Individual Test Item Specifications

9504120- Automotive Maintenance & Light Repair 2

2015

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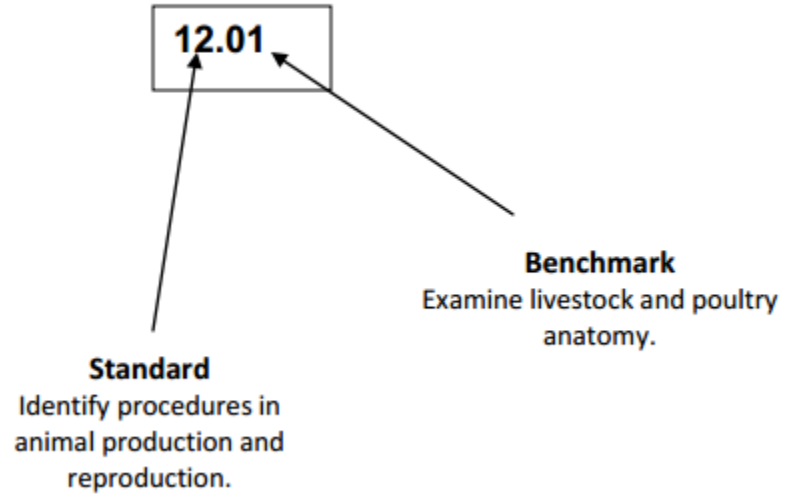
I. Guide to the Individual Benchmark Specifications

Content specific guidelines are given in the *Individual Benchmark Specifications* for each course. The *Specifications* contains specific information about the alignment of items with the Florida Standards. It identifies the manner in which each benchmark is assessed, provides content limits and stimulus attributes for each benchmark, and gives specific information about content, item types, and response attributes.

Benchmark Classification System

- Each Career and Technical Education course has its own set of course standards. The benchmarks are organized numerically, with two numbers separated by a decimal point. The first number is the standard number, and the second number is the benchmark number. You will see these numbers on the Item Specifications for each course.

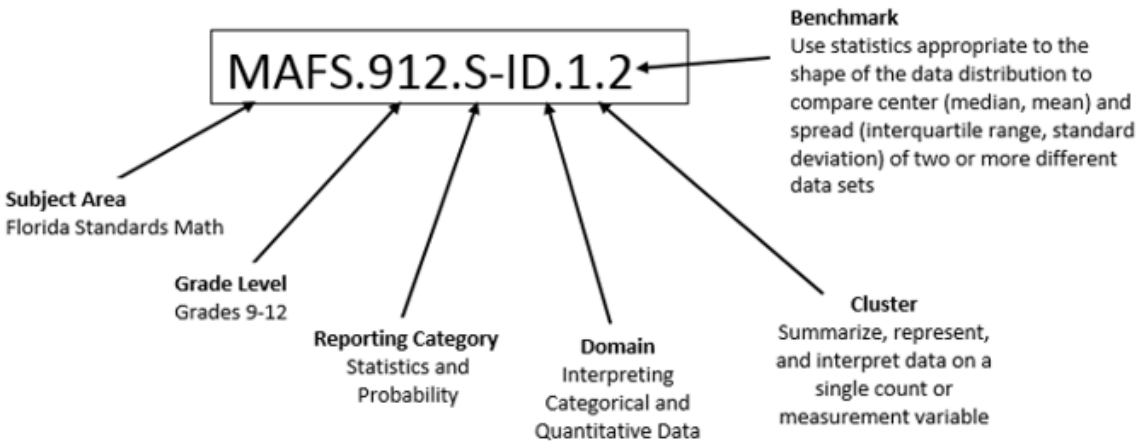
An example, from Agritechnology 1:



The image above describes the components of a Career and Technical Education Standard and Benchmark classification system.

Each MAFS benchmark is labeled with a system of letters and numbers.

- The four letters in the *first position* of the label identify the **Subject**.
- The number(s) in the *second position* represents the **Grade Level**.
- The letter(s) in the *third position* represents the **Category**.
- The number in the fourth position shows the **Domain**.
- The number in the *fifth position* identifies the **Cluster**.
- The number in the last position identifies the specific **Benchmark**.



The image above describes the components of a Florida Standard and Benchmark classification system.

Definitions of Benchmark Specifications

The *Individual Benchmark Specifications* provides standard-specific guidance for assessment item development for the Florida Department of Education Career and Technical Education item banks. For each benchmark assessed, the following information is provided.

