

## **DEPARTMENT 24 – MECHANICAL PROJECTS**

*Mike Riederer, Superintendent*

Posters and charts must be 14"x22", or less.  
Displays and collections may be 28"x22".

**Premiums: \$1.50 \$1.25 \$1.00 \$.75**

### **CLASS A - TRACTORS**

1. Poster: Tractor safety features
2. Poster: Hand signals
3. Poster: PTO (power-take-off) safety
4. Display: Maintenance checks before operating a tractor
5. Display: Tractor maintenance log
6. Poster: Battery types, functions, and care
7. Poster: Pesticide safety
8. Display: Spark plug types and maintenance

### **CLASS B - BICYCLES**

1. Poster or display on types of bicycles
2. Report or poster on a bike trail in Wisconsin
3. Poster or display on the parts of a bicycle

### **CLASS C - SMALL ENGINES**

1. Panel exhibit of small engine parts with identification of parts.
2. Poster illustrating steps in a small engine service job.
3. Poster showing correct steps in preparing a small engine for off- season storage.
4. Small engine safety poster.
5. Poster showing events in a two-cycle engine with a brief explanation.
6. Panel exhibit of carburetor parts with explanation of function of parts: float type or diaphragm type.
7. Poster listing preventive maintenance measures recommended for two-cycle engines.
8. Safety poster on the use of: lawn mowers, chain saws, outboard motors, motorcycles or motorbikes.

### **CLASS D - AEROSPACE**

1. Straw rocket
2. Paper airplane
3. Poster or display of types of aircraft
4. Glider
5. Poster or display of parts of an airplane
6. Model rocket
7. Poster or display explaining possible careers in aerospace
8. Paper glider
9. Nagasaki Hata Fighter kite

### **CLASS E - SCALE MODELS**

*(Due to space limitations, only small models will be allowed.)*

1. Car or truck model, from a kit
2. Any aircraft, from a kit
3. Any watercraft, from a kit
4. Car or truck, no kit
5. Any aircraft, no kit
6. Any watercraft, no kit

### **CLASS F - GEOSPATIAL**

#### **Level 1: Beginner**

1. Poster: types & uses of geographical tools
2. Poster: coordinate-grid reference system
3. Map of my neighborhood with list of features

#### **Level 2: Intermediate**

4. Poster: differences between geographic and geospatial data
5. Poster: comparison of thematic and general-purpose maps

6. Display: my thematic map
7. Display: my general-purpose map

**Level 3: Advanced**

8. Display: map of my favorite place
9. Display: types of G2 data about my community
10. Display: map of my community with several data layers
11. Exhibit: my sustainable development project

**CLASS G - ROBOTICS**

1. Exhibit on programming sensors
2. Program: Robot that goes forward for 4 seconds
3. Program: Robot goes forward and backward
4. Basic robotics program that you have designed (include a written description of what the robot will do)
5. Any programmed robot. Must bring robot programmed and ready to be exhibited. Also bring a printed copy of the program.
6. Building or Programming Journal/Notebook

**CLASS H - LEGOS & K'NEX - Must be Ready to Display (on a board or in a box that can easily moved)**

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| <ol style="list-style-type: none"> <li>1. Lego Vehicle (car, plane, boat, etc) – from a kit</li> <li>2. Lego Vehicle (car, plane, boat, etc) – Not from a kit</li> <li>3. Lego Structure (house, bridge, building, etc.) – from a kit</li> <li>4. Lego Structure (house, bridge, building, etc.) – not from a kit</li> <li>5. Lego Animal – from a kit</li> <li>6. Lego Animal – not from a kit</li> <li>7. Lego Mechanical (must have motor and move) – from a kit</li> <li>8. Lego Mechanical (must have motor and move) – not from a kit</li> <li>9. Any other Lego not listed above – from a kit</li> </ol> | <ol style="list-style-type: none"> <li>10. Any other Lego not listed above – not from a kit</li> <li>11. K'nex Vehicle – from a kit</li> <li>12. K'nex Vehicle – not from a kit</li> <li>13. K'nex Structure – from a kit</li> <li>14. K'nex Structure – not from a kit</li> <li>15. K'nex Animal – from a kit</li> <li>16. K'nex Animal – not from a kit</li> <li>17. K'nex Mechanical – from a kit</li> <li>18. K'nex Mechanical – not from a kit</li> <li>19. Any other K'nex not listed above – from a kit</li> <li>20. Any other K'nex not listed above – not from a kit</li> </ol> |
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**CLASS I – WELDING/METAL WORK**

1. Repaired Item
2. Item for the home
3. Item for the outdoors
4. Any other welding/metal project
5. Display of three welds

**CLASS J - SELF DETERMINED MECHANICAL PROJECTS**

1. Poster or scrapbook on self-determined project
2. Article made in self-determined project (*must not fit in any other project category*)
3. Farm Model Display (must bring own card table for display)