

JUNIOR MECHANICAL SCIENCE – 124

JUDGING DAY: FRIDAY of Pre-Fair Judging Week, 12:00 -6:00pm

2023 Walworth County Fair overall Rules & Regulations apply and are at: 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: 1st - \$2.25 2nd - \$2.00 3rd - \$1.75 4th - \$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, display, slideshow, fact sheet, flash card set, video, or brochure to identify and describe the purposes of at least eight engine parts.
2. Poster, display, slideshow, fact sheet, key, video, or other tool focused on one or more aspects of proper engine maintenance or safety measures.
3. Poster, display, slideshow, fact sheet, video, or other tool describing one or more careers or trends in the small engine industry.
4. "How-to" guide related to some aspect of small engines (e.g. how to properly change oil; how to rebuild an engine; how to decide which small engine best suits your needs, etc.
5. Photo journal, slideshow, video, 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 Engines exhibit

Division Letter: E. 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 or display)
4. Poster, display, video, slideshow, fact sheet, or brochure to explain "how-to" perform one or more aspects of bicycle maintenance
5. Poster, display, video, slideshow, fact sheet, or brochure to describe the joys, challenges, or skills involved with a particular type of biking (BMX, Mountain, Street, Long-Distance, etc.)
6. Photo journal, video, slideshow, poster, or other type of display to highlight your own biking activities since last August; tell how you've grown as a result of this experience.
7. Poster, display, captioned photo story, slide show, or video describing a bike trip, bike-a-thon, or other biking event that you planned and conducted or were involved in.
8. Poster, display, fact sheet, or brochure focused on one or more aspects of bicycle safety
9. Any other bicycle exhibit

JUNIOR MODEL RAILROADING / MODEL DIORAMA– DEPARTMENT 124

RULES GOVERNING EXHIBITS – READ THEM CAREFULLY

1. Entries for classes' #1-#3 shall be of a model railroad diorama display mounted on boards no larger than 2' x 2' in size and no smaller than 9" x 12". The display will include model tracks with the ability for trains to run on the display.
2. Entries in classes #5-#7 shall be of a non-railroad diorama display. (Farm scene, city scape, etc.) mounted on boards no larger than 2' x 2' in size and no smaller than 9" x 12".
3. Posters must be 14" x 22". Maximum display size is 20" x 22".

Division Letter: F. Model Railroading / Model Diorama

Class #:

1. Model Railroading, Age 8-10
2. Model Railroading, Age 11-13
3. Model Railroading, Age 14 & up
4. Poster, display, or illustration featuring some aspect of Model Railroading (any age)
5. Model Diorama, Age 8-10
6. Model Diorama, Age 11-13
7. Model Diorama, Age 14 & up
8. Poster, display, or illustration featuring some aspect of Model Diorama (any age)

ROBOTICS

1. If robots are to be displayed, the exhibitor leaves the robot at his/her own risk.
2. Robots should be housed in a protective display case. As an alternative, exhibitors wishing to display their robot are encouraged to consider displaying a photo or drawing of their robot.

Division Letter: G. 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, poster, or booklet 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 or display showing the programming guides you used to make your Lego, Vex, or similar robot perform each of two programs designed by you. Each program should include movement, use of multiple sensors, turns, and repetition. Include a statement describing your goal for each program and barriers you had to overcome to get your robot to perform as desired.
5. Any other robotics exhibit

AEROSPACE

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: J. Aerospace – Age 8-10

K. Aerospace – Age 11-13

L. Aerospace – Age 14 & up

Class #:

