

DEPARTMENT – BUILDING EXHIBITS

SECTION – STEM MECHANICS (New in 2021) (Must be enrolled in STEM, Mechanics Project)

Description: The Ag Mechanics exhibit area is a new STEM project for 2021. The project is starting with an emphasis on welding and smithing, it will expand as the project area grows. This project allows youth to explore areas of ag mechanics and metallurgy from repairing or repurposing items to the fabrication of new items. The intent is for this program start with foundational areas, some of which youth may already have, and allow them to continue to build on this knowledge becoming more experienced.

1. 4-H members must be currently enrolled in the Kansas 4-HSTEM –Ag Mechanics (Welding) project to exhibit in this division.
2. Each exhibitor may enter one exhibit per class. Exhibits must have been constructed or repaired during the current 4-H year.
3. Wheeled exhibits must utilize a breaking mechanism which prevents the exhibit from freely rolling while on display
4. Each exhibit must be free-standing or sufficiently supported by an exhibitor supplied support system that is moveable and is part of the total demission's and weight of the exhibit as described previously. Exhibit boards should have a portable and moveable base. No exhibits may be staked to the ground for display.
5. Top heavy items should be braced or placed in a stand sufficient to prevent it from toppling over while on display
6. Trailers or exhibits too large to fit inside the building, may be displayed outside with permission from the Fair Board. Please contact the Extension Office prior to fair so that proper arrangements can be made.
7. Exhibits may not be bound, affixed, attached to the County Fair buildings, except by the superintendent or Extension Staff.
8. Painting or spot painting is not allowed on projects after arrival on fairgrounds. If wet paint is detected by judges or superintendents one ribbon placing will be deducted.
9. Repair projects having adequate original finish need not be repainted
10. Cutting surfaces, such as blades or knives, are to have a protective covering over them to prevent injury. The covering should be easily removed and reinstalled for judging. Foam "pool noodles" and multiple layers of cardboard are acceptable.
11. Exhibits that include weaponry of any kind will be disqualified. Weaponry is defined as any instrument, possession, or creation, physical and/or electrical that is intended to be used to inflict damage and/or harm to individuals, animal life, and/or property.
12. If the exhibit is powered by flammable liquids (gas, propane, kerosene, etc.) the fuel tank and lines should be drained and allowed to dry, to avoid spills and potential fires
13. Electric powered (battery, corded, solar, or alternative energy) should have a primary shutoff or disconnect switch
14. If a safety violation is noted by the judges, superintendent, or other staff, the exhibitor's exhibit, at the judges' discretion, will receive a deduction in ribbon placement or a participation ribbon
15. The exhibitor's name(s) and club must be tagged or labeled in a prominent location on the display

16. Each exhibit must include an Ag Mechanics information packet, except display boards. Entry of just a packet without an accompanying exhibit is not a sufficient exhibit.
17. Each exhibitor is required to complete the “4-H STEM Ag Mechanics Exhibit Information Form” (except display boards) which is available through your local K-State Research and Extension office or at www.STEM4KS.com. This form must be attached to the outside of a 10” x 13” manila envelope. Do not tie the envelope to the exhibit.
18. Each exhibit information packet should include the following items: a. bill of materials for the project with associated costs, scrap items used may be listed as having a \$0.00 cost; b. 1 to 5 pages of photos showing work on the exhibit, preferably from a beginning state to final or completed state. If appropriate schematics or working drawings relating to the creation or repaired or appropriate operating instructions.

Introductory -Level 1 classes (about 1 -3 years of experience)

This level is designed for youth with little to no exposure in the project area so that they can gain an understanding of basic principles and methods in the given area.

- 5550 Welding display board** –a 3 foot by 3-foot display board with different pieces of metal attached illustrating different types of welds, each weld being labeled
- 5551 Level 1 Welding ag repair** –repair of ag equipment with welding
- 5552 Level 1 Welding ag fabrication** –creation of new ag equipment with welding
- 5553 Level 1 Welding general repair** –repair of non-ag equipment with welding
- 5554 Level 1 Welding general fabrication** –creation of non-ag equipment with welding
- 5555 Level 1 Welding artistic fabrication**–creation of artistic or interpretive pieces with welding
- 5556 Level 1 Brazing repair**
- 5557 Level 1 Brazing fabrication**
- 5558 Smithing display board** –a 3 foot by 3-foot display board with different pieces of forged metal attached illustrating different forms, each form being labeled
- 5559 Level 1 Smithing** –A design forged with at least one formed element (twists or spirals for example)

Experienced –Level 2 classes (about 4 -6 years of experience)

This level is designed for youth some experience in the project area allowing them to expand on common principles and methods in the given area.

- 5560 Level 2 Welding ag repair** –repair of ag equipment with welding
- 5561 Level 2 Welding ag fabrication** –creation of new ag equipment with welding
- 5562 Level 2 Welding general repair** –repair of non-ag equipment with welding
- 5563 Level 2 Welding general fabrication** –creation of non-ag equipment with welding
- 5564 Level 2 Welding artistic fabrication** –creation of artistic or interpretive pieces with welding
- 5565 Level 2 Brazing repair**
- 5566 Level 2 Brazing fabrication**
- 5567 Level 2 Smithing** –A design forged with at least two different formed elements (twists and spirals for example)

Advanced –Level 3 classes (about 7 -9 years of experience)

This level is designed for youth with vast experience in the project area allowing them to master common principles and methods and expand on advanced techniques in the given area.

- 5570 Level 3 Welding ag repair** –repair of ag equipment with welding
- 5571 Level 3 Welding ag fabrication** –creation of new ag equipment with welding
- 5572 Level 3 Welding general repair** –repair of non-ag equipment with welding
- 5573 Level 3 Welding general fabrication** –creation of non-ag equipment with welding
- 5574 Level 3 Welding artistic fabrication** –creation of artistic or interpretive pieces with welding
- 5575 Level 3 Brazing repair**
- 5576 Level 3 Brazing fabrication**
- 5577 Level 3 Smithing** –A design forged with at least three different formed elements (twists, spirals, and bulbs for example)

Master –Level 4 classes (10 or more years of experience)

This level is designed for youth substantial experience in the project area allowing them to master advanced techniques in the given area

- 5580 Level 4 Welding ag repair** –repair of ag equipment with welding
- 5581 Level 4 Welding ag fabrication** –creation of new ag equipment with welding
- 5582 Level 4 Welding general repair** –repair of non-ag equipment with welding
- 5583 Level 4 Welding general fabrication** –creation of non-ag equipment with welding
- 5584 Level 4 Welding artistic fabrication** –creation of artistic or interpretive pieces with welding
- 5585 Level 4 Brazing repair**
- 5586 Level 3 Brazing fabrication**
- 5587 Level 4 Smithing** –A design forged with at least four different formed elements (twists, spirals, and bulbs for example)