Diesel Technology Evaluation Tool

2020 Curricular Materials Review

Idaho CTE Trades and Industry (T&I) Diesel Technology Program Standards[[1]](#footnote-1)

**Publisher information**

* Publisher Name:
* Title:
* Grade Level:
* ISBN #:
* Author:
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# Instructions:

Complete the Publisher Standards Alignment Report below. Please provide written justification as to how the material meets the standard along with location references. If a justification requires additional space, please submit response on an additional document.

# Publisher STANDARDS ALIGNMENT Report:

## Standard DESL.1.0: Safety and Tools

### Performance Standard DESL.1.1 Demonstrate General Lab Safety Rules and Procedure

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.1.1.1 Perform a quality job hazard analysis. |  |
| CTE DESL.1.1.2 Demonstrate the key attributes to contribute to an active safety culture. |  |
| CTE DESL.1.1.3 Utilize proper ventilation procedures for working within the lab/shop area. |  |
| CTE DESL.1.1.4 Identify marked safety areas. |  |
| CTE DESL.1.1.5 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. |  |
| CTE DESL.1.1.6 Identify the location and use of eye wash stations. |  |
| CTE DESL.1.1.7 Identify the location of the posted evacuation routes. |  |
| CTE DESL.1.1.8 Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities (i.e., personal protection equipment – PPE). |  |
| CTE DESL.1.1.9 Identify and wear appropriate clothing for lab/shop activities. |  |
| CTE DESL.1.1.10 Secure hair and jewelry for lab/shop activities. |  |
| CTE DESL.1.1.11 Locate and interpret safety data sheets (SDS). |  |
| CTE DESL.1.1.12 Perform housekeeping duties. |  |
| CTE DESL.1.1.13 Demonstrate capability to follow verbal and written instructions to complete work assignments. |  |

### Performance Standard DESL.1.2 Demonstrate Safe Handling and Usage of Tools

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.1.2.1 Identify appropriate tools and their usage in diesel service applications. |  |
| CTE DESL.1.2.2 Identify standard and metric designation. |  |
| CTE DESL.1.2.3 Demonstrate safe handling and use of hand and power tools. |  |
| CTE DESL.1.2.4 Utilize safe procedures for handling of tools and equipment. |  |
| CTE DESL.1.2.5 Identify and use proper placement of floor jacks and jack stands. |  |
| CTE DESL.1.2.6 Identify situational tool restrictions. |  |
| CTE DESL.1.2.7 Identify and use proper lifting procedures and proper use of support equipment (e.g., lifts, hoists, rigging, etc.). |  |
| CTE DESL.1.2.8 Demonstrate proper inspection, cleaning, storage, and maintenance of tools and equipment. |  |
| CTE DESL.1.2.9 Demonstrate proper use of precision measuring tools (i.e., micrometer, dial-indicator, dial-caliper). |  |

## Standard DESL.2.0: Basic Vehicle Service at a DOT Level

### Performance Standard DESL.2.1 Identify and Utilize Vehicle Service Information

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.2.1.1 Locate and utilize paper and/or electronic service information. |  |
| CTE DESL.2.1.2 Locate and utilize Technical Service Bulletins (TSBs). |  |
| CTE DESL.2.1.3 Demonstrate knowledge of special service messages, quotes, service campaigns/recalls, vehicle/service warranty applications and service interval recommendations. |  |
| CTE DESL.2.1.4 Locate Vehicle Identification Number (VIN) and production data code. |  |
| CTE DESL.2.1.5 Analyze Vehicle Identification Number (VIN) information. |  |
| CTE DESL.2.1.6 Identify other vehicle information labels (such as tire, emissions, etc.) |  |

