

DEPARTMENT 79 - SCIENCES 4-H

JUDGING:

EXHIBITS RELEASED:

4-H SUPERINTENDENT:

FAIR SUPERINTENDENT(S):

SUNDAY, AUGUST 15, 10:00 AM to 2:00 PM

SUNDAY, AUGUST 22, 8:00 PM

HERMAN HOUIIN/313.882.9591

JIM ECKHOUT, ROB KITCHEN AND ROB TIBBITS

RULES FOR DEPARTMENT 79:

1. More than one entry may be made within a Section, but **ONLY ONE ENTRY PER CLASS.**

Learning Objective: Promoting knowledge of proper techniques of industrial science, engineering skills, and the presentation of workmanship and creativity.

PREMIUMS FOR DEPT 79, SECTIONS 1 THRU 9

A - \$4.00 B - \$3.00 C - \$2.00

SECTION 1 - ARCHITECTURAL DRAWINGS

CLASS:

1. Architectural Models - Models must be mounted on a base which is not over 30" x 36". Any architectural scale model made as a part of a problem in an architectural drafting project or class may be submitted.
2. Architectural Drawing - Using CADD System - Models must not be over 22" x 28".

SECTION 2 - ELECTRICAL SCIENCE

RULES:

1. If an article exhibited is entered as a combination exhibit such as, a lamp or quiz board, each part will be judged on its individual merits, only one premium will be awarded
2. If exhibitors combine individual exhibits for a club or group display, each exhibitor will make an individual entry and exhibits will be judged accordingly.
3. Projects must be complete and in operating condition to enable judges to test their operation.
4. Projects must be safe to operate - high voltage wires, tubes and other potentially dangerous components should be properly covered and labeled. Safety will constitute a factor in the decisions of the judges.

CLASS:

1. Beginning Electrician - Exhibit 1 or more articles, such as but not limited to, lamp, trouble light, cord board, diagram telegram key receiver.
2. Beginning Electronics - Exhibit article made with title and intended use. Kits may be used and member must have a knowledge of common electronic terms and components
3. Beginning Electrical Science - An educational exhibit or article made to present Electrical Science information. The exhibit must include project related material or explanatory information using 4-H project as a guide. Notebooks or workbooks, if exhibited, must be a part of a total exhibit including other item or items.
4. Intermediate Electrician - Exhibit 2 or more articles.
5. Intermediate Electronics - Representative article.
6. Intermediate Electrical Science - An educational exhibit or article made to present Electrical Science information. The exhibit must include project related material or Explanatory information using 4-H project bulletins for this project as a guide. Notebooks or workbooks must be

- a part of a total exhibit including other item or items.
7. Advanced Electrician - Advanced electrical article.
8. Advanced Electronics - Advanced electronic article.
9. Advanced Electrical Science - An educational exhibit or article made to present Electrical Science information. The exhibit must include project related material or explanatory information using 4-H project bulletins for this project as a guide. Notebooks and workbooks, if exhibited, must be a part of a total exhibit including other item or items.
10. Linear Electronics Exhibit - Any project in the field of electronics, operating in a continuous mode, amplifiers, radio and television using tubes, transistors and/or integrate circuits. Examples: receivers, transmitters, test equipment, photo electric and analog devices.
11. Digital Electronics Exhibit - Any project using electronic switching circuits operating in "ON" or "OFF" modes. Examples - decade-counters, digital logic devices, digital displays and test equipment.
12. Robotics Exhibit - Any project using micro processor circuits to manipulate a robot arm through variable programmed motions for the performance of variety of tasks. A copy of the program controlling the arm must be included, along with a flow-chart of the program along with a flow-chart of the program.

SECTION 3 - MACHINE SHOP

RULES:

1. Exhibits should illustrate the ability to read blue printed use scale, micrometer, Vernier caliper, power drill, hand tap, and other machine shop tools.

CLASS:

1. Machine Crafts - Non-ferrous machined metal projects, such as chess sets, candlestick holders, lamps, and irons.
2. Single Machined Parts - One ferrous or combination nonferrous or removable parts in its normal use, ie, as hammer, angle plate.
3. Multiple or Mating Parts - Projects with multiple or assembled mating parts displayed in its normal use, such as v-blocks with clamps, boring head, threaded assemblies, punches, parallels, vise, etc.
4. Machined Cast Assemblies - Assembled project which has been machined primarily from casting and has bearing and wearing parts; non-machined cast surfaces must be visible, but may be painted; ie, jack, grinde, drill press, gas engine
5. Machine Fabrication - Primarily machined from steel or non-cast materials and includes lathe, milling or surface

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grinding, along with work in other metal working areas: sheet metal, welding, foundry, forging, bending and twisting; such as band saws, sanders, drill press.

