

# **JUNIOR MECHANICAL SCIENCE – DEPARTMENT 124**

**JUDGING DAY: FRIDAY of Pre-Fair Judging Week, 12:00 Noon - 6:00 PM**

Current Walworth County Fair overall Rules & Regulations apply and are at: [walworthcountyfairgrounds.com](http://walworthcountyfairgrounds.com).

## **RULES GOVERNING MECHANICAL SCIENCE EXHIBITS**

1. Champion & Reserve Champion Awards will be given per judges' discretion per department, division, or class.
2. Age classification is based on your age as of January 1 of the current year.

**PREMIUMS: 1<sup>st</sup> - \$2.25 2<sup>nd</sup> - \$2.00 3<sup>rd</sup> - \$1.75 4<sup>th</sup> - \$1.50**

### **Division Letter:**

#### **A. Tractor, All Ages**

##### **Class #:**

1. Display or poster that illustrates one of the following topics: tractor safety; care and maintenance; or the tractor as a valuable farm machine.
2. Display or poster that illustrates one of the following topics: cause and prevention of rollovers; diagram of how an air cleaner works; diagram of an engine cooling system; or regulations for battery and oil disposal.
3. Display or poster that illustrates one of the following topics: wagon and bin hazards; open and closed hydraulic systems; mower types and safety features; or conveyor types and features.
4. Display or poster that illustrates one of the following topics: method of winterizing a tractor; chemical uses and required safety equipment; parts and process of internal combustion engines; procedures for cleaning and flushing a tractor radiator.
5. Any other Tractor Exhibit.

### **Division Letter:**

#### **B. Small Engines, All Ages**

##### **Class #:**

1. Poster or display to identify and describe the purpose of at least eight (8) engine parts.
2. Poster or display focused on one or more proper engine maintenance or safety measures.
3. Poster or display describing one or more career trends in the small engine industry.
4. How to guide related to some aspects of small engines. For example : how to change oil, how to rebuild an engine.
5. Photo Journal or display highlighting a comprehensive small engine-related effort you completed since last year's fair. (rebuilding an engine, seasoning an engine, etc)
6. Any other small engine exhibit.

### **Division Letter:**

#### **C. Bicycle, All Ages**

##### **Class #:**

1. Make an actual bicycle repair kit with equipment and supplies. No poster or display.
2. Report on bike trails (poster, display, or journal).
3. Biking trip plan or documentation of actual trip (poster, display or journal).
4. Poster or display to explain "how-to" perform one or more aspects of bicycle maintenance.
5. Poster or display focused on one or more aspects of bicycle safety.
6. Any other bicycle exhibit.

## **ROBOTICS REGULATIONS**

1. Robots should be housed in a protective display case.
2. If robots are to be displayed, the exhibitor leaves the robot at his/her own risk.
3. As an alternative, exhibitors wishing to NOT display their robot after judging must provide a minimum of four photos on a poster board with captions (standard poster size, 14"x22").

**Division Letter:**

**D. Robotics, All Ages**

**Class #:**

1. Display or poster describing the parts of a robot you built, programmed or researched. Fully explain the function of each part.
2. Display or poster featuring one or more real world robots and the ways in which each is being used.
3. Poster or display describing one or more ways that robotics technology is improving humankind's quality or length of life
4. Poster, display or notebook showing the programming guides you used to make your robot perform each of two programs designed by you.
5. Any other robotics exhibit.

**AEROSPACE REGULATIONS**

1. Flying aircraft or rockets may be built from scratch or from a kit and must be painted. Snap together models or pre-painted, die cast or plastic models may not be entered.
2. Plastic models may only be entered as part of Class #1.
3. Engines must be removed for judging and display.