Reporting Category	is a grouping of related benchmarks that can be used to summarize and report achievement.
Standard	refers to the standard statement presented in the Florida Standards.
Benchmark	refers to the benchmark statement presented in the Florida Standards. In some cases, two or more related benchmarks are grouped together because the assessment of one benchmark addresses another benchmark.
Item Types	are used to assess the benchmark or group of benchmark.
Cognitive Complexity	ideal level at which item should be assessed.
Benchmark Clarifications	explain how achievement of the benchmark will be demonstrated by students. In other words, the clarification statements explain what the student will do when responding to questions.
Content Limits	define the range of content knowledge and that should be assessed in the items for the benchmark.
Stimulus Attributes	define the types of stimulus materials that should be used in the items, including the appropriate use of graphic materials and item context or content.
Response Attributes	define the characteristics of the answers that a student must choose or provide.
Content Focus	addresses the broad key terms and concepts associated with the examples found in the standards, benchmarks, or benchmark clarifications.
Sample Items	are provided for each type of question assessed. The correct answer for all sample items is provided.

II. Individual Benchmark Specifications

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.03 Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law). MAFS.912.A-CED.1.1, 2, 4;
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will differentiate between series, parallel, and series-parallel circuits. Using Ohm's Law, students will identify the essential levels of current voltage and resistance in a given circuit.
Content Focus	Series, parallel, series-parallel, Ohm's Law
Content Limits	Items should include only basic DC automotive circuits.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	Students will ne able to identify how voltage, current, and resistance are effected in each type of circuit.
Sample Item	The figure above is an example of which type of circuit? A. integrated circuit B. parallel C. series D. series-parallel Answer C

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	08.04 Use wiring diagrams to trace electrical/electronic circuits.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M, H
Benchmark Clarification	The student will trace a basic series wire diagram.
Content Focus	Ohm's law, series circuit, electron flow, component terminology
Content Limits	Wiring diagrams should be specific to pasenger vehicles and light duty trucks. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	Using the schematic above, what component controls the horn? A. fuse B. horn relay C. horn switch D. inflator coil Answer B. horn relay

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.05 Demonstrate the proper use of a digital multimeter (DMM) when measuring source, voltage drop (including grounds), current flow, and resistance. MAFS.912.A-CED.1.1, 2, 4; SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will (SWBAT) demonstrate the proper use of the multimeter when measuring voltage, voltage drop, current flow, or resistance.
Content Focus	Multimeter, voltage, voltage drop, current flow, resistance
Content Limits	Items should include only basic DC automotive circuits.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	Students should identify proper meter settings and demonstrate proper DMM usage.
Sample Item	How should the digital multimeter be placed in a circuit when measuring current flow? A. in parallel with power off B. in parallel with powr on C. in series with power off D. in series with power on Answer D

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.06 Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits. SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M, H
Benchmark Clarification	The student will (SWBAT) describe the cause and effect of shorts, grounds, opens, and incorrect resistances in the electrical system.
Content Focus	Short-to-ground, open, resistance
Content Limits	Items should include only basic DC automotive circuits.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	What causes a fuse to blow? A. high resistance B. open wire C. short-to-ground D. short-to-voltage Answer C

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.07 Check operation of electrical circuits with a test light.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will check for circuit current with a test light.
Content Focus	Voltage, current, resistance, Ohms, Ohm's Law
Content Limits	Items should include only DC (direct current) circuits. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	What will a technician find with a test light when testing a blown fuse? A. no power at any side of the fuse B. power coming on and off on both sides C. power on both sides of the fuse D. power on one side of the fuse A Answer D

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.09 Measure key-off battery drain (parasitic draw). SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will measure parasitic draw.
Content Focus	Parasitic draw, current draw, current, digital multimeter (DMM)
Content Limits	Items should include only DC (direct current) circuits. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	Conditions required to perform an accurate test. Procedures for performing a parasitic draw test.
Response Attributes	None Specified
Sample Item	Which of the following should not be done prior to performing a parasitic draw test? A. disconnect the battery B. let car sit for at least one minute C. remove ignition key D. turn off all accessories Answer A

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.10 Inspect and test fusible links, circuit breakers, and fuses; determine necessary action. SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	M, H
Benchmark Clarification	The student will test various circuit protection devices and determine needed action.
Content Focus	Fusible link (FL), fuse, circuit breaker
Content Limits	Items can includde circuit protection for systems related to passenger vehicles and light duty trucks. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	None Specified
Response Attributes	None Specified
Sample Item	Using an Ohmmeter, test the fusible link and report on its condition.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.13 Perform battery state-of-charge test; determine necessary action.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will test battery state of charge and determine needed action.
Content Focus	State-of-charge (SOC), capacitance, hydrometer, refractometer, digital multimeter (DMM)
Content Limits	Items can include batteries found in passenger vehicles and light duty trucks produced within the past ten years. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	Which of the following is not a method of testing a battery's state-of-charge? A. hydrometer B. open cell voltage C. refractometer D. resistance check Answer D

