

MECHANICAL PROJECTS

Department 24

Check-In

Classes A - I & K - O, Tuesday, 1 - 7 p.m., Exhibition Hall
Class J (Lego), Tuesday, 1 - 7 p.m., Exhibition Hall

Judging

Classes A - I & K - O, Tuesday, 1 - 7 p.m. Individual Conference Judging, Exhibition Hall - in conjunction with Electricity Projects
Class J (Lego), Tuesday, 7 - 9 p.m., Danish Judging, Exhibition Hall

Department Chairperson

Mike Iselin - (608) 445-9367

Superintendents

****Superintendents Needed. Please email the Fair office at info@danecountyfair.com**

Eligible 4-H Project Areas

Rocketry, Bicycling, Engines, Tractors, Aerospace, Geospatial, Robotics, Legos, STEM, Mechanical Sciences

Regulations

- Posters may not exceed 22"x28".
- Display may not exceed 3'x3'.
- Model airplanes and rockets must be made from scratch or kit. No snap together kits allowed. Project must be assembled and painted, ready for "show".
- Rockets and powered airplanes must be painted and ready to fly. No rocket engines or radio control equipment may be exhibited.
- Skill Levels: Must have level tag from the kit container as skill levels are determined by the level number on the kit.
- Judge's decision is final.
- Model airplane and model rocketry exhibitors are also encouraged to enter Class C.
- Age categories for Junior and Senior Divisions are as follows: Junior - grades 3 - 7 and Senior - grades 8+.
- All pre-painted, metal models must be entered in Class M, lots 13 or 30.
- Lego: Any multi-section lego display must be mounted on a board or panel to allow the display to be moved for judging and display. Maximum size is 3' x 3'.

Premiums

	<u>Blue</u>	<u>Red</u>	<u>White</u>	<u>Pink</u>
Class A-B, D-J, M-O	\$2	\$1.75	\$1.50	\$1.25
Class K-L	\$2.50	\$2.25	\$2	\$1.50
Class C	\$1.75	\$1.50	\$1.25	\$1

CLASS A. Model Airplanes

Junior Division Lots

- | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>Skill Level</u> |
|-------------------------|--|----------|----------|---|
| 1) | 2) | 3) | 4) | Rubber band powered model |
| 5) | 6) | 7) | 8) | Small model - under one foot in any direction |
| 9) | 10) | 11) | 12) | Airplane made from a plastic kit |
| 13) | 14) | 15) | 16) | Airplane made from a wood kit |
| (no skill level) | | | | |
| 17) | 22"x28" poster on basic parts of an airplane | | | |

Senior Division Lots

- | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>Skill Level:</u> |
|-------------------------|--|----------|----------|---|
| 18) | 19) | 20) | 21) | Rubber band powered model |
| 22) | 23) | 24) | 25) | Small model - under one foot in any direction |
| 26) | 27) | 28) | 29) | Airplane made from a plastic kit |
| 30) | 31) | 32) | 33) | Airplane made from a wood kit |
| (no skill level) | | | | |
| 34) | 22"x28" poster on basic parts of an airplane | | | |

CLASS B. Model Rocketry

(Plastic fins allowed for grade 3 exhibitors only)

Junior Division Lots

- | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>Skill Level</u> |
|-------------------------|----------------------------------|----------|----------|--|
| 1) | 2) | 3) | 4) | Single stage rocket - 3 - 4 fin model |
| 5) | 6) | 7) | 8) | Single stage rocket - 5 or more fin model |
| 9) | 10) | 11) | 12) | Multi-stage rocket - 2 or 3 stages |
| 13) | 14) | 15) | 16) | Payload rocket |
| 17) | 18) | 19) | 20) | Any fired rocket - Certificate of Flight must accompany rocket |
| (no skill level) | | | | |
| 21) | Homemade rocket | | | |
| 22) | Poster (22"x28") on rocket parts | | | |

Senior Division Lots

- | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>Skill Level</u> |
|-------------------------|----------------------------------|----------|----------|--|
| 23) | 24) | 25) | 26) | Single stage rocket - 3 - 4 fin model |
| 27) | 28) | 29) | 30) | Single stage rocket - 5 or more fin model |
| 31) | 32) | 33) | 34) | Multi-stage rocket - 2 or 3 stages |
| 35) | 36) | 37) | 38) | Payload rocket |
| 39) | 40) | 41) | 42) | Any fired rocket - Certificate of flight must accompany rocket |
| (no skill level) | | | | |
| 43) | Homemade rocket | | | |
| 44) | Poster (22"x28") on rocket parts | | | |

CLASS C. Models

Junior Division Lots

- | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>Skill Level</u> |
|----------|--|----------|----------|--|
| 1) | 2) | 3) | 4) | Any plastic model vehicle made from a kit |
| 5) | 6) | 7) | 8) | Any model ship or boat made from a kit |
| 9) | 10) | 11) | 12) | Any model not listed above made from a kit |
| 13) | Any pre-painted metal model made from a kit | | | |
| 14) | Any model not listed above not made from a kit | | | |
| 15) | Model displayed in an appropriate setting (Dioramas) | | | |
| 16) | Photo story on the construction of a model (gluing, painting, decals, etc.) | | | |
| 17) | Poster (22"x28") story on construction of a model (gluing, painting, decals, etc.) | | | |