1. Poster or display illustrating and identifying major structural parts of an aircraft (may use a kit or plastic model)
2. Poster, display or essay focused on career opportunities in the Aerospace industry
3. Poster or display showing a map and planned flight route
4. Poster or display illustrating progress towards obtaining one's own private pilot license
5. Kites, built to fly, Diamond, Flat Style box or Nagasaki Hata fighter
6. Kites, Child designed, flightworthy – for display
7. Hot Air Balloon flightworthy – for display
8. Poster or display focused on basic parts of rockets
9. Poster or display relaying information about rocket engines, the working, and types.
10. Wooden aircrafts, built to fly
11. Rocket Built from Scratch - Flightworthy for display
12. Rocket From Kit, painted using a brush and/or spray can – Flightworthy for display
13. Rocket From Kit, painted using any other paint technique – Flightworthy for display
14. Rocket Glider, painted using a brush and/or spray can – Flightworthy for display
15. Rocket Glider, painted using any other paint techniques – Flightworthy for display

SCALE MODELS

1. Models must be a plastic, glue kit
2. NO SNAP TITE, SNAP IT, EZ SNAPZ, QUICK BUILD, OR other snap kits allowed. No pre-decorated, pre-painted or die-cast models allowed. No LEGOS, MEGABLOCKS, etc. allowed.
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.
6. A clear plastic display case is optional to display each entered scale model.
7. Scale models are not to be exhibited as part of a display or diorama. **No bases allowed.**
8. Model box and/or instruction sheet for each model entered must be brought to fair judging.

Division Letter: M. 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. Diorama – No larger than 2' x 2' and no smaller than 9" x 12"

CONSTRUCTIVE DESIGN (LEGOS, 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**. Kits may be **non-mechanical** (minimal moving parts no motors, electronics, etc.), or **mechanical** (may include moving parts, motors, electronics, etc.).
2. **Original Design: Non-Mechanical**, (minimal moving parts – no motors, electronics, etc.) should include any drawings, designs, or plans if they were part of the project. If exhibitor did not use any of the above, they must be able to explain how they created and/or came up with the idea.
3. **Original Design: Mechanical**, (may include moving parts, motors, electronics, etc.), should include any drawings, designs, or plans if they were part of the project. If exhibitor did not use any of the above, they must be able to explain how they created and/or came up with the idea. Exhibitor must be able to explain the mechanical, electrical and any other functions of the project. "Original Engineered Design: (may or may not include moving parts, motors, electronics, etc.) should be a creation innovatively built such that the end product is more than meets the eye (e.g. purposeful hidden compartments, unexpected moving parts with a purpose, etc.). Judging for this class will focus on the exhibitor's design ingenuity for their age group. Exhibitor must be able to explain how they came up with the design."
4. Exhibits must not exceed 24"x24", and be no taller than 36".
5. All exhibits must be displayed on a tray (with sides like a cookie sheet) or mounted to a firm base not exceeding the 24" x 24" size limit. The purpose of this is to ensure ease of transport in the exhibit area and to make sure all pieces of a single exhibit remain together.

Division Letter: P. Constructive Design, Age 8-10
Q. Constructive Design, Age 11-13
R. Constructive Design, Age 14 & up

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. **Original Engineered Design**

R/C CARS

1. If cars are left for display with the exhibit, exhibitors leave them at their own risk.
2. All cars must be remote controlled, 1/10th scale and battery operated.

Division Letter: S. R/C Cars – All Ages

Class

1. Two-wheel drive stock
2. Two-wheel unlimited
3. Four-wheel drive stock
4. Four-wheel unlimited
5. Self-painted R/C Car or poster/display/illustration focused on some aspect of R/C cars

R/C DRONES

1. If drones are left for display with the exhibit, exhibitors leave them at their own risk.
2. All drones must be remote controlled, battery operated, and either quad or helicopter type. Size of drone will be determined by the exhibitor.

Division Letter: T. R/C Drones – All Ages

Class #:

1. R/C Drone
2. Poster, display, or illustration focused on some aspect of R/C drones

R/C FIXED WING

1. Fixed Wing drones for this division must be remote controlled, battery or gas operated, and fixed wing type air craft. Size of drones will be determined by the exhibitor.

Division Letter: U. R/C Fixed Wings – All Ages

Class #:

1. R/C Fixed Wing
2. Poster, display, or illustration focused on some aspect of R/C Fixed Wing Aircraft