### Performance Standard DESL.2.2 Prepare a Vehicle for Service

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.2.2.1 Identify information needed and the service requested on a repair order. |  |
| CTE DESL.2.2.2 Perform a 360° vehicle walk around inspection. |  |
| CTE DESL.2.2.3 Identify purpose and demonstrate proper use of fender covers, seat covers, and floor mats. |  |
| CTE DESL.2.2.4 Demonstrate use of the three C’s (concern, cause, and correction). |  |
| CTE DESL.2.2.5 Locate and review vehicle service history. |  |
| CTE DESL.2.2.6 Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. |  |

### Performance Standard DESL.2.3 Prepare a Vehicle for the Customer

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.2.3.1 Ensure vehicle is prepared to return to customer per school/company policy (floor mats, steering wheel cover, etc.). |  |

## Standard DESL.3.0: Diesel Engine Service

### Performance Standard DESL.3.1 Perform Preliminary Engine Inspection

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.3.1.1 Inspect fuel, oil, Diesel Exhaust Fluid (DEF) and coolant levels, and condition; determine needed action. |  |
| CTE DESL.3.1.2 Identify engine fuel, oil, coolant, air, and other leaks; determine needed action. |  |
| CTE DESL.3.1.3 Observe engine exhaust smoke color and quantity. |  |
| CTE DESL.3.1.4 Check and record electronic diagnostic codes. |  |

### Performance Standard DESL.3.2 Identify Diesel Engine Components

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.3.2.1 Identify external base engine components related to common diesel engines. |  |
| CTE DESL.3.2.2 Identify emission system components. |  |

### Performance Standard DESL.3.3 Understand Diesel Engine Theory and Operation

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.3.3.1 Describe the operation of a diesel engine. |  |
| CTE DESL.3.3.2 Describe the operations of a diesel engine’s subsystems. |  |

## Standard DESL.4.0: Preventative Maintenance Inspections

### Performance Standard DESL.4.1 Perform Preventative Maintenance Inspections

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.4.1.1 Perform a Form A Preventative Maintenance Inspection per the Technology & Maintenance Council standards. |  |
| CTE DESL.4.1.2 Perform a Form B Preventative Maintenance Inspection per Technology & Maintenance Council standards MC standards. |  |
| CTE DESL.4.1.3 Perform a CSA Safety Inspection per Department of Transportation standards.  Electronic copy of form available at  [http://www.fmcsa.dot.gov/sites](http://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/part-396form6.pdf)  [/fmcsa.dot.gov/files/docs/part-](http://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/part-396form6.pdf)  [396form6.pdf](http://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/part-396form6.pdf)  For more information, please see: [http://gpo.gov/fdsys/pkg](http://gpo.gov/fdsys/pkg/CFR-2011-title49-vol5/xml/CFR-2011-title49-vol5-part396.xml)  [CFR-2011-title49-vol5/xml/CFR-](http://gpo.gov/fdsys/pkg/CFR-2011-title49-vol5/xml/CFR-2011-title49-vol5-part396.xml)  [2011-title49-vol5-part396.xml](http://gpo.gov/fdsys/pkg/CFR-2011-title49-vol5/xml/CFR-2011-title49-vol5-part396.xml). |  |

## Standard DESL.5.0: Hydraulic Systems

### Performance Standard DESL.5.1 Understand Hydraulic System Operation and Theory

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.5.1.1 Identify hydraulic system theory and safety procedures. |  |
| CTE DESL.5.1.2 Read and interpret system diagrams and schematics. |  |

### Performance Standard DESL.5.2 Identify Base Hydraulic System Components

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.5.2.1 Identify system fluid type and warning labels. |  |
| CTE DESL.5.2.2 Identify system type (closed and open) and verify proper operation. |  |
| CTE DESL.5.2.3 Determine pump type, actuators, and controls. |  |

## Standard DESL.6.0: Brake System

### Performance Standard DESL.6.1 Understand Brake Theory and Operation

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.6.1.1 Identify brake safety procedures per system manufacturer and type. |  |
| CTE DESL.6.1.2 Identify brake components for air or hydraulic brake systems. |  |
| CTE DESL.6.1.3 Verbally describe friction material maintenance. |  |
| CTE DESL.6.1.4 Identify wear limits in brake linings, drums and rotators. |  |

