

Automotive Technology 5th Edition

Chapter 7 Environmental & Hazardous Materials













Opening Your Class










KEY ELEMENT	EXAMPLES
Introduce Content	This Automotive Technology 5 th text provides complete coverage of automotive components, operation, design, and troubleshooting. It correlates material to task lists specified by ASE and NATEF and emphasizes a problem-solving approach. Chapter features include Tech Tips, Frequently Asked Questions, Real World Fixes, Videos, Animations, and NATEF Task Sheet references.
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 hazardous waste materials in accordance with state and federal regulations and follow proper safety precautions while handling hazardous waste materials.2. Discuss asbestos hazards and asbestos handling guidelines.3. Explain the storage and disposal of brake fluid, used oil, coolants, lead-acid batteries, used tires, and air-conditioning refrigerant oil.4. Explain the characteristics of hazardous solvents, fuel safety and storage, and airbag handling.
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 5th Edition Chapter Images found on Jim's web site @

www.jameshalderman.com

[LINK CHP 7: ATE5 CHAPTER IMAGES](#)

ICONS	Ch07 Health & Environment
           	<p>1. SLIDE 1 CH7 HEALTH & ENVIRONMENTAL AWARENESS</p> <p>Check for ADDITIONAL VIDEOS & ANIMATIONS @ http://www.jameshalderman.com/ WEB SITE IS CONSTANTLY UPDATED</p> <p>VIDEO: POLLUTION PREVENTION HTTP://WWW.YOUTUBE.COM/WATCH?V=UII78UAEGHE VIDEO: HAZMAT HTTP://WWW.YOUTUBE.COM/WATCH?V=WDDL5YCHAW USE ANIMATION OZONE DEPLETION (VIEW) (DOWNLOAD)</p> <p>RESEARCH ON INTERNET EPA'S LIST OF HAZARDOUS MATERIALS. STUDENTS USE INTERNET & GO ON THE EPA WEB SITE</p> <p>DISCUSS WHICH OF THESE IS FOUND IN AN AUTOMOTIVE SHOP OR SCHOOL LAB HOST DISCUSSION ON HAZARDOUS MATERIALS FOUND IN LAB</p> <p>2. SLIDE 2 FIGURE 7-1 EXPLAIN Material safety data sheets (MSDS) should be readily available for use by anyone in the area who may come into contact with hazardous materials</p> <p>SHOW & EXPLAIN MSDS SHEET: SHOW AN EXAMPLE OF MSDS SHEET & EXPLAIN IT DIFFERENT SECTIONS</p> <p>HANDS-ON COMPLETE MATERIAL SAFETY DATA SHEET (MSDS) TASK SHEET 1 PAGE 10</p> <p>3. SLIDE 3 FIGURE 7-2 EXPLAIN All brakes should be moistened with water or solvent to help prevent brake dust from becoming airborne.</p> <p>DEMONSTRATION: SHOW STUDENTS WET-DOWN PROCEDURE FOR BRAKES LIKE FIGURE 7-2</p>

ICONS	Ch07 Health & Environment
	<p><u>VIDEO FLUID DESPOSAL</u> HTTP://WWW.YOUTUBE.COM/WATCH?V=ARRBUW6Y36Q</p>
	<p><u>DEMONSTRATION: SHOW STUDENTS HOW TO DISPOSE OF BRAKE FLUID</u></p>
	<p><u>DEMONSTRATION: SHOW CORROSIVENESS OF BRAKE FLUID BY POURING ON PAINTED OBJECT</u></p> <p>4. SLIDE 4 FIGURE 7-3 EXPLAIN A typical aboveground oil storage tank</p>
	<p><u>DEMONSTRATION: CUT TOP OFF OLD OIL FILTER. SHOW STUDENTS FILTERING ELEMENT & ALL OF PARTICLES IT HAS FILTERED. THIS IS REASON WHY YOU HAVE TO DRAIN FILTER BEFORE DISPOSAL</u></p>
	<p><u>VIDEO FLUID DESPOSAL</u> HTTP://WWW.YOUTUBE.COM/WATCH?V=ARRBUW6Y36Q</p>
	<p><u>HOLD DISCUSSION ON SOLVENTS USED IN SHOP. ASK STUDETNS TO DISCUSS COMMON SOLVENTS USED IN THE SHOP</u></p>
	<p>5. SLIDE 5 FIGURE 7-4 EXPLAIN Washing hands and removing jewellery are two important safety habits all service technicians should practice.</p>
	<p>6. SLIDE 6 FIGURE 7-5 EXPLAIN fireproof flammable storage cabinet.</p>
	<p>7. SLIDE 7 FIGURE 7-6 EXPLAIN Using a water-based cleaning system helps reduce the hazards from using strong chemicals.</p>
	<p>8. SLIDE 8 FIGURE 7-7 EXPLAIN Used antifreeze coolant should be kept separate and stored in a leak proof container until it can be recycled or disposed of according to federal, state, and local laws. Note that the storage barrel is placed inside another container to catch any coolant that may spill out of the inside barrel.</p>
	<p>HAVE STUDENTS DO INTERNET SEARCH FOR PUBLIC & PRIVATE ORGANIZATIONS THAT HELP RECYCLE USED AUTOMOTIVE BATTERIES.</p>

ICONS	Ch07 Health & Environment
	<p>9. SLIDE 9 FIGURE 7-8 EXPLAIN This red gasoline container holds about 30 gallons of gasoline and is used to fill vehicles used for training.</p>
	<p>10. SLIDE 10 FIGURE 7-9 EXPLAIN Air-conditioning refrigerant oil must be kept separated from other oils because it contains traces of refrigerant and must be treated as hazardous waste</p>
	<p>HOST <u>DISCUSSION</u> ON THE DIFFERENT REFRIGERANTS & REFRIGERANT OILS</p>
	<p>HAVE STUDENTS RESEARCH INTERNET FOR WHAT IS DONE WITH RECYCLED AUTOMOTIVE TIRES</p>
	<p>11. SLIDE 11 FIGURE 7-10 EXPLAIN Placard near driver's door, including what devices in the vehicle contain mercury.</p>
	<p>12. SLIDE 12 FIGURE 7-11 EXPLAIN The OSHA global hazardous materials labels.</p>
	<p><u>HOMEWORK</u> <u>CROSSWORD PUZZLE (MICROSOFT WORD) (PDF)</u> <u>WORD SEARCH PUZZLE (MICROSOFT WORD) (PDF)</u></p>