESEARCH INTERNET FOR INFORMATION ON EQUIPPING A SHOP WITH THE PROPER TYPE OF FIRE EXTINGUISHERS.</u></p>
	<p>15. SLIDE 15 FIGURE 6-14 EXPLAIN A treated wool blanket is kept in this easy-to-open wall-mounted holder and should be placed in a centralized location in shop.</p>
	<p><u>DEMONSTRATE FIRE EXTINGUISHER ALONG WITH LOCATION OF FIRE BLANKET</u></p>
	<p><u>HANDS-ON TASK</u> <u>COMPLETE FIRE EXTINGUISHER TASK SHEET PG 9</u></p>
	<p>16. SLIDE 16 FIGURE 6-15 EXPLAIN A first aid box should be centrally located in the shop and kept stocked with recommended supplies.</p>

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17. SLIDE 17 FIGURE 6-16 **EXPLAIN** typical eye wash station. Often a thorough flushing of the eyes with water is the best treatment in the event of eye contamination.

DEMONSTRATE USE OF EYE WASH STATION SHOW LOCATION OF FIRST AID & EYE WASH STATIONS. DEMO EYE WASH STATION

18. SLIDE 18 FIGURE 6-17 **EXPLAIN** evacuation routes from where you are in building is shown on maps that are attached to the walls in schools and commercial buildings..




SAFETY . INFECTION CONTROL PRECAUTIONS

WORKING ON A VEHICLE CAN RESULT IN PERSONAL INJURY, INCLUDING POSSIBILITY OF BEING CUT OR HURT ENOUGH TO CAUSE BLEEDING. SOME INFECTIONS, SUCH AS HEPATITIS B, HIV (WHICH CAN CAUSE ACQUIRED IMMUNODEFICIENCY SYNDROME, OR AIDS), AND HEPATITIS C, ARE TRANSMITTED THROUGH BLOOD. THESE INFECTIONS ARE COMMONLY CALLED BLOOD-BORNE PATHOGENS. REPORT TO YOUR SUPERVISOR ANY INJURY THAT INVOLVES BLOOD AND TAKE THE NECESSARY PRECAUTIONS TO AVOID COMING INTO CONTACT WITH BLOOD FROM ANOTHER PERSON.

19. SLIDE 19 FIGURE 6.18 **EXPLAIN** properly marked aisle using yellow paint strips leading to an exit

20. SLIDE 20 FIGURE 6.19 **EXPLAIN** warning label on a Honda hybrid warns that a person can be killed due to the high-voltage circuits under the cover

20. SLIDE 21 FIGURE 6.20 **EXPLAIN** high-voltage disconnect switch is in the trunk area on a Toyota Prius. Insulated rubber lineman's gloves should be worn when removing this plug.

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	<p>WARNING: DO NOT TOUCH ANY ORANGE WIRING OR THE COMPONENTS WITHOUT FOLLOWING VEHICLE MANUFACTURER'S PROCEDURES AND WEARING SPECIFIED PERSONAL PROTECTIVE EQUIPMENT.</p>
	<p>SHOW <u>ANIMATION</u> ON EVACUATION ROUTES <u>Evacuation Routes (View) (Download)</u></p>
	<p><u>HOMEWORK</u> HAVE STUDENTS WRITE PREPARE LIST OF AT LEAST 10 AUTOMOTIVE SHOP SAFETY PROCEDURES.</p>