### Performance Standard DESL.6.2 Assess Air Brakes – Mechanical/Foundational Brakes

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.6.2.1 Inspect and measure brake shoes or pads; replace friction lining. |  |
| CTE DESL.6.2.2 Inspect and measure brake drums or rotors; replace friction lining. |  |

### Performance Standard DESL.6.3 Perform Wheel Bearing Service and Repair

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.6.3.1 Inspect and service wheel bearings according to manufacturer’s specifications. |  |

## Standard DESL.7.0: Electric/Electronic Systems

### Performance Standard DESL.7.1 Understand General Electrical Systems

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.7.1.1 Identify safety procedures related to electrical system service. |  |
| CTE DESL.7.1.2 Describe the distinctions between series, parallel, series-parallel circuits. |  |
| CTE DESL.7.1.3 Calculate total resistance in series, parallel, series-parallel circuits. |  |
| CTE DESL.7.1.4 Read and interpret electrical/electronic circuits using wiring diagrams. |  |
| CTE DESL.7.1.5 Check continuity in electrical/electronic circuits using appropriate test equipment. |  |
| CTE DESL.7.1.6 Check applied voltages, circuit voltages, and voltage drops in electrical/electronic circuits using appropriate test equipment. |  |
| CTE DESL.7.1.7 Check current flow in electrical/electronic circuits and components using appropriate test equipment. |  |
| CTE DESL.7.1.8 Check resistance in electrical/electronic circuits and components using appropriate test equipment. |  |
| CTE DESL.7.1.9 Locate shorts, grounds, and opens in electrical/electronic circuits. |  |
| CTE DESL.7.1.10 Inspect and test fusible links, circuit breakers, relays, solenoids, and fuses; replace as needed. |  |

### Performance Standard DESL.7.2 Perform Battery Service

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.7.2.1 Identify safety procedures related to electrical system service. |  |
| CTE DESL.7.2.2 Determine battery state of charge using an open circuit voltage test. |  |
| CTE DESL.7.2.3 Inspect, clean, and service battery; replace as needed. |  |
| CTE DESL.7.2.4 Inspect and clean battery boxes, mounts, and hold downs; repair or replace as needed. |  |
| CTE DESL.7.2.5 Charge battery using appropriate method for battery type. |  |
| CTE DESL.7.2.6 Inspect, test, and clean battery cables and connectors; repair or replace as needed. |  |
| CTE DESL.7.2.7 Jump start a vehicle using jumper cables and a booster battery or appropriate auxiliary power supply using proper safety procedures. |  |
| CTE DESL.7.2.8 Identify series and parallel systems. Perform battery capacitance test; determine needed action. |  |

### Performance Standard DESL.7.3 Perform Starting System Service

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.7.3.1 Perform starter circuit cranking voltage and voltage drop tests; determine needed action. |  |
| CTE DESL.7.3.2 Inspect and test components (key switch, push button and/or magnetic switch) and wires and harnesses in the starter control circuit; replace as needed. |  |
| CTE DESL.7.3.3 Inspect and test, starter relays and solenoids/switches; replace as needed. |  |
| CTE DESL.7.3.4 Remove and replace starter; inspect flywheel ring gear or flex plate. |  |
| CTE DESL.7.3.5 Perform starter current draw test; determine needed action. |  |

### Performance Standard DESL.7.4 Perform Charging System Diagnosis and Repair

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.7.4.1 Test instrument panel mounted volt meters and/or indicator lamps; determine needed action. |  |
| CTE DESL.7.4.2 Identify causes of a no charge, low charge, or overcharge problems; determine needed action. |  |
| CTE DESL.7.4.3 Inspect and replace alternator drive belts, pulleys, fans, tensioners, and mounting brackets; adjust drive belts and check alignment. |  |
| CTE DESL.7.4.4 Perform charging system voltage and amperage output tests; perform AC ripple test; determine needed action. |  |
| CTE DESL.7.4.5 Perform charging circuit voltage drop tests; determine needed action. |  |
| CTE DESL.7.4.6 Remove and replace alternator. |  |
| CTE DESL.7.4.7 Inspect, repair, or replace cables, wires, and connectors in the charging circuit. |  |

