

# Standards Correlations

## Automotive Technology II (8507)

Task	Standards of Learning
Demonstrating Personal Qualities and Abilities	
Demonstrate creativity and innovation.	<p>English: 6.1, 6.3, 6.4, 6.6, 6.7, 6.9, 7.1, 7.3, 7.4, 7.6, 7.7, 7.9, 8.1, 8.3, 8.4, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1</p> <p>Mathematics: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.10, 6.11, 6.12, 7.2, 7.3, 7.8, 7.9, 8.2, 8.4, 8.6, 8.7, 8.11, 8.12, 8.17, 8.18, A.9, AFDA.3, AFDA.4, AFDA.5, AFDA.6, AFDA.7, AFDA.8, AII.9, COM.1, COM.3, COM.4, COM.5, COM.8, DM.7, DM.1*, DM.10, DM.2*, DM.3*, PS.3*, PS.4*, PS.7*, PS.9*, PS.10*</p> <p>Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1</p>
Demonstrate critical thinking and problem solving.	<p>English: 6.1, 6.3, 6.4, 6.5, 6.6, 6.7, 6.9, 7.1, 7.3, 7.4, 7.5, 7.6, 7.7, 7.9, 8.1, 8.3, 8.4, 8.5, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1</p> <p>Mathematics: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.10, 6.11, 7.2, 7.3, 7.8, 7.12, 7.13, 8.2, 8.4, 8.8, 8.9, 8.10, 8.11, A.8, A.9, G.1, G.13, G.14, AFDA.3, AFDA.5, AFDA.8, AII.9, AII.10, AII.11, COM.1, COM.3, COM.4, COM.5, COM.8, DM.4, DM.7, DM.1*, DM.2*, DM.3*, DM.9*, PS.9*, PS.10*</p> <p>Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1</p>
Demonstrate initiative and self-direction.	<p>English: 6.1, 6.4, 6.6, 6.7, 6.9, 7.1, 7.4, 7.6, 7.7, 7.9, 8.1, 8.4, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Demonstrate integrity.	<p>English: 6.1, 7.1, 8.1, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5</p> <p>History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Demonstrate work ethic.	<p>English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1</p> <p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Science: CH.1</p>
Demonstrating Interpersonal Skills	

Task	Standards of Learning
Demonstrate conflict-resolution skills.	<p>English: 6.1, 6.2, 6.4, 6.6, 6.7, 6.9, 7.1, 7.2, 7.4, 7.6, 7.7, 7.9, 8.1, 8.2, 8.4, 8.6, 8.7, 8.9, 9.1, 10.1, 11.1, 12.1</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, VUS.1</p>
Demonstrate listening and speaking skills.	<p>English: 6.1, 6.2, 6.4, 6.6, 7.1, 7.2, 7.4, 7.6, 8.1, 8.2, 8.4, 8.6, 9.1, 10.1, 11.1, 12.1</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Demonstrate respect for diversity.	<p>English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1</p> <p>History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, USII.9, VUS.1, VUS.13, WG.1, WHI.1, WHII.1</p>
Demonstrate customer service skills.	<p>English: 6.1, 6.4, 6.7, 7.1, 7.4, 7.7, 8.1, 8.4, 8.7, 9.1, 9.5, 9.6, 10.1, 10.5, 10.6, 11.1, 11.5, 11.6, 12.1, 12.5, 12.6</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Collaborate with team members	<p>English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1</p> <p>History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
<b>Demonstrating Professional Competencies</b>	
Demonstrate big-picture thinking.	<p>English: 6.1, 6.4, 7.1, 7.4, 8.1, 8.4, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5</p> <p>History and Social Science: CE.1, CE.4, CE.12, GOVT.1, GOVT.15, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Demonstrate career- and life-management skills.	<p>English: 6.1, 6.7, 7.1, 7.7, 8.1, 8.7, 9.1, 9.6, 10.1, 10.6, 11.1, 11.6, 12.1, 12.6</p> <p>History and Social Science: CE.1, CE.4, CE.12, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Mathematics: 8.4</p>
Demonstrate continuous learning and adaptability.	<p>English: 6.1, 6.4, 6.7, 6.9, 7.1, 7.4, 7.7, 7.9, 8.1, 8.4, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.3, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Science: BIO.1, CH.1, LS.1, PH.1, PH.4, PS.1</p>
Manage time and resources.	<p>English: 6.1, 6.2, 6.4, 6.7, 6.9, 7.1, 7.2, 7.4, 7.7, 7.9, 8.1, 8.2, 8.4, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.2, 11.5, 11.6, 11.8, 12.2, 12.5, 12.6, 12.8</p>