Senior Division Lots

- | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>Skill Level</u> |
|----------|--|----------|----------|--|
| 18) | 19) | 20) | 21) | Any plastic model vehicle made from a kit |
| 22) | 23) | 24) | 25) | Any model ship or boat made from a kit |
| 26) | 27) | 28) | 29) | Any model not listed above made from a kit |
| 30) | Any pre-painted model made from a kit | | | |
| 31) | Any model not listed above not made from a kit | | | |
| 32) | Model displayed in an appropriate setting | | | |
| 33) | Photo story on the construction of a model (gluing, painting, decals, etc.) | | | |
| 34) | Poster (22"x28") story on construction of a model (gluing, painting, decals, etc.) | | | |

CLASS D. Flying

Junior Division Lots (Poster size: 22"x28")

- Poster on history of flight
- Poster on principle of flight
- Poster on structure and instruments
- Poster on air safety

Senior Division Lots (Poster size: 22"x28")

- Poster on history of flight
- Poster on principle of flight
- Poster on structure and instruments
- Poster on air safety

CLASS E. Bicycle

Lots

- 1) Display of bicycle parts and maintenance
- 2) Any other bicycle exhibit

CLASS F. Geospatial

Lots

- 1) Any display relating to this project

CLASS G. Robotics

Lots

- 1) Any display relating to this project

CLASS H. Wind Energy

Lots

- 1) Any display relating to this project

CLASS I. Aerospace

Lots

- 1) Any display relating to this project

CLASS J. Lego

Lots

Gr 3-7 Gr 8+

- 1) 2) Lego display relating to vehicles from a kit
- 3) 4) Lego display relating to vehicles original design
- 5) 6) Lego display relating to buildings from a kit
- 7) 8) Lego display relating to buildings original design
- 9) 10) Any other Lego display from a kit
- 11) 12) Any other Lego display original design

CLASS K. Science, Engineering, Technology

Lots

- 1) Any display relating to this project

CLASS L. Welding

Regulations:

1. Welding: Exhibit entry size must fit within a 3'x3'x3' space.
2. Welding: Exhibitors must be grade 7 and above.

Lots

- 1) Welding for mechanical use
- 2) Any other welding

CLASS M. Four - Cycle Engines

Lots

- 1) Exhibit identifying parts of an engine and their function
- 2) Display panel of damaged parts of an engine caused by poor maintenance. Identify type of engine and parts - include explanation of cause of damage and prevention suggestions.
- 3) Exhibit on proper engine care and lubrication - include tune-ups, adjustments or modifications necessary for good engine operation and fuel economy.
- 4) Exhibit of events in the engine - include brief explanation
- 5) Exhibit of transmission of power in a mechanical machine - include sketch and explanation of how the power travels.
- 6) Exhibit showing preparation of an engine for storage
- 7) Safety display - some suggestions:
 - a. Safe operation of an engine
 - b. Safe use of power driven equipment
 - c. Causes of equipment accidents
- 8) Article or exhibit for a petroleum power project made in Technology Education, Agriculture Education Class or Shop
- 9) Any other four - cycle engine exhibit

CLASS N. Two - Cycle Engines

Lots

- 1) Exhibit identifying parts of an engine and their functions
- 2) Display panel of damaged parts of an engine caused by poor maintenance - identify explanation of cause of damage and damage prevention suggestions
- 3) Exhibit on proper engine care and lubrication - include tune-ups, adjustments or modifications necessary for good engine operation and fuel economy
- 4) Exhibit of events in the engine - include brief explanation
- 5) Exhibit of transmission of power in one mechanical machine - include a sketch and explanation
- 6) Exhibit showing preparation of an engine for storage
- 7) Safety display - some suggestions:
 - a. Safe operation of an engine
 - b. Safe use of power driven equipment
 - c. Causes of equipment accidents
- 8) Article or exhibit for petroleum power project made in Technology Education, Agriculture Education Class or Shop
- 9) Any other two-cycle engine exhibit

CLASS O. Tractor

Lots

- 1) Exhibit identifying parts of the tractor and their function
- 2) Exhibit showing maintenance and safety check (i.e., daily maintenance, periodic lubrication and maintenance, care of tires, etc.)
- 3) Safety display - some suggestions:
 - a. Causes of tractor accident
 - b. Safe operation of tractor on public roads
- 4) An article or exhibit made in Technology Education, Agriculture Education Class or Shop
- 5) Any other tractor exhibit

Special Awards and Sponsorships

Miller & Sons Supermarket - All ribbons. Award and rosette to Champion and rosette to Reserve Champion of designated class.