

## DIVISION V - 4-H ENGINEERING EVENTS

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### Division Rules & Regulations:

1. Only 4-H Members may participate in this division, except for Section 5 (4-H/FFA Tractor Operators Safety) - FFA Members may participate in this section. **4-H participant** registration is completed via 4-H Online and approved by the local 4-H Extension Educator. Website: <https://v2.4honline.com/>. **FFA participants** should contact their regional FFA for instructions on how to register for the contest.
2. There is a \$5.00 participation fee per youth for each event.
3. Participants must comply with "General State Fair Rules & Regulations", "General 4-H and FFA Rules & Regulations", these "Division Rules & Regulations" and the applicable "Section Rules & Regulations".
4. Participants will participate according to their 4-H Age (as of 1/1/2025): Junior (ages 8-10); Intermediate (ages 11-13), Senior (ages 14-18) unless noted.
5. **Events are subject to participation minimums and can be cancelled due to low registration.**
6. Where applicable, visual materials must be readable from 25 feet. A projector will be provided. Presentations requiring a computer should be saved to a USB flash drive.
7. Participants will be disqualified at the discretion of the Superintendents for unsafe practices or acts unbecoming a 4-H/FFA member.
8. Scores for all parts of an event will be combined to determine the overall placing. **Where necessary, the Written Exam will be the tiebreaker.**
9. Awards: Ribbons will be awarded to the 1st-10th Place in each class. Premiums: 1<sup>st</sup> (\$15), 2<sup>nd</sup> – 10<sup>th</sup> (\$10). Trophies and Rosettes will be awarded to the 1<sup>st</sup> Place Individual in each age division.
10. **Entries are due July 31, 2025** (4-H via 4-H Online: [v2.4honline.com/](https://v2.4honline.com/), FFA via regional FFA). **The Maryland State Fair system is NOT to be used for registration. Interested participants without internet access should contact their County Extension Educator/Chapter FFA Advisor for assistance.**
11. Event information, including recommended study materials, sample tests, course layouts, etc. can be found at <https://extension.umd.edu/programs/4-h-youth-development/program-areas/stem> under the "Engineering" tab.

### SECTION 1 - 4-H BICYCLE SAFETY EVENT

Date: Saturday, September 6, 2025 at 10am

Location: North End Cow Palace

### Section Rules & Regulations:

1. Participants must be enrolled in the 4-H Bicycle Project for the current year. Safety will be an emphasis throughout this event. Contact your local UME 4-H office if you are interested in this event. **Individuals must enter through the 4-H Online registration system by July 31st.**
2. All participants must wear an approved "safety helmet" that is properly fitted. Participants must bring their own bicycles and the bicycles must fit the rider properly.
3. The event will include: (a) Written Exam (20 minutes); (b) Practical Exam (Parts ID); (c) Skill riding event; and (d) City streets riding event.

### CLASSES

V1001 Junior Bicycle Event

V1004 Award Class (Fair Use Only) – Bicycle Junior Champion

V2001 Intermediate Bicycle Event

V2004 Award Class (Fair Use Only) – Bicycle Intermediate Champion

V3001 Senior Bicycle Event

V3004 Award Class (Fair Use Only) – Bicycle Senior Champion

### SECTION 2 - 4-H SMALL ENGINE EVENT

Date: Saturday, September 6, 2025 at 4pm

Location: North End Cow Palace

### Section Rules & Regulations:

1. This event is designed to give 4-H members participating in the 4-H Small Engine Project during the current year, an opportunity to demonstrate their knowledge of small engine operation, care, maintenance, and safety, by competing with other 4-H Members. Safety is stressed throughout this event. Contact your local UME 4-H office if you are interested in this event. **Individuals must enter through the 4-H Online registration system by July 31st.**
2. This event will include: (a) Written Exam (20 minutes); (b) Small Engine Parts Identification; (c) Visual Presentation (**15 minutes maximum, 5-10 minutes preferred**). Visual Presentation may include explanation and/or demonstration of proper care, maintenance, adjustment, and functions of the various components; safety; and parts identification of small engines and related machines.
3. Participants must furnish their own demonstration materials. Visual materials must be readable from 25 feet. Presentations requiring a computer should be saved to a flash drive.
4. Participants must not start any engines they bring and flammable liquids may not be present or used in the Presentation.

### CLASSES

V1012 Junior Small Engine Event

V1013 Awards Class (Fair Use Only) - Junior Small Engine Champion

V2012 Intermediate Small Engine Event

V2013 Awards Class (Fair Use Only) - Intermediate Small Engine Champion

V3012 Senior Small Engine Event

V3013 Awards Class (Fair Use Only) – Senior Small Engine Champion

### SECTION 3 - 4-H LAWN TRACTOR EVENT

Date: Saturday, September 6, 2025 at 1pm

Location: North End Cow Palace

#### Section Rules & Regulations:

1. This event is designed to give 4-H members an opportunity to demonstrate their knowledge and skills in the areas of lawn care, business management and lawn and garden tractor (less than 20 hp) operation, maintenance and safety, while competing with other 4-H Members. Safety is stressed throughout this event. Participants must be enrolled in the 4-H Tractors Project for the current year. Contact your local UME 4-H office if you are interested in this event. **Individuals must enter through the 4-H Online registration system by July 31st.**
2. The Lawn Tractor driving portion gives participants an opportunity to demonstrate their skill in operation of small tractors. Safety in work habits and equipment operation is stressed throughout the event. The participant will operate a lawn and garden tractor (less than 20 Hp) through the prescribed course. Penalty points will be assessed for errors in safety and poor operation. Participants will be given limited time (up to 4 minutes) to study and familiarize themselves with the machine. During this time the tractor may be operated in the immediate area of the event but not on the course. **Participants must be physically large enough to operate the tractor without bypassing the safety interlock systems or receiving help from others.**
3. This event will include: (a) Written Exam (20 minutes); (b) Learn-to-Earn/Parts/Materials Identification; (c) Lawn Tractor Safety; (d) Lawn Tractor Driving (8 minutes).

