861 100 3_ _ Computer Hardware Design
Description: Projects created by youth that show learning in the area of hardware. Project should be an original creation by the participant that shows their computer hardware skills. It is up to the youth to ensure the hardware and project will function or display at Fair. Intermediate and Senior members are expected to have apply their projects to real world scenarios. Youth are responsible for submitting clear directions on how judges can access the files.

See additional exhibit requirements, above, for Computer classes. Evaluation: Use Computer Hardware Evaluation available at: http://oregon.4h.oregonstate.edu/node/1858

861 100 4_ _ Computer 3D Printer Application
Description: Projects created by youth that show learning in the area of 3D design and printing on a 3D printer. Project should be an original creation by the participant that shows their skills. Each exhibit must include the item created with the 3D printer and a series of screen shots from the design software that show the (1) early stages, (2) middle stages and (3) final stages of the design process. Application project description for the exhibit form filled out neatly and securely attached to the exhibit. 4-H Project Description sheets are posted at http://oregon.4h.oregonstate.edu/node/1858.

See additional exhibit requirements, above, for Computer classes. Evaluation: Use Computer Hardware Evaluation available at: http://oregon.4h.oregonstate.edu/node/1858

ROBOTICS

Each exhibit piece must be labeled with the member's name, county and class number. If more than one article is contained in the exhibit each article must be labeled with the member's name, county and class number. This may be done with masking tape, attaching an index card, or writing directly on the back with a marker. All the articles that comprise the exhibit must be attached to each other.

Each exhibit must include the current year's edition of the appropriate Project Description for the exhibit form filled out neatly and securely attached to the exhibit. 4-H Project Description sheets are posted at http://oregon.4h.oregonstate.edu/node/1858. Be sure to use the newest version of the Project Descriptions for each technology exhibit. Exhibitors should answer the description page carefully and in full sentences. This is the exhibitor's opportunity to tell the judge about their project. Judging Evaluations can be found at: http://oregon.4h.oregonstate.edu/node/1858 . These provide valuable information to youth on creating their project displays.

In some cases, the exhibit may be a poster or a three-dimensional display. Individual exhibits are **limited in size to 30" wide, 24" deep (front to back), and 36" high. Club exhibits are limited in size to 60" wide, 24" deep and 36" high.** Posters must not exceed 22"x 28".

863 102 1_ _ Education poster- Junk Drawer Robotics Level 1
863 102 2_ _ Education poster- Junk Drawer Robotics Level 2
863 102 3_ _ Education poster- Junk Drawer Robotics Level 3
863 103 1_ _ Robotics/ Lego Robotics
863 104 1_ _ Junk Drawer Robotics Level 1
863 104 2_ _ Junk Drawer Robotics Level 2
863 104 3_ _ Junk Drawer Robotics Level 3

Note: Fill in blank in class number (__) with one of the following numbers.
11 Junior, First year in this project area
21 Other Junior
12 Intermediate, First year in this project area
22 Other Intermediate
13 Senior, First year in this project area
23 Other Senior
34 Club Exhibit

863 102 1_ _ Education poster- Junk Drawer Robotics Level 1
An educational poster on any robotics topic youth learned about in Junk Drawer Robotics, Level1, Give Robots a Hand, addressing the theme robotic arms, hands and grippers.

In some cases, the exhibit may be a poster or a three-dimensional display. Individual exhibits are **limited in size to 30" wide, 24" deep (front to back), and 36" high. Club exhibits are limited in size to 60" wide, 24" deep and 36" high.** Posters must not exceed 22"x 28". Judging criteria are outlined on the 4-H Education Display Check Sheet (40-463) available from the county Extension Office or the state 4-H website at http://oregon.4h.oregonstate.edu/node/1858

863 102 2_ _ Education poster- Robotics Level 2
An educational poster on any robotics topic youth learned about in Junk Drawer Robotics, Level 2, Robots on the Move, addressing the theme moving, power transfer and locomotion.

In some cases, the exhibit may be a poster or a three-dimensional display. Individual exhibits are **limited in size to 30" wide, 24" deep (front to back), and 36" high. Club exhibits are limited in size to 60" wide, 24" deep and 36" high.** Posters must not exceed 22"x 28". Judging criteria are outlined on the 4- H Education Display Check Sheet (40-463) available from the county Extension Office or the state 4-H website at http://oregon.4h.oregonstate.edu/node/1858

863 102 3_ _ Education poster- Robotics Level 3
An educational poster on any robotics topic youth learned about in Junk Drawer Robotics, Level 3, Mechatronics, addressing the theme the connection between mechanical and electronic elements.

