Ag Mechanics and Power Systems Evaluation Tool

2020 Curricular Materials Review

Idaho CTE Agriculture, Food, and Natural Resources (AFNR) Ag Mechanics and Power Systems Program Standards[[1]](#footnote-1)

**Publisher information**

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* 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 AMP.1.0: Occupational Safety and Health in Ag Mechanics

### Performance Standard AMP.1.1 Safety Practices

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| 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 AMP.1.1.1 Explain the importance of safety of agricultural mechanics. |  |
| CTE AMP.1.1.2 Identify and differentiate between safe and unsafe work practices. |  |
| CTE AMP.1.1.3 Describe the methods utilized to implement safe work practices. |  |
| CTE AMP.1.1.4 Identify and explain the purpose of signals and symbols in agricultural safety. |  |
| CTE AMP.1.1.5 Explain the importance and function of safety training. |  |
| CTE AMP.1.1.6 Evaluate the importance of occupational safety and health in agriculture mechanics. |  |
| CTE AMP.1.1.7 Identify and explain the role that various agencies play in regulating safety. |  |
| CTE AMP.1.1.8 Identify and demonstrate the proper use of personal protection equipment (PPE). |  |
| CTE AMP.1.1.9 Locate and demonstrate the proper uses of the first aid and emergency equipment. |  |
| CTE AMP.1.1.10 Maintain a general safe working environment. |  |
| CTE AMP.1.1.11 Demonstrate the proper disposal of hazardous waste. |  |
| CTE AMP.1.1.12 Read and understand safety data sheets (SDS). |  |

### **Standard AMP.2.0: Tools and Hardware**

### Performance Standard AMP.2.1 Safe and Proper Use of Tools

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| 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 AMP.2.1.1 Determine which hand tool, power tool and measuring and marking devices are most appropriate for a job. |  |
| CTE AMP.2.1.2 Identify and safely use hand and power tools utilized in agricultural mechanics. |  |
| CTE AMP.2.1.3 Identify and properly use measuring and marking tools. |  |
| CTE AMP.2.1.4 Measure and apply metric to standard measurement conversions. |  |
| CTE AMP.2.1.5 Inspect and maintain tools. |  |

### Performance Standard AMP.2.2 Hardware and Fasteners

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| 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 AMP.2.2.1 Identify and select proper common hardware and fasteners. |  |

### **Standard AMP.3.0: Metal Technology**

### Performance Standard AMP.2.2 Hardware and Fasteners

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| 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 AMP.3.1.1 Demonstrate proper safety practices working with metal technology. |  |
| CTE AMP.3.1.2 Determine uses of metal. |  |
| CTE AMP.3.1.3 Identify types of metal and the proper welding technique. |  |
| CTE AMP.3.1.4 Recognize properties of metal. |  |
| CTE AMP.3.1.5 Properly select and use oxy-fuel equipment. |  |
| CTE AMP.3.1.6 Properly select and use shielded metal arc welding equipment. |  |
| CTE AMP.3.1.7 Properly select and use gas metal arc welding equipment. |  |
| CTE AMP.3.1.8 Properly select and use gas tungsten arc welding equipment. |  |
| CTE AMP.3.1.9 Properly select and use plasma cutting equipment. |  |
| CTE AMP.3.1.10 Properly select welding consumables (i.e., wire, electrode, gas, and filler rod). |  |

### Performance Standard AMP.3.2 Cold Metal Work

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| 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 AMP.3.2.1 Read metal working plans. |  |
| CTE AMP.3.2.2 Properly cut threads with a tap and die. |  |
| CTE AMP.3.2.3 Join metal by riveting. |  |
| CTE AMP.3.2.4 Properly thread steel pipe. |  |
| CTE AMP.3.2.5 Lay out holes and drill holes using a twist drill. |  |
| CTE AMP.3.2.6 Bend sheet and strap metal to angles and/or shapes. |  |

### **Standard AMP.4.0: Power Systems**

### Performance Standard AMP.4.1 Engines Technology

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| 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 AMP.4.1.1 Identify the operating principles of internal combustion engines. |  |
| CTE AMP.4.1.2 Explain the function and operating principles of the fuel, lubrication, governor, and ignition systems. |  |
| CTE AMP.4.1.3 Locate technical information in electronic and print form. |  |
| CTE AMP.4.1.4 Troubleshoot and maintain engines. |  |

### Performance Standard AMP.4.2 Electric Motors

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| 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 AMP.4.2.1 Select motors based on type of application. |  |