Task	Standards of Learning
	<p>History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Mathematics: 6.10, 6.11, 6.12, 7.2, 7.3, 7.8, 7.9, 7.10, 7.11, 7.12, 7.13, 8.4, 8.11, 8.12, 8.13, 8.14, 8.17, 8.18, A.4, A.5, A.8, A.9, AFDA.3, AFDA.4, AFDA.5, AFDA.6, AFDA.7, AFDA.8, COM.1, COM.3, COM.5, COM.8</p>
Demonstrate information-literacy skills.	<p>English: 6.1, 6.2, 6.4, 6.6, 6.7, 6.9, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.9, 8.1, 8.2, 8.3, 8.4, 8.6, 8.7, 8.9, 9.2, 9.5, 9.6, 9.8, 10.2, 10.5, 10.6, 10.8, 11.2, 11.5, 11.6, 11.8, 12.2, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Mathematics: 6.10, 6.11, 7.8, 7.9, 8.11, 8.12, A.8, A.9, AFDA.3, AFDA.4, AFDA.6, AFDA.7, AFDA.8, DM.8, PS.1*, PS.2*, PS.3*, PS.4*, PS.7*, PS.8*, PS.9*, PS.10*</p> <p>Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PH.1, PS.1</p>
Demonstrate an understanding of information security.	<p>English: 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 6.8, 6.9, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.6, 8.7, 8.8, 8.9, 9.1, 9.2, 9.5, 9.6, 9.8, 10.1, 10.2, 10.5, 10.6, 10.8, 11.1, 11.2, 11.5, 11.6, 11.8, 12.1, 12.2, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Mathematics: COM.10</p>
Maintain working knowledge of current information-technology (IT) systems.	<p>English: 6.1, 6.3, 6.4, 6.6, 6.9, 7.1, 7.3, 7.4, 7.6, 7.9, 8.1, 8.3, 8.4, 8.6, 8.9</p> <p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Mathematics: 7.8, COM.1, COM.2, COM.7, COM.9, COM.10, COM.11, COM.16, COM.18, PS.17</p> <p>Science: BIO.1, CH.1, ES.1, PH.1</p>
Demonstrate proficiency with technologies, tools, and machines common to a specific occupation.	<p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Mathematics: 6.10, 6.11, 7.9, 8.4, A.7, A.8, A.9, AFDA.1, AFDA.3, AFDA.5, AII.4, AII.7, AII.9, COM.1, COM.7, COM.10, COM.11, COM.12, COM.16</p> <p>Science: CH.1, ES.1, LS.1, PH.1, PS.1</p>
Apply mathematical skills to job-specific tasks.	<p>English: 6.4, 6.6, 6.7, 7.4, 7.6, 7.7, 8.4, 8.6, 8.7, 9.5, 9.6, 10.5, 10.6, 11.5, 11.6, 12.5, 12.6</p> <p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>

Task	Standards of Learning
	<p>Mathematics: 6.1, 6.2, 6.5, 6.6, 6.12, 6.13, 6.14, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.8, 7.9, 7.11, 7.12, 7.13, 8.4, 8.5, 8.6, 8.8, 8.9, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 8.18, A.1, A.3, A.4, A.5, A.7, A.8, A.9, AFDA.1, AFDA.3, AFDA.5, AFDA.8, AII.3, AII.7, AII.9, AII.10, COM.1, COM.7</p> <p>Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PH.1, PS.1</p>
Demonstrate professionalism.	<p>English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1</p> <p>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Demonstrate reading and writing skills.	<p>English: 6.1, 6.6, 6.7, 7.1, 7.6, 7.7, 8.1, 8.6, 8.7, 9.1, 9.5, 9.6, 9.7, 10.1, 10.5, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Science: 6.1, PH.1, PS.1</p>
Demonstrate workplace safety.	<p>English: 6.4, 7.4, 8.4, 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p> <p>Science: CH.1</p>
<b>Examining All Aspects of an Industry</b>	
Examine aspects of planning within an industry/organization.	History and Social Science: GOVT.16
Examine aspects of management within an industry/organization.	
Examine aspects of financial responsibility within an industry/organization.	
Examine technical and production skills required of workers within an industry/organization.	
Examine principles of technology that underlie an industry/organization.	
Examine labor issues related to an industry/organization.	History and Social Science: GOVT.16
Examine community issues related to an industry/organization.	History and Social Science: GOVT.16
Examine health, safety, and environmental issues related to an industry/organization.	History and Social Science: GOVT.16
<b>Addressing Elements of Student Life</b>	
Identify the purposes and goals of the student organization.	
Explain the benefits and responsibilities of membership in the student organization as	
a student and in professional/civic organizations as an adult.	
Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.	
Identify Internet safety issues and procedures for complying with acceptable use standards.	
Exploring Work-Based Learning	

