























Automatic Transmissions and Transaxles, 6e

Chapter 2 Environmental and Hazardous Materials

Opening Your Class

KEY ELEMENT	EXAMPLES
Introduce Content	This course or class covers operation and service of Automatic Transmissions and Transaxles, 6e . It correlates material to task lists specified by ASE and NATEF.
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. <ol style="list-style-type: none">1. Identify hazardous waste materials in accordance with state and federal regulations and follow safety precautions while handling and disposing of hazardous waste materials.2. Define the Occupational Safety and Health Act (OSHA).3. Explain the term material safety data sheets (MSDS).4. Define the steps required to safely handle and store automotive chemicals and waste.
Establish the Mood or Climate	Provide a <i>WELCOME</i> , 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.

ICONS	Ch02 Environmental & Hazardous Materials
          	<p>1. SLIDE 1 ENVIRONMENTAL & HAZMAT</p> <p>2. SLIDES 2-3 EXPLAIN OBJECTIVES</p> <p>Check for ADDITIONAL VIDEOS & ANIMATIONS @ http://www.jameshalderman.com/ WEB SITE IS CONSTANTLY UPDATED</p> <p>USE ANIMATION EPA HAZARDOUS MATERIAL IDENTIFICATION WWW.MYAUTOMOTIVELAB.COM HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYAUTOMOTIVELAB_2/ANIMATIONS/A1_ANIMATION/CHAPTER02_FIG_02_11/INDEX.HTM</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>3. SLIDES 3-7 EXPLAIN Federal and State Laws</p> <p>8. SLIDE 8 EXPLAIN FIGURE 2-1 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>ANIMATION: MATERIAL SAFETY DATA SHEET HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYAUTOMOTIVELAB_2/ANIMATIONS/A1_ANIMATION/CHAPTER02_FIG_02_1/INDEX.HTM</p> <p>COMPLETE TASK SHEET 1 ON MSDS</p> <p>DEMONSTRATION: SHOW STUDENTS WET-DOWN PROCEDURE FOR BRAKES LIKE FIGURE 2-2</p>

ICONS	Ch02 Environmental & Hazardous Materials
	DEMONSTRATION: SHOW STUDENTS HOW TO DISPOSE OF BRAKE FLUID
	DEMONSTRATION: SHOW CORROSIVENESS OF BRAKE FLUID BY POURING ON PAINTED OBJECT VIDEO ON END OF DAY WWW.MYAUTOMOTIVELAB.COM 1.37 MINUTES <small>HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLIBS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=END%20OF%20DAY&CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP41SEQ1.MOV&CAPTION=CHET/CHET_MYLIBS/AKAMAI/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/XML/CLIP41SEQ1.XML</small>
	9. SLIDES 9-12 EXPLAIN Used Brake Fluid Used Oil 13. SLIDE 13 EXPLAIN FIGURE 2-4 A typical aboveground oil storage tank.
	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
	SHOW VIDEO ON USED OIL WWW.MYAUTOMOTIVELAB.COM 2 MINUTES <small>HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLIBS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=MOTOR%20OIL&CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP11MOTOROIL1.MOV&CAPTION=CHET/CHET_MYLIBS/AKAMAI/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/XML/CLIP11MOTOROIL1.XML</small>
	14. SLIDE 14 EXPLAIN FIGURE 2-5 Washing hands and removing jewelry are two important safety habits all service technicians should practice.
	HOLD DISCUSSION ON SOLVENTS USED IN SHOP. ASK STUDETNS TO DISCUSS COMMON SOLVENTS USED IN THE SHOP
	15. SLIDES 15-17 EXPLAIN SOLVENTS 18. SLIDE 18 EXPLAIN FIGURE 2-6 Typical fireproof flammable storage cabinet
	19. SLIDE 19 EXPLAIN COOLANT DISPOSAL 20. SLIDE 20 EXPLAIN Lead-Acid Bat Waste & Fuel.
	21. SLIDE 21 EXPLAIN FIGURE 2.8 Used antifreeze coolant should be kept separate and stored in a leakproof 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.
	VIDEO ON ANTI-FREEZE WWW.MYAUTOMOTIVELAB.COM 1 MINUTE <small>HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLIBS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=ANTI%20FREEZE&CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP10ANTIFREEZE1.MOV&CAPTION=CHET/CHET_MYLIBS/AKAMAI/2012/AUTOMOTIVE</small>

ICONS

Ch02 Environmental & Hazardous Materials



[/AUTO_SHOP_SAFETY/XML/CLIP10ANTIFREEZE1.XML](#)

SHOW VIDEO ON GASOLINE

[WWW.MYAUTOMOTIVELAB.COM](http://www.myautomotivelab.com)

[HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLABS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=GASOLINE&CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP9GAS1.MOV&CAPTION=CHET/CHET_MYLABS/AKAMAI/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/XML/CLIP9GAS1.XML](http://media.pearsoncmg.com/ph/chet/chet_my labs/akamai/template/video640x480.php?title=gasoline&clip=pandc/chet/2012/automotive/auto_shop_safety/clip9gas1.mov&caption=chet/chet_my labs/akamai/2012/automotive/auto_shop_safety/xml/clip9gas1.xml)



HAVE STUDENTS RESEARCH INTERNET FOR WHAT IS DONE WITH RECYCLED AUTOMOTIVE TIRES



22. SLIDE 22 EXPLAIN OTHER DISPOSALS

23. SLIDE 23 EXPLAIN FIGURE 2-10 Air-conditioning refrigerant oil must be kept separated from other oils because it contains traces of refrigerant and must be treated as hazardous waste



SHOW VIDEO ON REFRIGERANTS FROM

[WWW.MYAUTOMOTIVELAB.COM](http://www.myautomotivelab.com)

http://media.pearsoncmg.com/ph/chet/chet_my labs/akamai/template/video640x480.php?title=Refrigerants&clip=pandc/chet/2012/automotive/Auto_Shop_Safety/Clip12Refrig1.mov&caption=chet/chet_my labs/akamai/2012/automotive/Auto_Shop_Safety/xml/Clip12Refrig1.xml



HOST DISCUSSION ON THE DIFFERENT REFRIGERANTS & REFRIGERANT OILS



24. SLIDES 24-26 EXPLAIN SUMMARY