#### **CLASSES**

V2018 Intermediate Learn to Earn and Safety Event

V3018 Senior Learn to Earn and Safety Event

V2019 Award Class (Fair Use Only) Lawn Tractor Intermediate Champ

V3019 Award Class (Fair Use Only) Lawn Tractor Senior Champ

### SECTION 5 - 4-H/FFA TRACTOR OPERATORS SAFETY EVENT

Date: Thursday, August 21, 2025

12pm: Come in early to practice and get familiar with tractors being used

1pm: Contest begins with Written Exam

Location: Lower level of the grandstands and then Infield area of Racetrack

#### Section Rules & Regulations:

1. Participants must be enrolled in the 4-H Tractors Project for the current year or be eligible to represent the school/region in FFA sponsored competitive Tractor activities. Each 4-H office may enter three (3) senior 4-H participants. Each FFA region may enter 4 FFA participants as determined through a regional selection process. Previous State Individuals are not eligible to participate representing the same organization. Each participant may represent only one organization in any year.
2. **4-H participants must register through the 4-H Online registration system by July 31 for this event and** should notify their local UME 4-H office indicating their intention to register. **FFA participants** should contact their regional FFA representative who will provide instructions on how to register for the contest.
3. Participants should wear FFA or 4-H T-shirts, Jackets or Sweatshirts and be dressed in a manner that reflects safety considerations while operating and in the vicinity of tractors and other related equipment. Individuals not adhering to this rule will not be allowed to participate as determined by the event officials.
4. This event includes: (a) Written Exam (50 questions, 20 pts per question); (b) Practical Exam; (c) Skill Driving (there will be a 5000 pt penalty for not driving the prescribed course).

#### **CLASSES**

V3037 4-H Senior Tractor Operator Event

V3039 FFA Tractor Operator Event

V3038 Award Class (Fair Use Only) 4-H Senior Tractor Safety Champion

V3040 Award Class (Fair Use Only) FFA Senior Tractor Safety Champion

### SECTION 6 - 4-H DRONE CHALLENGE

Date: Sunday, September 7, 2025

11am: Come in early to practice with drones being used

1pm: Contest begins with Written Exam

Location: North End Cow Palace

#### Section Rules & Regulations:

1. This event is designed to provide 4-H members with the opportunity to demonstrate their knowledge of and skill with flying uAV's (unmanned Aerial Vehicles), more commonly called drones. Safety is a primary goal during this event, and a Federal Aviation Administration (FAA) Certified Part 107 drone pilot will be present to provide oversight of the event's operations at all times. This individual will be the designated "Pilot-in-Command," as defined by the FAA's uAV operation rules.
2. Contact your local UME 4-H office if you are interested in this event. **Individuals must enter through the 4-H Online registration system by July 31st.**
3. This event will include: the following scored components: (a) Written Exam (30 minutes); (b) Practical Exam (Parts ID & Flight Inspection); (c) Visual Line of Sight Flight Test (Max of 2 minutes); and (d) First-Person View (FPV) Flight Test (Max of 2 minutes).
4. Participants will be using drones provided at the event. Drones used will be DJI Tello's, owned and maintained by the Maryland 4-H program. All drone operations will occur inside the Cow Palace building and not in open airspace.
5. The FPV and Visual Line of Sight Flight Tests will both occur within the same designated arena. Only one drone will be in flight at a time, and all drones and drone operations will be contained within a netted area that is off-limits while the drone is airborne. Only event officials and the Pilot-in-Command are allowed inside the drone arena. The drone arena will include features which youth participants can engage with to complete tasks to earn points. Examples of tasks may include, but are not limited to: obstacle avoidance, object collection and depositing, beacon activation, image collection, and landing.
6. The "Pilot-in-Command" reserves the right, under the authority of the FAA, to take immediate control, stop drone operations, land, or take any other actions deemed necessary to preserve safety of individuals and property in the vicinity of drone event. This may include, if necessary, taking immediate control of drone from the current "Flight Control Operator" and for the purposes of the contest, assessing penalty points or disqualifying the competitor from further participation.

#### **CLASSES**

V1050 4-H Junior Drone Safety Event

V1051 Award Class (Fair Use Only) 4-H Junior Drone Safety Champion

V2050 4-H Intermediate Drone Safety Event

V2051 Award Class (Fair Use Only) 4-H Intermediate Drone Safety Champion

V3050 4-H Senior Drone Safety Event

V3051 Award Class (Fair Use Only) 4-H Senior Drone Safety Champion