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CTE Standards Unpacking
MLR Automatic Transmission/Transaxle and Suspension/Steering

Course: MLR Automatic Transmission/Transaxle and Suspension/Steering
Course Description: Students will learn how to inspect, analyze, and service the vehicles automatic transmission/transaxle and suspension/steering systems. They will learn how to evaluate problems and determine the correct solution for the task at hand. Students will comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.
Career Cluster: Transportation and Logistics
Prerequisites: Introduction to Vehicle Systems and Maintenance or Maintenance and Light Repair - Recommended
Program of Study Application: MLR (Maintenance Light Repair) Automatic Transmission/Transaxle and Suspension/Steering is an advanced pathway course in the transportation, distribution and logistics career cluster, automotive technology career pathway.

<table>
<tr><td colspan="3">INDICATOR #ATSS 1: Students will demonstrate automotive technology safety practices, as identified in Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) requirements for an automotive repair facility.</td></tr>
<tr><td colspan="3">SUB-INDICATOR 1.1 (Webb Level: 1 Recall): Demonstrate automotive technology safety practices</td></tr>
<tr><td>Knowledge (Factual):
-General shop safety rules.

-OSHA 10

-EPA regulations.</td><td>Understand (Conceptual):
-Safety is a critical component of transmission and suspension repair.

-Impact of EPA and OSHA regulations on industry</td><td>Do (Application):
-Identify and locate all safety equipment in the shop.

-Simulate use of fire extinguishers.

-Demonstrate use of jacks and stands.

-Eye wash station demonstration.</td></tr>
<tr><td colspan="3">Benchmarks:
Students will be assessed on their ability to:
• Students complete a test over proper safety procedures</td></tr>
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Academic Connections	
ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard): SL4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.	**Sample Performance Task Aligned to the Academic Standard(s):** Students will role play safe and unsafe work conditions

INDICATOR #ATSS 2: **Students will demonstrate proper tool selection and usage.**		
SUB-INDICATOR 2.1 (Webb Level: 1 Recall): Demonstrate proper tool selection and usage		
Knowledge (Factual): -Tools and equipment. -Measuring systems	**Understand (Conceptual):** -Consequences of inappropriate tool use. -Differences of metric and standard measuring systems	**Do (Application):** **-**Identify tools used in automotive repair. -Demonstrate the use, maintenance, and storage of tools used in automatic transmission/transaxle.
Benchmarks: *Students will be assessed on their ability to:* • Students will complete a checklist of precision measuring instruments		

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Academic Connections	
ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard): SL5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	**Sample Performance Task Aligned to the Academic Standard(s):** Students will create multimedia presentations showing the proper use of tools.

INDICATOR #ATSS 3: **Students will perform diagnostics and repair on the vehicle's automatic transmission and transaxle.**		
SUB-INDICATOR 3.1 (Webb Level: 2 Skill/Concept): Inspect and identify drivetrain components		
SUB-INDICATOR 3.2 (Webb Level: 2 Skill/Concept): Perform maintenance on vehicle automatic transmission and transaxle while on the vehicle		
SUB-INDICATOR 3.3 (Webb Level: 4 Extended Thinking): Analyze the vehicle's automatic transmission and transaxle while off the vehicle		
Knowledge (Factual): -Tools and equipment. -Environmental Protection Agency (EPA) regulations. -Electronic components and test equipment. -Transmission/transaxle nomenclature.	**Understand (Conceptual):** -Will ensure extended transmission/transaxle life.	**Do (Application):** **-**Inspect, maintain, and analyze vehicle transmission/transaxle.
Benchmarks: *Students will be assessed on their ability to:* • Complete a maintenance checklist and drain and replace transmission fluid and filter.		

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Academic Connections	
ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):	**Sample Performance Task Aligned to the Academic Standard(s):**
SL4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.	Students will explain the proper disposal of fluids
A-CED4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations	Students will calculate the pressure of transmission fluid

INDICATOR #ATSS 4: **Students will perform maintenance on vehicle suspension and steering systems.**		
SUB-INDICATOR 4.1 (Webb Level: 4 Extended Thinking): Analyze and evaluate the suspension and steering system components		
SUB-INDICATOR 4.2 (Webb Level: 3 Strategic Thinking): Inspect and assess the suspension and steering system		
SUB-INDICATOR 4.3 (Webb Level: 2 Skill/Concept): Inspect and measure vehicle wheel alignment		
SUB-INDICATOR 4.4 (Webb Level: 2 Skill/Concept): Inspect, Identify, and repair wheels and tires		
Knowledge (Factual): -Steering and suspension. -Supplemental restraint system. (SRS) -Alignment angles. -Tire pressure monitoring system. (TPMS)	**Understand (Conceptual):** -Essential for smooth ride, good tire wear, and safe driving.	**Do (Application):** -Inspect and identify steering and suspension components. -Dismount, mount, and balance tire and wheel assembly.

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Benchmarks:
Students will be assessed on their ability to:

- Students will create an artifact that demonstrates correct suspension and steering systems.
- Students will maintain tire and wheel assemblies and wheel alignment according to manufacturer specifications.

Academic Connections	
ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard): W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience	**Sample Performance Task Aligned to the Academic Standard(s):** Students will create a powerpoint that illustrates proper wheel alignment

Additional Resources
Please list any resources (e.g., websites, teaching guides, etc.) that would help teachers as they plan to teach these new standards.