

**JUNIOR MECHANICAL SCIENCES DEPARTMENT  
DEPARTMENT – 240**

**JUNIOR MECHANICAL SCIENCES RULES**

1. **Please read Junior Class rules first.**
2. One exhibit per entry number.
3. Beginner, intermediate and advanced refers to years in project.

**TRACTOR RULES**

1. No more than four entries per exhibitor.
2. Beginner, intermediate and advanced refers to years in project.

EXAMPLES OF ENTRIES: Repair or maintenance log of work performed, photo story with captions documenting repair, collection of worn or broken parts- explain defects. (Tip- zip-tie parts to a painted pegboard for a neat display.)

**DIVISION: TRACTOR - BEGINNER (1 – 2 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	2.00	1.75	1.50	1.25
2. Any article				
3. Any article				
4. Any article				

**DIVISION: TRACTOR - INTERMEDIATE (3 – 5 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	2.50	2.25	2.00	1.75
2. Any article				
3. Any article				
4. Any article				

**DIVISION: TRACTOR - ADVANCED (6 years +)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	3.00	2.75	2.50	2.25
2. Any article				
3. Any article				
4. Any article				

**One Champion per Division (If Judge so desires) Ribbon Only**

**WELDING RULES**

1. No more than four entries per exhibitor. One exhibit per entry number.
  2. Beginner, intermediate and advanced refers to years in project.
- EXAMPLES OF ENTRIES: display of vertical, horizontal, butt, and fill welds, poster about welding safety, garden art made from welded hardware, fabricated machine or tool.

**DIVISION: WELDING - BEGINNER (1 – 2 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	2.00	1.75	1.50	1.25
2. Any article				
3. Any article				
4. Any article				

**DIVISION: WELDING - INTERMEDIATE (3 – 5 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	2.50	2.25	2.00	1.75
2. Any article				
3. Any article				
4. Any article				

**DIVISION: WELDING - ADVANCED (6 years +)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	3.00	2.75	2.50	2.25
2. Any article				
3. Any article				
4. Any article				

**One Champion per Division (If Judge so desires) Ribbon Only**

## SMALL ENGINE RULES

1. No more than four entries per exhibitor. One exhibit per entry number.
2. Beginner, intermediate and advanced refers to years in the project.
3. Maximum display board size will be 24" x 30".

EXAMPLES OF ENTRIES: rebuilt engine, poster about lawn mower maintenance, display board showing parts of a carburetor, photo story with captions showing engine repair or maintenance, collection of worn or broken parts- explain defects (Tip- zip-tie parts to a painted piece of 24" X 30" or smaller pegboard for a neat display.)

### **DIVISION: SMALL ENGINE - BEGINNER (1 – 2 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>	<b>1.25</b>
2. Any article				
3. Any article				
4. Any article				

### **DIVISION: SMALL ENGINE - INTERMEDIATE (3 – 5 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>2.50</b>	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>
2. Any article				
3. Any article				
4. Any article				

### **DIVISION: SMALL ENGINE - ADVANCED (6 years & Over)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>3.00</b>	<b>2.75</b>	<b>2.50</b>	<b>2.25</b>
2. Any article				
3. Any article				
4. Any article				

**One Champion per Division (If Judge so desires) Ribbon Only**

## AUTOMOBILE RULES

1. No more than four entries per exhibitor. One exhibit per entry number.
2. Beginner, intermediate and advanced refers to years in project.
3. Maximum display board size will be 24" x 30".
4. Whole cars or large engines are allowed if the work done is visible to the fairgoers, but MUST be pre-approved by the department superintendent.
5. Contact fair office at Chrissy@waukeshacountyfair.com or phone at (262) 544-5922 one week before judging to notify Competitive Exhibits Chair.

EXAMPLES OF ENTRIES: Display about proper tire tread, Automobile maintenance checklist, Poster explaining torque, photo story with captions depicting engine overhaul.

