

Ag Mechanics CDE
Sunday, May. 4, 2025
Wamego High School
Check-In: 2:30 – 3:00 PM
Event Time: 3:00 – 7:00 PM
Coordinator: Mark Meyer, - mark.meyer@case4learning.org

Safety

- By registering students in this event, you as an instructor, verify that they have passed a local safety examination during the 2024-25 school year. Students not locally certified for shop safety **should not participate** in this CDE.
- **Student attire:** Closed toed shoes or boots, long pants, and a long shirt or welding jacket
- **Safety glasses:** Students not wearing safety glasses and proper PPE during practicums will receive zeros.

General Information

Team Information

- 4 team members, all scores count
- Team activity only counts the **team** score
- Students can have cell phones with them – but they should not be out at any time.
- Scantron: judgingcard form 105481

Attire

- Safety glasses
- Welding attire: Closed-toed shoes or boots, long pants, long shirt or welding jacket

Required Materials (each participant)

- Clipboard
- Pencils
- Calculator – non-programmable
- Welding gloves
- Tape measure

Provided Materials

- Welding helmet (can bring your own if desired)
- Digital multimeters at applicable stations (provided by SurePoint Ag)
- Builder's level – (each team can bring their own if they want)

Team Practicum (Compact Equipment) – 200 points

- Students will work as a team to inspect a faulted Briggs and Stratton 950 Series OHV Engine (Model: 13032G-0022-F1). A customer complaint is provided with each engine. The team used provided diagnostic tools and a repair manual to inspect the engine and complete the following in a work/repair order:
 - Record key information about the engine and customer (Name, Date, Equipment, Model Number)
 - Verify the customer complaint
 - Identify the root cause
 - Identify key parts for correction
 - List suggested corrections

- Work/repair orders are evaluated for correct information and good technical writing. (Be sure to keep statements concise and accurate) (100 points)
- Teams will be evaluated for using a troubleshooting procedure and following the manual.
- Judges will assess students for safety and procedure. (100 points)

Individual Practicums

Written Examination (100 points)

- 25 questions (multiple choice)
- Five questions from each event area, plus five questions from general shop safety
- Students need a non-programmable calculator
- Unit conversions provided

Structures (100 points)

- SMAW Welding
 - Demonstrate skills to produce a weldment according to a print
 - Interpret information from a print including weld symbols
 - Calculate material cost from a print or a list of materials
 - Weldments to be completed in flat, horizontal, or vertical plane with E6011 or E7018 electrodes
 - Demonstrate basic measuring skills with a tape measure in fractional inches

Electrical (100 points)

- 10 DMM readings on electrical components from ag equipment – DC based on voltage, resistance, amperage, and continuity.
- [DMM provided by SurePoint Ag](#)
- [Amp Clamp DMM](#) – provided by SurePoint Ag
- Problem-solving questions. Read two problem scenarios and refer to a manual to identify the problem. Problems relate to electrical readings in ag equipment.

Natural Resources Practicum (100 points)

- Conduct soil survey techniques including setting up a builder's level and taking readings with an engineering rod.
- Interpret legal land descriptions and determine land area
- Calculate slope
- Determine elevation from a benchmark (do not need to take full set of field notes)

Resources

- Agriculture Mechanics Fundamentals and Applications, 7th Edition
- How to Read Shop Drawings, Lincoln Electric
- [Fluke Digital Multimeter Basics Online Course](#)
- Briggs & Stratton Engine Manuals

Resource Links

- How to Use a Surveying Dumpy Level – ([link](#))
- Reading the Level Rod - <https://www.youtube.com/watch?v=fbwEORw1c9Y>
- Builder's Level - <https://www.youtube.com/watch?v=8PNtQsM7G4A>

Tiebreakers

- Team – Ties will be broken in this order:
 1. Team event score
 2. Team test score
 3. Team metal fabrication score
 4. Highest individual drop score
- Individual – Ties will be broken in this order:
 1. Individual test score
 2. Highest practicum score (from all four areas)
 3. Individual welding score