### Performance Standard DESL.7.5 Perform Lighting Systems Diagnosis and Repair

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.7.5.1 Identify causes of brighter than normal, intermittent, dim, or no headlight. |  |
| CTE DESL.7.5.2 Test, replace, and aim headlights. |  |
| CTE DESL.7.5.3 Test headlight and dimmer circuit switches, relays, wires, terminals, connectors, sockets, and control components/modules; repair or replace as needed. |  |
| CTE DESL.7.5.4 Inspect and test switches, bulbs/LEDs, sockets, connectors, terminals, relays, wires, and control components/modules of parking, clearance, and taillight circuits; repair or replace as needed. |  |
| CTE DESL.7.5.5 Inspect and test tractor-to-trailer multi-wire connector(s); repair or replace as needed. |  |
| CTE DESL.7.5.6 Inspect, test, and adjust stoplight circuit switches, bulbs/LEDs, sockets, connectors, terminals, wires, and control components/modules; repair or replace as needed. |  |
| CTE DESL.7.5.7 Inspect and test turn signal and hazard circuit flasher(s), switches, relays, bulbs/LEDs, sockets, connectors, terminals, wires and control components/modules; repair or replace as needed. |  |
| CTE DESL.7.5.8 Inspect and test reverse lights and warning device circuit switches, bulbs/LEDs, sockets, horns, buzzers, connectors, terminals, wires, and control components/modules; repair or replace as needed. |  |

## Standard 8.0: Transportation Careers

### Performance Standard DESL.8.1 Explore Transportation Careers

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.8.1.1 Describe the history of the transportation industry and the effects on society. |  |
| CTE DESL.8.1.2 Investigate new and emerging technologies in the transportation industry. |  |
| CTE DESL.8.1.3 Research the different career opportunities in the transportation career path. |  |
| CTE DESL.8.1.4 Describe personal decisions that impact career options. |  |
| CTE DESL.8.1.5 Establish short-term and long-term career goals. |  |

### Performance Standard DESL.8.2 Explore Industry Ethics and Standards

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE DESL.8.2.1 Describe behaviors consistent with OSHA safety standards. |  |
| CTE DESL.8.2.2 Describe good environmental practices. |  |
| CTE DESL.8.2.3 Identify Department of Labor Federal Employment Laws. |  |
| CTE DESL.8.2.4 Demonstrate personal accountability and responsibility for your career and safety. |  |

# Indicators of quality Rubric:

Standards aligned and Integrated Curriculum:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The curriculum is based on industry-validated technical standards and competencies. |  |
| 1. The curriculum is aligned with relevant content and standards for core subjects, such as reading, math and science, including federal, state and/or local standards, as appropriate. |  |
| 1. The curriculum incorporates employability skill standards that help students succeed in the workplace, such as problem solving, critical thinking, teamwork, communications and workplace etiquette. |  |
| 1. The curriculum allows for student application of integrated knowledge and skills in authentic scenarios. |  |
| 1. Materials used reflect current workplace, industry and/or occupational practices and requirements. |  |

Access and Equity:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Materials are provided in a way that ensures all students have the opportunity to achieve success in the program of study, including by meeting Title IX, Americans with Disabilities Act and other accessibility requirements. |  |
| 1. Materials and assessments are free from bias, inclusive and non-discriminatory, and offered in a way that ensures all students have the opportunity to achieve success in the program of study. |  |
| 1. Contains guidance to support differentiated and culturally responsive (i.e., purposefully represents diverse cultures, linguistic backgrounds, learning styles and interests) instruction in the classroom so that every student’s need are addressed by including:    1. Suggestions for how to promote equitable instruction by making connections to culture, home, neighborhood, and community as appropriate.    2. Appropriate scaffolding, interventions, and supports, including integrated and appropriate reading, writing, listening, and speaking alternatives (e.g., translations, picture support, graphic organizers) that neither sacrifice content nor avoid language development for English language learners, special needs, or below grade level readers.    3. Digital and print resources that provide various levels of readability.    4. Modifications and extensions for all students, including those performing above their grade level, to deepen understanding of the content.    5. Materials in multiple language formats. |  |

