DEPARTMENT P01: MECHANICAL SCIENCES

Superintendent: William Klein

Rules:

1. All general rules (pages 6-11& 57) apply.
2. All projects must be made by the exhibitor during the current year.
3. Table displays should be limited to 2 1/2' x 2 1/2' and posters to 3' x 4'.
4. Superintendent reserve the right to move projects into appropriate classes.
5. Superintendents reserve the right to combine or eliminate classes that are lacking in number of entries.

Entry Fees: $1.50 per class

SECTION P10—Aerospace

P0100 Model Rocketry

Exhibit one model rocket. The exhibit will be a static display. The model rocket should be in good flying condition. **DO NOT** include the rocket engine with your exhibit. The rockets will not be launched. Exhibitor *should* bring the printed directions for construction of the rocket.

P0101 Model Aircraft

Exhibit one model aircraft assembled by the exhibitor. The exhibit will be a static display. This exhibit class is for flying models only. The airplane will not be launched. Exhibitor should bring the printed directions for construction of the aircraft.

P0102 Aerospace Display

Any exhibit related to aerospace that does not fit into above classes. This may be an experimental or educational poster or display. Include an explanation of the display for public understanding.

SECTION P20—Bicycle

P0200 Bicycle I

Exhibit a poster showing the parts of a bicycle. Maximum size 22" x 28".

P0201 Bicycle II

Exhibit a poster or display showing a checklist that needs to be done for a bicycle. Include how often these tasks should be completed. Maximum size 22" x 28"

P0202 Bicycle III

Exhibitor will be asked to demonstrate 2 maintenance practices: 1) change a tire on a rim AND 2) perform one of the following: Adjust the brake shoes, cable tension, de railer, or head set.

SECTION P30—Electricity

P0300 Beginning Electricity

(Only direct current-battery-wiring and components may be used) Exhibit an electrical circuit with switch and bulbs to demonstrate conductors and insulators **OR** an electromagnet **OR** a galvanometer **OR** an electric motor. All projects must include a written report explaining how the project was constructed.

P0301 Intermediate Electricity

(Only direct current-battery-wiring and components may be used) Exhibit a circuit board, demonstrating parallel and series switches **OR** a momentary switch **OR** a 3-way switch using approved electrical materials; **OR** a rocket launcher, **OR** a burglar alarm, including a circuit diagram. All projects must include a written report, explaining how the project was constructed.

JP0302 Advanced Electricity

Exhibit a 120V lighting fixture or other appliance which used a switch; **OR** two electrical household circuits using 120V materials to comply with National Electrical Code, one with a simple on/off switch to control bulb, and one using 3-way switches to control light from two locations. All projects must include a written report, explaining how the project was constructed.

SECTION P40—Electronics

P0400 Electronics

Exhibit any electronic or solid-state appliance, and a written report explaining your exhibit and what you learned. When project is being constructed, general safety and workmanship should be considered. All projects must include a written report, explaining how the project was constructed.

SECTION P50—Small Engines

P0500 Display

Exhibit a display identifying different engine or lawn and garden equipment parts or a display showing the function of the various engine or lawn and garden equipment parts or a display indentifying and explaining the function(s) of different specialty tools needed for small engine work.

P0501 Maintenance

Exhibit a display that illustrates either routine maintenance procedures or diagnosing and troubleshooting specific problems with an engine or a another relevant topic.

SECTION P60—Tractor

P0600 Beginning Tractor Care

Exhibit a display or poster that illustrates one of the following: tractor safety, care and maintenance, or a tractor as a valuable farm tool or another topic associated with tractors.

P0601 Intermediate Tractor Care

Exhibit a display or poster that illustrates one of the following: cause and prevention of rollovers, diagram of how an air cleaner works, diagram & identify an engine cooling system, or regulations for battery & oil disposal or another topic associated with tractors.

P0602 Advanced Tractor Care—I

Exhibit a display or poster that illustrates one of the following: wagon and bin hazards, diagram and identify open and closed hydraulic systems, mower types and safety features conveyor types and safety features, or another topic association with tractors.

P0603 Advanced Tractor Care—II

Exhibit a display or poster that illustrates one of the following: method of winterizing a tractor, chemical uses and required safety equipment, parts and process of internal combustion engine, procedure for cleaning and flushing tractor radiator, or another activity.

SECTION P70—Woodworking

P0700 Woodworking I

Exhibit a basic item of wood constructed by the exhibitor. More advanced projects will be placed in more advanced classes by superintendents.

P0701 Woodworking II

Exhibit an item of wood constructed by the exhibitor.

P0702 Woodworking III

Any large item of furniture constructed by the exhibitor.

P0703 Woodworking IV

Exhibit an item of wood constructed by the exhibitor.

P0704 Refinishing

Exhibit an item refinished by the exhibitor.

SECTION P80—Computer Science

P0800 Beginning Computers

Create a printed display of an activity such as greeting cards, graphic illustrations, computer presentations, photographic series, scrapbooks or posters, or a storybook.

P0801 Intermediate Computers

Create a printed display of an activity such as t-shirts making, animated presentations, magazines, or a photographic series.

JP0802 Advanced Computers

Create a printed display of an activity multi-media computer presentations, web sites for organization, magazines, animated programs or GIS map.

JP0803 Beginning Computer Programming

Exhibit a flowchart or alternative visual representation of a program that exhibitor has written, not copies from another source. Exhibitor also may also choose to demonstrate the actual program. Choice of programming language is optional. Programs in this class require the use of one or more of each of the following kinds of commands:

- Commands to the reader of the program
- Instructions to the use of the program
- Assignment of data into variables
- Choosing between alternatives based on the current value of a variable
- Looping, that is, repeating a group of instructions more than once, using a looping structure.
- Input from, and output to a user.

P0804 Advanced Projects

Displays in this class permit exhibitors to explore in detail any aspect of computers that interests them and is not within the scope of above computer classes. Exhibit may include such things as a computer built from component cards, a report on the effect of computers on the economy, and/or a description of a computer-based service or business they operate.

Premiums Paid	**1st**	**2nd**	**3rd**
All Classes	$8.00	$7.00	$6.00

Ribbons Presented:

1st thru 6th Place - Each Class
Champion - Each Division

Total Premiums offered: $546.00