

# TRANSPORTATION I

**Content Standard A: Automotive Technology Skills:** Students will develop the skills and knowledge required to service automobiles

*Performance Standard 3: comply with personal and environmental safety practices associated with clothing, eye protection, hand tools, lifting equipment, power equipment, proper ventilation and the handling storage and disposal of chemicals/materials in accordance with local, state and federal environmental regulations*

<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 1: Safety</u>	1. Students will explore general shop, equipment and procedural safety rules and precautions	<ul style="list-style-type: none"> <li>❖ Text reading assignments</li> <li>❖ View safety video/DVD</li> <li>❖ Teacher input</li> <li>❖ Class discussion</li> <li>❖ Teacher demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>❖ Text, video/DVD, teacher worksheets and quizzes</li> <li>❖ ASE (Automotive Service &amp; Excellence) type quiz</li> <li>❖ Demonstration of student understanding as evaluated through the use of department and school wide rubrics</li> <li>❖ ASE written quiz meeting NATEF (National Automotive Technicians Education Foundation) standards</li> </ul>	<ul style="list-style-type: none"> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Transportation I worksheets and quizzes</li> <li>❖ Video/DVD</li> </ul>

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**Content Standard D: Career Awareness and Teambuilding:** Students will become aware of the world of work and its function in social diversity, expectations, trends and requirements; identify and develop leadership attributes and apply them in team situations

*Performance Standard 16: identify and explore career opportunities*

*Performance Standard 20: identify future labor market trends*

<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<p><i>Unit 2:</i> Overview of Transportation I, II, III and the automotive repair industry</p>	<p>1. Students will:</p> <ul style="list-style-type: none"> <li>❖ Understand the requirements of Transportation I, II, III courses</li> <li>❖ Explore the job requirements for an automotive technician</li> <li>❖ Draw correlations between WHS transportation courses and the automotive repair trade</li> </ul>	<ul style="list-style-type: none"> <li>❖ Class discussions with teacher guidance</li> <li>❖ Text reading and written assignments</li> <li>❖ Apply computer (internet) search skills to complete worksheet for class discussion</li> </ul>	<ul style="list-style-type: none"> <li>❖ Worksheet using school wide rubric</li> <li>❖ ASE written quiz meeting NATEF standards</li> <li>❖ Demonstration of student understanding as evaluated by department and school wide rubrics</li> </ul>	<ul style="list-style-type: none"> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Internet access WHS Computer Aided Drafting Lab</li> </ul>

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<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 3:</u> Hydraulic Lift and Floor Jack Operation	1. Students will be able to: <ul style="list-style-type: none"> <li>❖ Set up a vehicle on the lifts</li> <li>❖ Operate lifts to raise and lower vehicles</li> <li>❖ Demonstrate lift safety rules</li> <li>❖ Operate floor jacks and jack stands</li> <li>❖ Position floor jacks and jack stands properly</li> <li>❖ Properly and safely use floor jacks and jack stands</li> </ul>	<ul style="list-style-type: none"> <li>❖ Worksheet</li> <li>❖ Teacher demonstrations</li> <li>❖ Guided Practice</li> <li>❖ View video/DVD</li> <li>❖ Practical application: Lab time (Use of automotive shop facility to demonstrate practical application of learned objectives by students through the use of various vehicles and automotive equipment including student and staff owned vehicles)</li> </ul>	<ul style="list-style-type: none"> <li>❖ Written quiz</li> <li>❖ Demonstration of student understanding as evaluated through the use of department and school wide rubrics</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Worksheet</li> <li>❖ Video/DVD</li> </ul>

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**Content Standard A: Automotive Technology Skills:** Students will develop the skills and knowledge required to service automobiles

*Performance Standard 5: demonstrate a working knowledge of how pneumatic hydraulic, mechanical, chemical and electrical energy are used*