Task	Standards of Learning
Identify the types of work-based learning (WBL) opportunities.	
Reflect on lessons learned during the WBL experience.	
Explore career opportunities related to the WBL experience.	
Participate in a WBL experience, when appropriate.	
<b>REQUIRED SUPPLEMENTAL TASKS: Lab/Shop and Personal Safety</b>	
Identify general lab safety rules and procedures.	English: 11.5, 12.5  History and Social Science: GOVT.16  Science: CH.1
Utilize safe procedures for handling tools and equipment.	English: 11.5, 12.5  History and Social Science: GOVT.16
Identify and use proper placement of floor jacks and jack stands.	
Identify and use proper procedures for safe lift operation.	History and Social Science: GOVT.16
Use proper ventilation procedures for working in the lab area.	History and Social Science: GOVT.16
Identify marked safety areas.	History and Social Science: GOVT.16
Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment.	English: 11.5, 12.5  History and Social Science: GOVT.16  Science: CH.1
Identify the location and use of eye wash stations.	English: 11.1, 12.1  History and Social Science: GOVT.16  Science: CH.1
Identify the location of posted evacuation routes.	English: 11.5, 12.5  History and Social Science: GOVT.16  Science: CH.1
Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab activities.	English: 11.5, 12.5  History and Social Science: GOVT.16  Science: CH.1
Identify and wear appropriate clothing for lab activities.	English: 11.5, 12.5  History and Social Science: GOVT.16  Science: CH.1
Secure hair and jewelry for lab activities.	History and Social Science: GOVT.16  Science: CH.1
Demonstrate awareness of the safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high-voltage circuits.	English: 11.5, 12.5  History and Social Science: GOVT.16
Demonstrate awareness of the safety aspects of high-voltage circuits such as high intensity discharge (HID) lamps, ignition systems, and injection systems.	English: 11.5, 12.5  History and Social Science: GOVT.16
Locate and demonstrate knowledge of safety data sheets (SDS).	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1, GOVT.16

Task	Standards of Learning
	Science: CH.1
<b>REQUIRED SUPPLEMENTAL TASKS: Preparing Vehicle for Service</b>	
Perform a vehicle walk-around inspection.	
Perform a vehicle multi-point inspection and complete a vehicle inspection report.	History and Social Science: VUS.1, GOVT.1
Create a plan of action for each specific service or diagnostic situation.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
<b>ENGINE REPAIR: General</b>	
Install engine covers using gaskets, seals, and sealers as required.	English: 11.5, 12.5
Verify engine mechanical timing.	English: 11.5, 12.5
Verify operation of the instrument panel engine warning indicators.	English: 11.5, 12.5
Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary the action.	
Perform common fastener and thread repair, to include remove broken bolt, restore internal and external threads, and repair internal threads with thread insert.	
<b>ENGINE REPAIR: Cylinder Head, Block, and Valve Train</b>	
Adjust valves (mechanical or hydraulic lifters).	English: 11.5, 12.5
Identify components of the cylinder head and valve train and their configurations.	
Identify engine block assembly components and configurations.	
<b>ENGINE REPAIR: Lubrication and Cooling Systems Diagnosis and Repair</b>	
Identify the causes of engine overheating.	History and Social Science: VUS.1, GOVT.1
Inspect, remove, and replace the water pump.	English: 11.5, 12.5
<b>AUTOMATIC TRANSMISSION AND TRANSAXLE: In-Vehicle Transmission/Transaxle</b>	
Inspect, adjust, and/or replace the external manual valve shift linkage, the transmission range sensor/switch, and/or the park/neutral position switch.	
Inspect for leakage at the external seals, gaskets, and bushings.	English: 10.5, 11.5
Inspect, replace, and/or align power train mounts.	
Demonstrate understanding of the relearn procedures.	English: 11.5, 12.5
<b>AUTOMATIC TRANSMISSION AND TRANSAXLE: Off-Vehicle Transmission/Transaxle</b>	
Describe the operational characteristics of a continuously variable transmission (CVT).	English: 11.5, 12.5
Describe the operational characteristics of a hybrid vehicle drive train.	English: 11.5, 12.5
<b>MANUAL DRIVE TRAIN AND AXLES: Transmission/Transaxle</b>	
Describe the operational characteristics of an electronically controlled manual transmission/transaxle.	
<b>MANUAL DRIVE TRAIN AND AXLES: Drive Shaft, Half Shafts, Universal Joints, and</b>	