**Division Letter:**

**E. Aerospace, All Ages**

**Class #:**

1. Poster or display illustrating and identifying major structural parts of an aircraft
2. Poster or display focused on career opportunities in the Aerospace industry.
3. Poster or display illustrating progress towards obtaining one's own private pilot license.
4. Kites and or Hot Air Balloons flight worthy for display. Kites can be any style: flat, box or fighter.
5. Rockets – Flight Worthy

**SCALE MODELS REGULATIONS**

1. Models must be a plastic, glue kit; **EXCEPT CLASS #8**
2. No **LEGO**, MEGABLOCKS ARE ALLOWED (SEE CONSTRUCTIVE DESIGN)
3. Scratch-built or after-market parts and modified plastic model kits allowed.
4. Painting your model is an option but is suggested.
5. Models/exhibits can be any scale, not to exceed 18" in any direction, excluding diorama (Class #9).
6. A clear plastic display case is optional to display each entered scale model.
7. No bases allowed for Classes #1-8.
8. Individual scale models are not to be exhibited as part of a display or diorama.
9. Model box and/or instruction sheet for each model entered must be brought to fair judging.

**Division Letter:**

**F. Scale Models, All Ages**

**Class #:**

1. Model: Car
2. Model: Truck
3. Model: Motorcycle
4. Model: Boat
5. Model: Plane
6. Model: Military
7. Model: Miscellaneous (Spaceship, Skeleton, etc.)
8. Model: Snap Kit Only
9. Diorama, no larger than 2' x 2' and no smaller than 9" x 12"

**CONSTRUCTIVE DESIGN (LEGO, K'NEX, ERECTOR, OR ANY SIMILAR KIT)**

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**RULES GOVERNING CONSTRUCTIVE DESIGN EXHIBITS**

1. Kits may be used but must include designs or plans from the kit.
2. Exhibits shall be either:
  - A. **NON-Mechanical** (no moving parts, no motors no electronics)
  - B. **MECHANICAL** (shall include moving parts, motors or electronics.)
3. **Original Design** can be either Non-Mechanical or Mechanical. Both shall include drawings, designs, or plans if they are part of the project. If no drawings, designs or plans were used the exhibitor **MUST** be able to

- explain how they created and or came up with the idea.
4. **Original Engineered Design** may or may not have moving parts motors electronics. Should be a creation innovatively built such that the end project is more than meets the eye. (for example: purposeful hidden compartments, unexpected moving parts with a purpose.) Judging for this class will focus on the exhibitor's design and ingenuity for their age. Exhibitor **MUST** be able to explain how they came up with the design.
  5. Exhibits must not exceed 24" x 24" and no taller than 36".
  6. ALL exhibits including the LEGO base plate **MUST** be displayed on a TRAY with sides (for example, a cookie sheet) or mounted to a firm base not exceeding the 24"x 24" size limit.
  7. **PLEASE NOTE DIVISIONS ARE NOT DETERMINED BY AGE, BUT RATHER THE NUMBER OF PIECES USED.**

**Division Letter:**

**G. Constructive Design, 600 or less pieces**

**H. Constructive Design, 601 to 3000 pieces**

**I. Constructive Design, 3001 and more pieces**

**Class #:**

1. One entry using Kit: Non-Mechanical
2. One entry using Kit: Mechanical
3. One entry using Original Design: Non-Mechanical
4. One entry using Original Design: Mechanical
5. One entry using Original Engineered Design

**REMOTE CONTROLLED VEHICLES REGULATIONS**

1. This section covers cars, drones and fixed wing.
2. NOTE: If exhibit is left for display at the Fair, it is done at the exhibitors' own risk.
3. All power sources must be removed after judging.
4. All cars must be remote controlled, 1/10<sup>th</sup> scale and battery operated.
5. All drones must be remote controlled, battery operated, and either quad or helicopter type. Size of drone will be determined by the exhibitor.
6. All Fixed Wing exhibits must be remote controlled, battery or gas operated, and fixed wing type aircraft. Size of fixed wing will be determined by exhibitor.

**Division Letter:**

**J. R/C All Vehicles – All Ages**

**Class #:**

1. Car
2. Drone
3. Fixed Wing
4. Poster or display related to R/C Cars
5. Poster or display related to Drones
6. Poster or display related to Fixed Wing Aircraft