<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 4:</u> Automotive Component Identification	1. Students will be able to locate, identify and name specific automobile components found underneath and under the hood of various vehicles	<ul style="list-style-type: none"> <li>❖ Text reading and written assignments</li> <li>❖ Class discussions with teacher guidance</li> <li>❖ Teacher demonstrations</li> <li>❖ View video/DVD</li> </ul>	<ul style="list-style-type: none"> <li>❖ Written exam evaluated by school wide rubric</li> <li>❖ Written quiz meeting NATEF standards</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Variety of teacher / student vehicles</li> <li>❖ Text: Automotive Excellence Volumes I and II</li> <li>❖ Video/DVD</li> </ul>
<u>Unit 5:</u> Tires and Wheels	1. Students will demonstrate knowledge of: <ul style="list-style-type: none"> <li>❖ Tire Changing</li> <li>❖ Wheel Torque</li> <li>❖ Tire Rotation</li> <li>❖ Tire Inflation</li> <li>❖ Tire Changing-rim to rim</li> <li>❖ Tire Balancing</li> </ul>	<ul style="list-style-type: none"> <li>❖ Class discussions</li> <li>❖ Teacher demonstrations</li> <li>❖ Guided practice</li> <li>❖ Student Worksheet</li> <li>❖ Practical application: Lab time</li> </ul>	<ul style="list-style-type: none"> <li>❖ Worksheet evaluation using school wide rubric</li> <li>❖ Written quiz meeting NATEF standards</li> <li>❖ Teacher evaluation of practical application using department rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Worksheet</li> </ul>

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**Content Standard A: Automotive Technology Skills:** Students will develop the skills and knowledge required to service automobiles

**Performance Standard 5:** demonstrate a working knowledge of how pneumatic hydraulic, mechanical, chemical and electrical energy are used

<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 6:</u> Electrical Principles	1. Students will demonstrate knowledge of: <ul style="list-style-type: none"> <li>❖ Electricity Transmission</li> <li>❖ Ohm's Law</li> <li>❖ Voltage, Current &amp; Resistance</li> <li>❖ Basic Electrical Terminology</li> <li>❖ Electrical Circuits</li> </ul>	<ul style="list-style-type: none"> <li>❖ Text reading and written assignments</li> <li>❖ Teacher guided class discussions</li> <li>❖ Teacher demonstrations</li> <li>❖ View video/DVD</li> <li>❖ Teacher generated worksheet</li> </ul>	<ul style="list-style-type: none"> <li>❖ Teacher generated written quiz and worksheet</li> <li>❖ Written quiz meeting NATEF standards</li> <li>❖ Demonstration of student understanding as evaluated through the use of school wide rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Worksheet</li> <li>❖ Video/DVD</li> </ul>

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<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 7:</u> Automotive Hand Tools	1. Students will be able to identify and name 40 of the most commonly used hand tools	<ul style="list-style-type: none"> <li>❖ Teacher demonstration</li> <li>❖ Teacher generated worksheet</li> <li>❖ Student ‘hands-on’ review time</li> </ul>	<ul style="list-style-type: none"> <li>❖ Teacher evaluation of written quiz using school wide rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Hand Tools</li> <li>❖ Worksheet</li> </ul>

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**Content Standard C: Technological Impacts:** Students will understand the impact that technology has on the social, cultural and environmental aspects of life

*Performance Standard 14: evaluate technologies based on their positive and negative outcomes*

<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<i>Unit 8: Automotive Emissions</i>	1. Students will demonstrate proficient knowledge on: <ul style="list-style-type: none"> <li>❖ CT's Emission Inspection and Testing Program</li> <li>❖ What are Automotive Emissions</li> <li>❖ What is an Automotive Emissions System and it's Operation</li> </ul>	<ul style="list-style-type: none"> <li>❖ Text reading and assignments</li> <li>❖ Teacher generated worksheet</li> <li>❖ Teacher guided class discussions</li> <li>❖ Practical application: Lab time</li> </ul>	<ul style="list-style-type: none"> <li>❖ Teacher generated written quiz</li> <li>❖ ASE written quiz meeting NATEF standards</li> <li>❖ Teacher evaluated student notes and worksheet using school wide rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ Teacher generated resource materials</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Worksheet</li> <li>❖ WHS Automotive Technology Lab</li> </ul>