Task	Standards of Learning
<b>Constant-Velocity (CV) Joints (Front, Rear, All, and Four-Wheel Drive)</b>	
Inspect, remove, and/or replace bearings, hubs, and seals.	English: 11.5, 12.5
Inspect, service, and/or replace shafts, yokes, boots, and universal/constant-velocity (CV) joints.	
Check for leaks at the drive assembly and transfer case seals; check the vents; check fluid level; use proper fluid type per manufacturer specification.	
<b>MANUAL DRIVE TRAIN AND AXLES: Differential Case Assembly</b>	
Clean and inspect the differential case; check for leaks; inspect the housing vent.	
<b>SUSPENSION AND STEERING SYSTEMS: General</b>	
Disable and enable the SRS.	English: 11.5, 12.5
<b>SUSPENSION AND STEERING SYSTEMS: Wheel Alignment</b>	
Perform a pre-alignment inspection; measure the vehicle ride height.	English: 11.5, 12.5
Describe alignment angles (camber, caster, and toe).	
<b>BRAKES: General-Brake Systems Diagnosis</b>	
Identify and interpret brake system concerns; determine the needed action.	History and Social Science: VUS.1, GOVT.1
<b>BRAKES: Electronic Brakes, Traction Control, and Stability Control Systems</b>	
Identify and inspect electronic brake control system components (e.g., anti-lock braking system [ABS], traction control system [TCS], electronic stability control [ESC]); determine the needed action.	
Identify traction control/vehicle stability control system components.	
Describe the operation of a regenerative braking system.	
<b>ELECTRICAL/ELECTRONIC SYSTEMS: General</b>	
Research vehicle service information such as fluid type, vehicle service history, service precautions, technical service bulletins, and recalls including vehicles equipped with advanced driver assistance systems (ADAS).	English: 11.5, 11.8, 12.5, 12.8
Identify major electrical/electronic system components and configurations.	
Retrieve and record DTCs, OBD monitor status, and freeze-frame data; clear codes and data when directed.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using the principles of electricity (Ohm’s law).	English: 11.5, 12.5  Mathematics: AII.3, AII.10  Science: PH.8
Identify lane departure and radar cruise systems.	
Use wiring diagrams to trace electrical/electronic circuits.	English: 11.5, 12.5  Science: PH.8
Demonstrate the proper use of a digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow, and resistance.	Science: PH.8

Task	Standards of Learning
Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits.	History and Social Science: VUS.1, GOVT.1  Science: PH.8
Check operation of electrical circuits using a test light.	English: 11.5, 12.5
Use fused jumper wires to check operation of electrical circuits.	
Measure key-off battery drain (parasitic draw).	
Inspect and test fusible links, circuit breakers, and fuses; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
Repair and/or replace connectors, terminal ends, and wiring of electrical/electronic systems (including solder repair).	
<b>ELECTRICAL/ELECTRONIC SYSTEMS: Battery Service</b>	
Perform a battery state-of-charge test; determine the necessary action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Confirm the proper battery capacity, size, type, and application for a vehicle; perform battery capacity and load test; determine the necessary action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Maintain or restore electronic memory functions, as recommended by the manufacturer.	
Inspect and clean a battery; fill battery cells; check battery cables, connectors, clamps, and hold-downs.	English: 11.5, 12.5
Perform a slow/fast battery charge according to manufacturer's recommendations.	
Jump-start a vehicle using jumper cables and a booster battery or an auxiliary power supply.	
Identify the safety precautions for a high-voltage systems on electric, hybrid-electric, and diesel vehicles.	English: 11.5, 12.5
Identify electrical/electronic modules, security systems, radios, and other accessories that require reinitialization or code entry after reconnecting vehicle battery.	English: 11.5, 12.5
Identify hybrid vehicle auxiliary (12V) battery service, repair, and test procedures.	English: 11.5, 12.5
<b>ELECTRICAL/ELECTRONIC SYSTEMS: Starting System</b>	
Perform starter current draw test; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
Perform starter circuit voltage drop tests; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
Inspect and test starter relays and solenoids; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
Remove and install a starter in a vehicle.	English: 11.5, 12.5
Inspect and test switches, connectors, and wires of starter control circuits; determine the necessary action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Demonstrate knowledge of an automatic idle-stop/start-stop system.	
<b>ELECTRICAL/ELECTRONIC SYSTEMS: Charging System</b>	
Perform the charging system output test; determine the necessary action.	
Inspect, adjust, and/or replace the generator (alternator) drive belts; check the pulleys and tensioners for wear; check the pulley and belt alignment.	English: 11.5, 12.5
Remove, inspect, and/or replace the generator (alternator).	English: 11.5, 12.5