6. Machine Models - Models machined from metal; such as cars, boats, airplanes, trains, must be 3 dimensional

SECTION 4 - MECHANICAL DRAWINGS

RULES:

1. Entries are not to exceed 22" x 28".

CLASS:

1. Detailed Mechanical Drawing - Single sheet drawn with instruments. Including a single detail drawing of machined or manufactured part.
2. Detail and Assembly Drawing - Drawings of machine accessories, jigs and fixtures, cams or gears, or other machine parts, or any advanced machine drawing project.
3. Surface Development Drawings - Sheet metal or cam development on drawing media that may have a practical application or be a descriptive geometry problem. Development of layouts to be shown on drawings.
4. Pictorial Machine Assembly Drawing - Machines or parts which involve shading or rendering techniques.

SECTION 5 - METALS

CLASS:

1. Copper, Silver, Brass, Pewter - May be in the form of sheet, rod, tube or bar. Processes may include hammering, etching, raising, stamping, spinning, welding or any combination of processes. Mount jewelry and small items on board at least 6" x 8".
2. Aluminum - Made of sheet, rod, tube, bar or a combination of aluminum materials. Processes may include hammering, overlaying, etching, stamping, sawing, spinning welding or combination of processes.
3. Wrought Iron - Major material in band, round, or other shapes or iron or steel, i.e.; lamps, forged tools, hardware, wire forming, small plant stands, magazine racks, etc.
4. Sheet Metal - Incorporating one or more of the following developments: angular, cylindrical, radial line or transitional i.e.: pails, buckets, mail boxes, lamps, etc.

SECTION 6 - PETROLEUM POWER

RULES:

1. Notebook or workbook, if exhibited, must be part of a total exhibit including other item or items.

CLASS:

1. Small Engines - Educational exhibit presenting information relating to small gas engines.
2. Automotive - Educational exhibit presenting information concerning the auto project.
3. Tractor - Educational exhibit presenting information concerning the 4-H Tractor Project.



SECTION 7 - PLASTICS

CLASS:

1. Carving and Casting - Projects involving casting, patterns and/or molds in conjunction with casting. Projects carved or sculptured using hand tools and/or power equipment.
2. Fabricating - Projects in which plastic is the predominate material joined together by laminating, jointers and/or mechanical fasteners.

SECTION 8 - WOODWORKING AND WOOD SCIENCE

RULES:

1. Beginner - One project required with non-power tools, such as chisel, hammer, screwdriver, planer, hand saw, etc. Demonstrate skill in such things as mitered joints, dowel joints, squaring a board, etc., wood preparation and finishing. Can also show other projects using power tools.
2. Intermediate - Power tools. Projects completed with some power tools (such as table saw, circular saw, jig saw, sabre saw, electric drill, drill press, belt sander, jointer, power planer, etc.). Demonstrate skill in ability to make complex joints, squaring, wood selection appropriate for project, wood preparation, and wood finishing.
3. Advanced - Power Tools. Project completed with power tools not used in intermediate projects, with demonstrated skill in use of equipment for project selected.
4. Project needs to be completed with stain or paint.

CLASS:

1. Beginner - Non-power tool
2. Furniture - Indoor Mirror
3. Furniture - Outdoor
4. Birdhouse
5. "Turned" Articles - Such as lamps, candlesticks, etc.
6. Wood Clocks - Table, Floor or Wall.
7. Models or Toys - No Kits - Cars, boats, planes, trains, etc.
8. Refinished Furniture - Indoor/Outdoor
9. Other Wood Projects - Not listed
10. Educational Exhibit - An exhibit (notebook and/or poster) presenting information on proper woodworking techniques, including wood selection, proper tools, wood finishing, etc.

SECTION 9 - WOOD CARVING

CLASS:

1. Carving - Country Carving
2. Carving - Relief Carving
3. Carving - Whittling
4. Carving - Statues, Signs, Decoys, Animals, etc.
5. Carving - Any other not listed above



SECTION 10 - SWEEPSTAKES

RULES:

- Sweepstake Awards **DO NOT ENTER IN CLASS 1.**

SWEEPSTAKES CLASS

1. Best of Show