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.17 Perform slow/fast battery charge according to manufacturer's recommendations.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	Thee student will safely charge a battery using slow or fast charging.
Content Focus	Trickle charge, fast charger
Content Limits	Items should only use 12 volt systems found on passenger vehicles and light duty trucks. Items should not include hybrid or alternative fuel vehicles.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	The student will jump start a vehicle using jumper cables, boost, or an auxiliary power supply.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.18 Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will jump start a vehicle using jumper cables, booster battery, or an auxiliary power supply.
Content Focus	Jumper cables, booster batter, auxiliary power supply
Content Limits	Items can include manufacturer approved methods only related to passenger vehicles and light duty trucks. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	When jumping a vehicle using another vehicle, which jumper cable end is hooked up last? A. black on bad battery B. black on good battery C. red on bad battery D. red on good battery Answer A

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.19 Identify high voltage circuits of electric or hybrid electric vehicle and related safety precautions.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will identify high voltage circuits of an electric or hybrid electric vehicle and related safety precautions
Content Focus	High voltage circuits
Content Limits	Items should be identification only, and are not to include any hands on lab work or any type of actual or live work on any vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	What color are high voltage cables on a hybrid vehicle? A. black B. orange C. pink D. red Answer B

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.22 Perform starter current draw tests; determine necessary action. MAFS.912.A-CED.1.1, 2, 4; SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	M, H
Benchmark Clarification	The student will perform a starter draw test and determine needed repair.
Content Focus	Voltage, current, resistance, OHMS, OHMS Law.
Content Limits	Items should not include any hybrid or alternative fuel vehicle.
Stimulus Attributes	None Specified
Response Attributes	None Specified
Sample Item	Using a starter current draw tester, perform a draw test on the vehicle in the service bay.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.23 Perform starter circuit voltage drop tests; determine necessary action. MAFS.912.A-CED.1.1, 2, 4; SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M, H
Benchmark Clarification	The student will test the starter circuit by performing voltage drop tests.
Content Focus	Voltage drop, Ohm's Law
Content Limits	Items should not include any hybrid or alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	When testing the starter circuit for resistance, which test should be performed? A. battery load test B. hydrometer test C. parasitic draw test D. voltage drop test Answer D

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.24 Inspect and test starter relays and solenoids; determine necessary action. SC.912.P.10.16, 17
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will inspect and test starter relays and solenoids and determine needed action.
Content Focus	Voltage, current, resistance, OHMS, OHMS Law, voltage drop
Content Limits	Items should not include any hybrid or alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	Perform a voltage drop test of the starter solenoid and compare the reading to specifications. Make a recommendation for repair.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.26 Inspect and test switches, connectors, and wires of starter control circuits; perform necessary action. SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will inspect and test switches, connectors, and wires of starter circuits and determine needed action.
Content Focus	voltage, current, resistance, OHMS, OHMS Law, voltage drop
Content Limits	Items should not include any hybrid or alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	Which of the following components would not be inspected as part of the starter control circuit? A. clutch safety switch B. neutral safety switch C. starter fusible link D. starter relay Answer C

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.27 Perform charging system output test; determine necessary action. MAFS.912.A-CED.1.1, 2, 4; SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	M, H
Benchmark Clarification	Student will perform charging system output test and determine needed repair
Content Focus	Voltage, Current, Resistance, OHMS, OHMS Law, voltage drop, alternator, load tester
Content Limits	NOT to include any hybrid or alternative fuel vehicle.
Stimulus Attributes	Battery light on, battery dead or low charge, whine noise from alternator
Response Attributes	None Specified
Sample Item	The battery light is lit on the dash cluster. Verify charging system output and determine the cause of failure.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.28 Inspect, adjust, or replace generator (alternator) drive belts, check pulleys, and tensioners for wear; check pulley and belt alignment.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will inspect, adjust or replace alternator drive belts, check pulleys and tensioners for wear. Also, check pulley and belt alignment.
Content Focus	tensioner, alternator drive belts, pulleys, belt alignment
Content Limits	Items may include manufacturer approved methods only related to passenger vehicles and light duty trucks. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	
Response Attributes	None Specified
Sample Item	What are two methods to adjust drive belts? Sample Response: Drive belts can utilize an automatic tensioner. Also, drive belts can be adjusted using an adjustable nut.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.30 Perform charging circuit voltage drop test; determine necessary action. MAFS.912.A-CED.1.1, 2, 4; SC.912.P.10.15
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=
Cognitive Complexity Level	M, H
Benchmark Clarification	The student will perform voltage drop test on charging system circuits.
Content Focus	voltage, current, resistance, OHMS, OHMS Law, voltage drop, alternator, load tester
Content Limits	Items should not include any hybrid or alternative fuel vehicle.
Stimulus Attributes	None Specified
Response Attributes	None Specified
Sample Item	Perform a voltage drop test of the charging system. Notate your findings and make a recommendation for repair.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.31 Inspect interior and exterior lamps and sockets including headlights and auxiliary lights (fog lights/driving light); replace as needed.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will inspect interior and exterior lights and sockets and replace as needed.
Content Focus	Voltage, Current, Resistance, OHMS, OHMS Law, voltage drop
Content Limits	Items should include manufacturer approved methods only related to passenger vehicles and light duty trucks. Items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	The right rear stop lamp is not coming on. The technician finds power and ground to be good. What is most likely wrong? A. brake switch open B. bulb blown C. fuse blown D. hazard switch shorted Answer B