Student Focus:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The material supports the sequential and cumulative development of foundational skills and progresses in specificity to build students’ depth of knowledge and skills. Those skills are necessary for a student’s independent comprehension of grade-level complex texts and mastery of tasks called for by the standards. |  |
| 1. Content and standards within the program of study are non-duplicative and vertically aligned to prepare students to transition seamlessly to the next level of education. |  |
| 1. The material provides many and varied opportunities for students to work with each standard within the grade level. |  |
| 1. The material cross-refers and integrates other content areas. |  |
| 1. The material has a balance of text types and lengths that encourage close, in-depth reading and rereading, analysis, comparison, and synthesis of texts. |  |
| 1. The material includes sufficient supplementary activities or assignments that are appropriately integrated into the text. |  |
| 1. The material has activities and assignments that develop problem-solving skills and foster synthesis and inquiry at both an individual and group level. |  |
| 1. The material has activities and assignments that reflect varied learning styles of students. |  |
| 1. The material includes appropriate instructional strategies. |  |
| 1. Project-based learning and related instructional approaches, such as problem-based, inquiry-based and challenge-based learning, are fully integrated into the material. |  |

Pedagogical Approach:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Provides guidance for teachers throughout for how learning experiences build on each other to support students in developing a deep understanding of the content. |  |
| 1. Provides scaffolded supports for teachers to facilitate learning of the content so that students are increasingly responsible for making sense of the content. |  |
| 1. The material provides opportunities for supporting English language learners to regularly and actively participate with grade-level text. |  |
| 1. The material gives clear and concise instruction to teachers and students. It is easy to navigate and understand. |  |
| 1. Includes appropriate academic and content-specific vocabulary in the context of the learning experience that is accessible, introduced, reinforced, reviewed, and augmented with visual representations when appropriate. |  |
| 1. Allows teachers to access, revise, and print form digital resources (e.g., readings, labs, assessments, rubrics). |  |
| 1. Uses varied modes (selected, constructed, project-based, extended response, and performance tasks) of instruction-embedded pre-, formative, summative, peer, and, self-assessment measures of learning. |  |
| 1. Includes editable and aligned rubrics, scoring guidelines, and exemplars that provide guidance for assessing student performance and to support teachers in planning instruction and providing ongoing feedback to students. |  |
| 1. Provides multiple opportunities for students to demonstrate and receive feedback on performance of practices connected with their understanding of concepts. |  |

Presentation and Design:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The material has an aesthetically appealing appearance. |  |
| 1. Digital and print materials are consistently formatted, visually focused, and uncluttered for efficient use. |  |
| 1. The material has a reasonable and appropriate balance between text and illustration. The material has grade-appropriate font size. |  |
| 1. The illustrations clearly cross-reference the text, are directly relevant to the content (not simply decorative), and promote thinking, discussion, and problem solving. |  |
| 1. Non-text content (performance clips, images, maps, globes, graphs, pictures, charts, databases, and models) are accurate and well integrated into the text. |  |

Technology:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Technology and digital media support, extend, and enhance learning experiences. |  |
| 1. The material has “platform neutral” technology (i.e., cloud based) and availability for networking. |  |
| 1. The material has a user-friendly and interactive interface allowing the user to control (shift among activities). |  |

For Questions Contact

Content & Curriculum

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1. [Idaho T&I Diesel Technology Program Standards](https://cte.idaho.gov/wp-content/uploads/2018/02/Diesel-Technology_Program-Standards.pdf) [↑](#footnote-ref-1)