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<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 9:</u> Automotive Battery	1. Students will be able to explain and/or demonstrate: <ul style="list-style-type: none"> <li>❖ How an Automotive Battery Works</li> <li>❖ How to Test an Automotive Battery</li> <li>❖ How to Service an Automotive Battery</li> </ul>	<ul style="list-style-type: none"> <li>❖ Class discussions with teacher guidance</li> <li>❖ Teacher demonstration</li> <li>❖ Worksheet</li> <li>❖ Practical application: Lab time</li> </ul>	<ul style="list-style-type: none"> <li>❖ ASE quiz meeting NATEF standards</li> <li>❖ Teacher generated quiz evaluated by school wide rubric</li> <li>❖ Teacher evaluation of practical application using department rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Practice Batteries</li> <li>❖ Worksheet</li> </ul>
<u>Unit 10:</u> Automotive Lubrication System	1. Students will be able to: <ul style="list-style-type: none"> <li>❖ Name System Components</li> <li>❖ Explain Motor Oil Ratings</li> <li>❖ Describe How Motor Oil Circulates</li> <li>❖ Explain Properties of Motor Oil</li> <li>❖ Perform an Automotive Motor Oil and Filter Change</li> <li>❖ Perform Chassis Lubrication</li> <li>❖ Perform General Fluid Checks</li> </ul>	<ul style="list-style-type: none"> <li>❖ Text reading and written assignments</li> <li>❖ View video/DVD</li> <li>❖ Teacher generated worksheets</li> <li>❖ Guided practice</li> <li>❖ Practical application: Lab time</li> </ul>	<ul style="list-style-type: none"> <li>❖ Quiz / Evaluation using school wide rubric</li> <li>❖ ASE quiz meeting NATEF standards</li> <li>❖ Teacher evaluation of practical application using department rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Video/DVD</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Worksheet</li> </ul>



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<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<u>Unit 11:</u> Automotive Cooling System	1. Students will demonstrate knowledge of: <ul style="list-style-type: none"> <li>❖ Overall Cooling System Operation</li> <li>❖ Cooling System Testing</li> <li>❖ Cooling System Service</li> <li>❖ Cooling System Components</li> <li>❖ The Properties of Anti-freeze</li> </ul>	<ul style="list-style-type: none"> <li>❖ View Video/DVD</li> <li>❖ Text reading and written assignments</li> <li>❖ Guided practice</li> <li>❖ Teacher generated worksheet</li> <li>❖ Practical application: Lab time</li> </ul>	<ul style="list-style-type: none"> <li>❖ Teacher generated written quiz evaluated using school wide rubric</li> <li>❖ Written ASE quiz meeting NATEF standards</li> <li>❖ Teacher evaluation of practical application using department rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Video/DVD</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Worksheet</li> </ul>

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**Content Standard B: Technology and the Economy:** Students will understand the link between technology and the economy  
Performance Standard 11: define and use quality control

<i>Unit</i>	<i>Learning Objectives</i>	<i>Sample Activities</i>	<i>Assessment Strategies</i>	<i>Resources</i>
<i>Unit 12: Automotive Engine Performance</i>	1. Students will demonstrate proficient knowledge of the following: <ul style="list-style-type: none"> <li>❖ Ignition Component Identification and Operation</li> <li>❖ How to Replace Worn Ignition Components</li> <li>❖ How to Make Required Adjustments</li> <li>❖ Mechanical Component Identification and Operation</li> <li>❖ Characteristics of a Well Tuned Engine</li> <li>❖ Characteristics of a Good Running Engine</li> </ul>	<ul style="list-style-type: none"> <li>❖ View video/DVD</li> <li>❖ Teacher generated worksheet and quiz</li> <li>❖ ASE type quiz</li> <li>❖ Practical application: Lab time</li> </ul>	<ul style="list-style-type: none"> <li>❖ Written quiz evaluated using school wide rubric</li> <li>❖ Written ASE quiz meeting NATEF standards</li> <li>❖ Teacher evaluation of practical application using department rubric</li> </ul>	<ul style="list-style-type: none"> <li>❖ WHS Automotive Technology Lab</li> <li>❖ Text: Automotive Excellence Volume I</li> <li>❖ Video/DVD</li> </ul>