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.32 Aim headlights.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)=X (P)=X (ER)=
Cognitive Complexity Level	M, H
Benchmark Clarification	The student will aim headlights.
Content Focus	None Specified
Content Limits	Items should include manufacturer approved methods only related to passenger vehicles and light duty trucks.items should not include hybrid or any alternative fuel vehicle.
Stimulus Attributes	None Specified
Response Attributes	None Specified
Sample Item	The headlights are out of alignment on the vehicle in the stall. Aim the headlights following the manufacturer's procedures.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.33 Identify system voltage and safety precautions associated with high intensity discharge headlights.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will identify system voltage and safety precautions associated with high intensity discharge headlights.
Content Focus	Voltage, current, resistance, OHMS, OHMS Law, voltage drop, high-intensity discharge (HID).
Content Limits	Items should include manufacturer approved methods only related to passenger vehicles and light duty trucks. Items should not include hybrid or any alternative fuel vehicle. No hands on/ performance activities.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	What type of voltage do HID lights require during the start-up phase? A. 12 volts B. 45 volts C. 600 volts D. 25,000 volts Answer D

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.34 Disable and enable airbag system for vehicle service; verify indicator lamp operation.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will disable and enable the airbag system for vehicle service. tudent will verify supplemental inflatable restraint (SIR) indicator lamp operation.
Content Focus	Supplemental inflatable restraint (SIR), airbag
Content Limits	Manufacturer approved methods only related to passenger vehicles and light duty trucks. NOT to include Hybrid or any alternative fuel vehicle. No hands on/ performance activities.
Stimulus Attributes	None Specified
Response Attributes	None Specified
Sample Item	What color are airbag connectors? A. blue B. orange C. pink D. yellow Answer D

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.36 Describe the operation of keyless entry/remote-start systems. LAFS.910.W.1.2A ,B, C, D, E, F LAFS.910.L.1.2C
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	L
Benchmark Clarification	The student will describe the operation of keyless entry and remote start systems.
Content Focus	Pulse signal, rolling codes, remote keyless entry (RKE)
Content Limits	Items should include keyless entry and remote start related to passenger vehicles and light duty trucks, Items should not include hybrid or alternative fuel vehicles.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	What does the key fob communicate with when the button is depressed? A. body control module B. engine computer C. RKE module D. TCM Answer C

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.37 Verify operation of instrument panel gauges and warning /indicator lights; reset maintenance indicators.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will check operation of instrument panel gauges and warning/indicator lights and have the ability to reset maintenance indicators
Content Focus	Service wrench lamp, BCM, I/P cluster
Content Limits	Items should include systems related to passenger vehicles and light duty trucks.
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	What is one difference and one similarity of a warning gauge and a warning lamp? Sample response: A warning gauge will display a range of values and a warning lamp only displays when there is a problem. They both can warn drivers of problems.

Standard	08.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, and accessory systems--The student will be able to:
Benchmark	8.38 Verify windshield wiper and washer operation, replace wiper blades.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	The student will check for proper operation of wiper and washer system and replace wiper blades.
Content Focus	BCM, signal, pulse signal, voltage, current, coil buildup, resistance, OHMS, OHMS Law
Content Limits	Items should include wiper and washer systems related to passenger vehicles and light duty trucks
Stimulus Attributes	Stimulus attributes may include but are not limited to images, graphs, diagrams, and charts.
Response Attributes	None Specified
Sample Item	On the vehicle provided in the stall, replace the wiper blades.