### **DIVISION: AUTOMOBILE - BEGINNER (1 – 2 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>	<b>1.25</b>
2. Any article				
3. Any article				
4. Any article				

### **DIVISION: AUTOMOBILE - INTERMEDIATE (3 – 5 years)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>2.50</b>	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>
2. Any article				
3. Any article				
4. Any article				

### **DIVISION: AUTOMOBILE - ADVANCED (6 years +)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>3.00</b>	<b>2.75</b>	<b>2.50</b>	<b>2.25</b>
2. Any article				
3. Any article				
4. Any article				

**One Champion per Division (If Judge so desires)**

**Ribbon Only**

## **BICYCLE RULES**

1. Limit four entries. One exhibit per entry number.
2. Beginner, intermediate, and advanced refers to years in the project.

EXAMPLES OF ENTRIES: Poster about bike safety, display board labeling and explaining all parts of a bike's braking system, photo story about bike tricks (use safety equipment!)

### **DIVISION: BICYCLE**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>	<b>1.25</b>
2. Any article				
3. Any article				
4. Any article				

**One Champion per Division (If Judge so desires)**

**Ribbon Only**

## **SCALE MODELS AND MINIATURES RULES**

1. No more than four entries per Division. One exhibit per entry number.
2. No partially or totally pre-finished kits (except Scale Models and Miniatures classes 6 and 7).
3. All visible non-moving areas must be completely painted or finished with paint, metal foil, stain, or similar material. Finish must be applied by the member. Factory-applied finishes are not acceptable (except Scale Models and Miniatures classes 6 and 7). Clear areas such as windows, canopies, lights and view ports may be left clear.
4. The use of decals or aircraft nose art must accurately reflect the art on the original being replicated..
5. Third year and over are required to have significant detailing on all models.
6. Dioramas must be no larger than 24" long by 24" wide by 24" high.
7. Models made of paper/card, etc. should be firmly attached to a foam board or cardboard base except for birds which may be displayed as if in flight. Models such as aircraft or a ship must be free standing.

### **Note:**

1. Model airplanes, rockets, kites, and balloons built and judged for flight are entered in Division: Aerospace Science.
2. Posters, displays, log books, etc. about aviation theory, flight experience, astronomy, space theory are entered in Division: Aerospace Science.

### **DIVISION: SCALE MODELS AND MINIATURES**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any article	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>
2. Any article				
3. Any article				
4. Poster, display, or photo story with captions relating to scale models.				
5. Pinewood Derby Car				
6. Snap together model kit (ex. Snap-Tite kit)				
7. 3-D metal model kit (ex. Metal Earth kit)				

**One Champion per Division (If Judge so desires) Ribbon Only**

## **MODEL RAILROAD RULES**

1. No more than four entries per Division. One exhibit per entry number.
2. All items must be securely attached to the diorama.
3. Individual railroad cars/engines, etc must be shown on a length of track firmly attached to base of wood, foam board, plastic, or rigid cardboard.
4. HO Scale single Modules must be no larger than 24" long X 24" wide X 18" high.
5. Lionel, O Gauge, S Gauge must be 30" X 30" and no taller than 30".
6. No diorama may weigh more than 30 lbs.

### **DIVISION: MODEL RAILROAD**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>

1. Any article
2. Any article
3. Any article
4. HO Scale diorama module
5. Lionel diorama module
6. Poster, display, or photo story with captions relating to model railroad.

LEGO RULES

1. No more than three entries per exhibitor. One exhibit per entry number.
2. Only Lego, Duplo or Mega Blox may be used. A model constructed of Construx, Erector, or similar toys will be disqualified.
3. Exhibit must be mounted to a sturdy base.

**DIVISION: LEGO - JUNIOR (13 years & younger)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>

1. Building or Tower Themed, not from a kit.
2. Automobile Themed, not from a kit.
3. Airplane, Jet, or Rocket Themed, not from a kit.
4. Wisconsin Themed, not from a kit.
5. Waukesha County Fair Themed, not from a kit.
6. Original/Free Build, not from a kit.
7. Any article from a kit.
8. Any article from a kit.

**DIVISION: LEGO - SENIOR (14 years & older)**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>

1. Building or Tower Themed, not from a kit.
2. Automobile Themed, not from a kit.
3. Airplane, Jet, or Rocket Themed, not from a kit.
4. Wisconsin Themed, not from a kit.
5. Waukesha County Fair Themed, not from a kit.
6. Original/Free Build, not from a kit.
7. Any article from a kit.
8. Any article from a kit.