Task	Standards of Learning
Perform a charging circuit voltage drop tests; determine the necessary action.	
<b>ELECTRICAL/ELECTRONIC SYSTEMS: Lighting, Instrument Cluster, Driver Information, and Body Electrical Systems</b>	
Inspect interior and exterior lamps and sockets, including headlights and auxiliary lights (fog lights/driving lights); replace as needed.	English: 11.5, 12.5
Aim headlights.	English: 11.5, 12.5
Disable and enable the SRS; verify the indicator lamp operation.	English: 11.5, 12.5
Remove and reinstall the door panel.	English: 11.5, 12.5
Describe the operation of the keyless entry/remote-start systems.	English: 11.3, 11.5, 12.3, 12.5
Verify the operation of the instrument panel gauges and warning/indicator lights; reset the maintenance indicators.	
Verify the windshield wiper and washer operation; replace the wiper blades.	English: 11.5, 12.5
<b>HEATING, VENTILATION, AND AIR CONDITIONING (HVAC): General</b>	
Research vehicle service information, including refrigerant/oil/fluid type, vehicle service history, service precautions, technical service bulletins, and recalls including vehicles equipped with ADAS.	English: 11.5, 11.8, 12.5, 12.8  History and Social Science: VUS.1, GOVT.1
Identify heating, ventilation, and air conditioning (HVAC) components and configuration.	
<b>HEATING, VENTILATION, AND AIR CONDITIONING (HVAC): Refrigeration System Components</b>	
Inspect and replace air conditioning (AC) compressor drive belts, pulleys, and tensioners; visually inspect AC components for signs of leaks; determine the needed action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Inspect the AC condenser for airflow restrictions; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
<b>HEATING, VENTILATION, AND AIR CONDITIONING (HVAC): Heating, Ventilation, and Engine Cooling Systems</b>	
Inspect engine cooling and heater system hoses and pipes; determine the necessary action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
<b>HEATING, VENTILATION, AND AIR CONDITIONING (HVAC): Operating Systems and Related Controls</b>	
Inspect the AC-heater ducts, doors, hoses, cabin filters, and outlets; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
Identify the source of HVAC system odors.	
Demonstrate awareness of the need to recover, recycle, and handle refrigerants using proper equipment and procedures.	English: 11.5, 12.5
<b>ENGINE PERFORMANCE: General</b>	
Research vehicle service information such as fluid type, vehicle service history, service precautions, technical service bulletins, and recalls including vehicles equipped with advanced driver assistance systems (ADAS).	English: 11.5, 11.8, 12.5, 12.8  History and Social Science: VUS.1, GOVT.1
Perform engine manifold pressure tests (vacuum/boost); determine the needed action.	History and Social Science: VUS.1, GOVT.1
Perform a cylinder power balance test; determine needed action.	English: 11.5, 12.5

Task	Standards of Learning
	History and Social Science: VUS.1, GOVT.1
Perform a cylinder cranking and running compression tests; determine the needed action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Perform a cylinder leakage test; determine the needed action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1
Demonstrate understanding of a proper engine cooling system operation.	English: 11.5, 12.5
Remove and replace spark plugs; inspect secondary ignition components for wear and damage.	
Demonstrate understanding of camshaft timing including engines equipped with variable valve timing (VVT) systems.	
<b>ENGINE PERFORMANCE: Computerized Engine Controls</b>	
Identify computerized control system components and configurations.	
Retrieve and record diagnostic trouble codes (DTC), on-board diagnostic (OBD) monitor status, and freeze frame data; clear the codes when applicable.	History and Social Science: VUS.1, GOVT.1
Describe the use of the OBD monitors for repair verification.	
<b>ENGINE PERFORMANCE: Fuel, Air Induction, and Exhaust Systems</b>	
Identify fuel, air induction, ignition, and exhaust system components and configurations.	
Replace fuel filter(s) where applicable.	English: 11.5, 12.5
Inspect, service, or replace air filters, filter housings, and intake duct work.	
Inspect the integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; determine the necessary action.	History and Social Science: VUS.1, GOVT.1
Inspect the condition of exhaust system hangers, brackets, clamps, and heat shields; determine necessary action.	History and Social Science: VUS.1, GOVT.1
Check and refill diesel exhaust fluid (DEF).	English: 11.5, 12.5
<b>ENGINE PERFORMANCE: Emissions Control Systems</b>	
Identify emission control system components and configurations.	
Inspect, test, and service positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform the necessary action.	English: 11.5, 12.5  History and Social Science: VUS.1, GOVT.1