In some cases, the exhibit may be a poster or a three-dimensional display. Individual exhibits are **limited in size to 30" wide, 24" deep (front to back), and 36" high. Club exhibits are limited in size to 60" wide, 24" deep and 36" high.** Posters must not exceed 22"x 28". Judging criteria are outlined on the 4- H Education Display Check Sheet (40-463) available from the county Extension Office or the state 4-H website at http://oregon.4h.oregonstate.edu/node/1858

863 103 1_ _ Robotics / Lego Robotics
Description: An exhibit of two parts: (1) a robot made by the member, and (2) a Robotics Engineering Journal. Projects should be a robot created by youth. For the purposes of this project exhibit, a robot is defined as a machine that is electrical and mechanical and is guided by a computer program. They can be created from kits or from miscellaneous parts. All robots will be returned after fair. More weight is given for youth designed projects. Robots will be judged on structural stability, creativity, functionality. Youth are responsible for submitting clear directions on how judges can access the files and make robot function. Robot and a full description of what it is meant to accomplish must be included.

A Robotics Engineering Journal is required. Include the date of each meeting, names of the persons present and a record of what was done. Include photos, illustrations, and examples of software code developed or changed. The journal in formation will be used by the member to fill out the Robotics Project Description shee for the fair. It is important that the member downloads the Robotics Project Description sheet from 4-H Project Description sheets posted at http://oregon.4h.oregonstate.edu/node/1858 to know what is required in the Journal. Be sure the Journal includes the problem/task you choose to solve or what you hoped to accomplish. What were the goals of this project? What is the robot programmed to do? List the steps you used to solve the problem or accomplish your task. What materials (software, books, online resources, kits) did you use? Explain your results and provide a thoughtful evaluation of the project. If you were to doit again, how/what would you do differently or how would you improve your project? Who was involved in this project? How did you come up with the idea for this project? What was the most difficult aspect of this project? See additional exhibit requirements, above, for robotics classes. Evaluation: Use Robotic Evaluation available at http://oregon.4h.oregonstate.edu/node/1858

863 104 1_ _ Junk Drawer Robotics Level 1
An exhibit on any robotics topic youth learned about in Junk Drawer Robotics, Level 1, Give Robots a Hand, addressing the theme robotic arms, hands and grippers or trebuchet-type catapult design. An exhibit of two parts: (1) an exhibit made by the member and (2) a photocopy of the corresponding design and build pages from the Junk Drawer Robotics Youth Robotics Handbook.

863 104 2_ _ Junk Drawer Robotics Level 2
An exhibit on any robotics topic youth learned about in Junk Drawer Robotics, Level 2, Robots on the Move, addressing the theme moving, power transfer, and locomotion. Design, build project options are the Clipmobile, Can-Can Robot, Es-Car-Go or Sea Hunt. An exhibit of two parts: (1) an exhibit made by the member and (2) a photocopy of the corresponding design and build pages from the Junk Drawer Robotics Youth Robotics Handbook.

863 104 3_ _ Junk Drawer Robotics Level 3
An exhibit on any robotics topic youth learned about in Junk Drawer Robotics, Level 3, Mechatronics, addressing the theme the connection between mechanical and electronic elements. Design, build project options are Forward and Reverse, Wall Follower Design, Breadboard, Say What? or "Build Your Robot.". An exhibit of two parts: (1) an exhibit made by the member and (2) a photocopy of the corresponding design and build pages from the Junk Drawer Robotics Youth Robotics Handbook.

Engineering

ELECTRICITY
Exhibits will be any of the articles included in the project manuals that show skills learned in the project. Items must be labeled with member's name, county, and class number. To qualify for judging, an Electric Energy Explanation Card must be attached. Forms are available at the county Extension offices and at the State 4-H website: http://oregon.4h.oregonstate.edu/node/1858. **Intermediates and seniors** must include a schematic diagram. The exhibit may be a poster or a three-dimensional display. Individual exhibits are **limited in size to 30" wide, 24" deep (front to back), and 36" high. Club exhibits are limited in size to 60" wide, 24" deep and 36" high.**

Classes will be divided into the following groups:
862 100 001 Electricity, Junior
862 100 002 Electricity, Intermediate
862 100 003 Electricity, Senior

4-H FAMILY AND CONSUMER SCIENCE

CLOTHING/ SEWING
Members must currently be enrolled in the Clothing &