**AEROSPACE SCIENCE RULES**

1. One exhibit per entry number.
2. Aerospace Science articles deal with the science of flight.
3. Flown rockets should have been flown during 4-H event, Scout event, or any other instructor led event sometime during the current year.
4. Model rockets and aircraft not flown should be entered in Division: Scale Models and Miniatures.
5. Rockets or aircraft models are judged on flight history, operation knowledge, and sound aerospace construction of the model.
6. All entries must meet appropriate safety codes of NAR, (National Association of Rocketry), and of the AMA, (Academy of Model Aeronautics).
7. Rocket engines, fuel, batteries and other power sources, except rubber bands, **must be removed** before models are brought for judging and display.
8. Additional notes and photographs of the flight may be included.
9. The actual model flown must be presented to the judge, put on display at the fair and cannot be used for any other entry.
10. Drones built from kits or parts may be shown as an aerospace model.
11. Remote controls for drones should be brought to judging, with working batteries. Remotes will need to be brought home after judging, the drones will remain on display.
12. Purchased drones may only be used in the Division: Drones Course.

**DIVISION: AEROSPACE SCIENCE**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>

1. Flown model Rocket
2. Flown Remote Controlled (RC) Aircraft
3. Poster explaining some principle of aerospace
4. Poster explaining a real life experience of aerospace
5. Poster, display or photo story of aerospace science
6. Photos taken during flight of Rocket, RC Aircraft or Drone.

**DRONES COURSE RULES**

1. No more than two entries per exhibitor. One exhibit per entry number.

2. Waukesha County Fair drones course judging will be held indoors. Date and location each year TBD.
3. All entries must meet adapted safety codes of the AMA (Academy of Model Aeronautics).
4. All participants in Drones course judging must demonstrate knowledge of safe operation before course flight will be allowed.
5. All entries are judged on the flight, timing, and operation of the drone.
6. The agility course will be a timed race around obstacles such as flags, hoops, and tunnels.
7. The target course will be a timed race with the object of landing accurately on a series of targets.
8. Faults will deduct from overall time. Faults will be assigned for going off the course.
9. Cloverbuds and Mini-Members may participate but must register in Division 217.

**DIVISION: COUNTY FAIR DRONES COURSE**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>
Drones Agility Course				
1. Junior (13 years old and younger)				
2. Senior (14 years old and older)				
Drones Target Course				
3. Junior (13 years old and younger)				
4. Senior (14 years old and older)				

One Champion per Division (If Judge so desires)

Ribbon Only

**RC CAR RULES**

1. No more than three entries per exhibitor per Division. One exhibit per entry number.
2. Remote controls should be brought to judging, with working batteries. Remotes will be brought home after judging, the car will remain on display (excluding RC Course cars).
3. RC Course will be judged prior to Fair in conjunction with the Drones judging.
4. Cloverbuds & Mini-Members may participate but must register in Division 217.

**DIVISION: RC CARS**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
1. Any Entry	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>
2. Any Entry				
3. Any Entry				
4. Poster, display, or photo story with captions about RC Cars.				
5. RC Course Junior (13 years old and younger)				
6. RC Course Senior (14 years and older)				

One Champion per Division (If Judge so desires)

Ribbon Only

**ROBOTICS RULES**

1. All judging will take place during Mechanical Sciences judging.
2. Presentations must include a written statement, a 14" x 22" poster, or a tri-fold display explaining some aspect of the exhibitor's participation.
3. Robot Performance must include a photograph and written description of the exhibitor's participation in a Robotics competition displayed on a 14" x 22" poster board or tri-fold board.

**DIVISION: ROBOTICS**

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>
1. Project presentation				
2. Individual Robot performance during competition season				

<b>Class No.</b>	<b>Blue</b>	<b>Red</b>	<b>White</b>	<b>Pink</b>
	<b>2.25</b>	<b>2.00</b>	<b>1.75</b>	<b>1.50</b>
3. Team Project presentation				
4. Team Robot performance during competition season				