### Performance Standard AMP.4.3 Agricultural Machinery

|  |  |
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| 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 AMP.4.3.1 Identify and perform basic equipment maintenance on agricultural machinery. |  |
| CTE AMP.4.3.2 Use mathematics to solve equipment calibration problems. |  |
| CTE AMP.4.3.3 Demonstrate converting common units of measure found in agriculture. |  |

### Performance Standard AMP.4.4 Hydraulics

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| 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 AMP.4.4.1 Identify the parts and functions of the hydraulic systems. |  |
| CTE AMP.4.4.2 Identify the applications of hydraulics in agriculture. |  |

### **Standard AMP.5.0: Explore Agricultural Science Principles**

### Performance Standard AMP.5.1 Basic Electrical Principles

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| 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 AMP.5.1.1 Demonstrate proper safety practices when working with electricity. |  |
| CTE AMP.5.1.2 Define basic electrical terminology; identify and explain the basic principles of electricity. |  |
| CTE AMP.5.1.3 Recognize electrical code requirements for wiring. |  |
| CTE AMP.5.1.4 Plan and install an electrical circuit. |  |
| CTE AMP.5.1.5 Measure electrical circuits for voltage, current flow, resistance, and wattage. |  |
| CTE AMP.5.1.6 Troubleshoot electrical circuits. |  |
| CTE AMP.5.1.7 Describe the relationship of volts, amps, and ohms in terms of Ohm's Law. |  |

Standard AMP.6.0: Mathematical Applications

### Performance Standard AMP.6.1 Mathematical Applications in Agriculture Mechanics & Power Systems

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| 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 AMP.6.1.1 Perform mathematical operations for whole numbers, fractions, decimals, ratios, percentages, and rounding (significant figures). |  |
| CTE AMP.6.1.2 Demonstrate converting common units of measure found in agriculture. |  |
| CTE AMP.6.1.3 Explain the meaning of accuracy verses precision. |  |
| CTE AMP.6.1.4 Use mathematics to solve equipment calibration problems. |  |

## Standard AMP.7.0: Insulation

### Performance Standard AMP.7.1 Insulation

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| 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 AMP.7.1.1 Explain the importance of insulation. |  |
| CTE AMP.7.1.2 Explain the theory behind insulation. |  |
| CTE AMP.7.1.3 Identify and select insulation materials. |  |

### **Standard AMP.8.0: Emerging Technologies**

### Performance Standard AMP.8.1 Emerging Technologies in Ag Systems

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| 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 AMP.8.1.1 Identify uses of precision and emerging technology in agriculture. |  |
| CTE AMP.8.1.2 Understand the potential applications of new technology in agriculture. |  |

### **Standard AMP.9.0: Careers**

### Performance Standard AMP.9.1 Careers in Ag Mechanics

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| 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 AMP.9.1.1 Research potential careers in ag mechanics. |  |
| CTE AMP.9.1.2 Demonstrate employability skills for a career in ag mechanics industry. |  |
| CTE AMP.9.1.3 Research additional industry certifications available. |  |

### **Standard AMP.10.0: Leadership Training Through Agricultural Education**

### Performance Standard AMP.10.1 Effective Leadership and Leadership Training

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| 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 AMP.10.1.1 Expand leadership experience by participating in a chapter activity. |  |
| CTE AMP.10.1.2 Participate in a career development event at the local level or above. |  |
| CTE AMP.10.1.3 Exhibit leadership skills by demonstrating proper parliamentary procedure. |  |
| CTE AMP.10.1.4 Participate in a speech or presentation activity |  |

### Performance Standard AMP.10.2 School and Community Awareness

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| 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 AMP.10.2.1 Participate in a school improvement or community development project. |  |

### **Standard AMP.11.0: Supervised Agricultural Experience**

### Performance Standard AMP.11.1 Maintain a Supervised Agricultural Experience

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| 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 AMP.11.1.1 Accurately maintain SAE record books. |  |
| CTE AMP.11.1.2 Investigate the proficiency award areas related to SAE program area. |  |
| CTE AMP.11.1.3 Actively pursue necessary steps to receive higher degrees in FFA. |  |

# 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 AFNR Agriculture Mechanics and Power Systems Program Standards](https://cte.idaho.gov/wp-content/uploads/2018/07/AG-Mechanics-and-Power-Systems-Program-Standards1.pdf) [↑](#footnote-ref-1)