

2023 - 2024 Ag Mechanics CDE – Description Sheet

Revised 8/24/2023

Team Activity:

Area Information – Team Activity will focus on use of an automatic level in construction of water retention/irrigation ponds. Students will be required to determine elevation and distances using an automatic level. Students will determine depth, area, volume, and discharge capabilities of the pond.

State Information – Team Activity will focus on the use of an automatic level in the construction of water retention/irrigation ponds. Students will determine depth, area, volume, and discharge capabilities of the pond. Students will need to provide their own automatic level and engineers rod for the activity.

Reference - <https://nrcspad.sc.egov.usda.gov/distributioncenter/pdf.aspx?productID=115>

Skill Activities:

A. Electrical Systems

Necessary tools will be provided. You may bring colored pencils for use on drawing diagrams.

Area and State Information – 2, 3, or 4 boxes will be mounted to 2" x 4" boards. The contestant will make hooks and secure the wires to the correct locations but will not cut the wire.

Connections to boxes and connection of devices inside the box must be made according to NEC recommendations and accepted wiring practices (AAVIM)

B. Compact Equipment

Necessary tools will be provided. Students will be required to

- Measure selected parts using dial calipers, micrometers, telescoping gauges, and/or feeler gauges
- Answer related problem-solving questions
- Assemble, install, and/or adjust specific engine components/parts

Area and State Information

Briggs and Stratton Single Cylinder OHV Air-Cooled Engine, Briggs and Stratton Single Cylinder OHV Air-Cooled Engine Illustrated Parts list and Repair Manual (276781 – 8/09). Be familiar with the following sections:

- Section 1 – Safety, Maintenance, and Adjustments
- Section 2 – Troubleshooting
- Section 11 – Pistons, Rings and Connecting Rods
- Section 12 – Engine Specifications

C. Environmental/Natural Resources (ENR)

This year's activity will focus on using the automatic level to determine distance and/or slope. Students will need to be able to:

- Determine the difference in elevation (percentage/height) between two points.
- Determine the distance between two points using the stadia hairs on an automatic level and an engineer's rod.

- Use determined measurements to calculate area in square footage, acres, etc...
- Interpret legal land descriptions and determine land area

Area Information

Students will need to determine the above information using pictures and diagrams or rod readings.

State Information

Students will need to be able to determine the above information using actual equipment.

D. Structures:

Area Information

Welding Skill will be SMAW (SMAW) Single-Pass Lap joint (2F Position) on 3/16" thick plate using a 3/32" E6011 electrode. **Students will need to provide their own electrodes.**

State Information

Welding Skill will be a SMAW (SMAW) Single-Pass Lap (2F Position) using a 3/32" E6011 electrode and Edge (1G Position) Joint on 3/16" Plate using a 3/32" E7018 electrode. **Students will need to provide their own electrodes.**

[Welding Positions](#)

Welding Equipment List for Contestants:

1. Teams will need to provide the following items:

- Welding Helmet – Shade 10 minimum
- Body cover- leathers, Shop Jackets, non-flammable Coveralls
- Welding Gloves
- Pliers/Tongs
- Safety glasses –approved with shields
- Wire brush
- Soapstone
- Chipping Hammer
- Tape Measure

2. Please do not share tools and equipment between team members (bring one of each for each student).

3. All other materials and tools will be provided.

Approved Safety Glasses are required for Team Activity and Skill Activities. (Meets or exceeds ANSI Z87.1-2003 safety standards)