SCIENCE, ENGINEERING & TECHNOLOGY PROJECTS (SET)

RULES

1. Please notify the County/State 4-H office if special requirements are needed for your exhibit—such as power, space, etc.
2. Print version of the program must be submitted. Youth are responsible for submitting clear directions on how judges can access the files. Value is placed on youth that can model the learning process, or show how their skills have increased while completing the project.
3. Participant should answer the description page carefully and in full sentences. In addition to exhibit tag and information sheet, each exhibit must be labeled with the member’s name, county, and exhibit class number. An explanation including the following information must accompany your exhibit. If more than one article is contained in the exhibit then each article must be labeled (as above) and attached to each other. This may be done with masking tape/index card with a marker or writing directly on the back with a marker.
4. To qualify for judging each exhibit must have a 4-H Project Description securely attached. Project Description Sheets and Judging Evaluations can be found at: http://oregon.4h.oregonstate.edu/special-events/state-fair
5. Any 4-H member may enter an exhibit in the Science/Technology area. You do not have to be enrolled in the Science/Technology Project to enter. Identify a problem to solve or a project to work involving technology. Possible ideas might include: applying existing software programs to a 4-H project area, composing music, developing a game, drawing landscape scenes, designing buildings, publishing club newsletters, creating a website, editing a video, working with photographs, etc. Robotic projects are appropriate only if the software or the hardware is developed by the 4-H member.
6. **4-H members must furnish all supplies and equipment required** except for a table, easel, and microphone, and member is required to demonstrate, explain and otherwise make their project work. **If a computer is needed, you must provide your own laptop.**
7. There is a 20 minute time limit.
8. You may include disks or CDs as part of your exhibit. If you do, all files must be:
   - Compatible with a PC
   - Online projects using Google applications or other Web 2.0 software are acceptable.
   - Youth must make sure clear directions are given in the project explanation so the judges can find and access the project online.
   - Website exhibits must be viewable online or on a cd format.
   - Exhibits entered in the “Programming” class must be a program written, translated, or substantially (at least 30%) altered by the 4-H member.
   - Programming projects please submit a hard copy with all exhibits.

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Science Project

**RULES**

1. Open to all 4-H members regardless of project enrollment. The exhibit may be a poster or a three-dimensional display. Individual three-dimensional exhibits are limited in size to 48” wide (measured when lying flat), 24” deep (front to back), and 36” high. Club exhibits are limited in size to 60” wide, 24” deep and 36” high. Posters are limited in size to 30” by 24”. Also see rules listed under Science, Engineering, & Technology.
2. Exhibits may include pictures, models, diagrams and actual articles if they meet the safety standards listed below. Drawings or photos which are an essential part of the display should be firmly attached to the board. Loose materials like soil, bark or sand must be displayed in closed containers. No books or notebooks will be accepted as part of the display.
3. The following materials will not be allowed on the display for safety reasons: living organisms—plants or animals, any liquids, aerosol bottles or other pressurized gases, glass, hazardous substances, sharp items.
4. Display (all parts) should be able to last the duration of the fair in good repair. An Educational Display Exhibit Card (000-01) must be attached to each exhibit. Judging criteria are outlined on the 4-H Science Investigation Display Evaluation Sheet (840-100). Both are available from the county Extension Office or the state 4-H website at:
   - http://oregon.4h.oregonstate.edu/special-events/state-fair
5. Club exhibits are to be entered under the club name but must include the names of all members and leaders. This may be on a separate paper securely attached to the back of the exhibit. Club exhibit will receive one ribbon per exhibit.
6. Each piece of an exhibit must have name, county and class numbers securely attached to it. All parts of the display should be attached to one another in some way to keep the exhibit together as a unit. Single posters may be displayed by
hanging or stapling to the wall. All other displays should be free standing. All information contained in the exhibit must be able to be viewed by the public by looking at the display.

**CLASSES**

840 100 001  Junior Science Investigation Display  
840 100 002  Intermediate Science Investigation Display  
840 100 003  Senior Science Investigation Display  
840 100 004  Club Science Investigation Display  

Description: The purpose of this type of exhibit is for members to communicate the processes and outcomes of a scientific investigation they design and conduct themselves. The display must include (1) a question or hypothesis, (2) an investigative procedure (What was done?), (3) the data collection or observation method (How was it collected/observed), (4) a report of the data collected or observations made, (5) an analysis of the data collected or observations made (How do you interpret the data and evidence?), (6) a conclusion addressing the original question or hypothesis (Does the evidence support or refute your claim?). Intermediate and Senior Exhibits must include a data chart and a graph or other visual representation of the data.

### Aerospace Project

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. The one exception to this is the Rocketry Engineering Journal, which must be included with the Rocket display, but is not required to be attached to it. Also see rules listed under Science, Engineering, & Technology.

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/special-events/state-fair](http://oregon.4h.oregonstate.edu/special-events/state-fair). 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/special-events/state-fair](http://oregon.4h.oregonstate.edu/special-events/state-fair). 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”**.

**CLASSES**

**Stage 2, Lift-off**  
851 100 010  Rocketry  

An exhibit of two parts: (1) a rocket made by the member from the Aerospace Adventures State 2 project kit, and (2) a Rocketry Engineering Journal. Rockets displayed in this class may only be made from the Estes Gnome™, Wizard™, or Mosquito™ rocket kits. Rockets included in a static display MUST be shown without engines or igniters. All the parts of the rocket and their function should be identified. Rocket components which must be included and labeled are body tube, nose cone, engine hook, fins, recovery system (streamer or tumble method), launch lug, engine mount, and shock cord. On the display, list any items required to launch the rocket and their function such as the launch system, igniters and recovery wadding. List the appropriate engine size(s) for your rocket and your level of experience. The exhibit will be judged on neatness of labels and workmanship.

A Rocketry Engineering Journal is required. Include the date of each meeting, names of the persons present and a record of what was done. Include photos or illustrations. The information will be used to fill out the Aerospace-Rocketry Project Description sheet for fair. It is important that the member downloads the Aerospace-Rocketry Project Description sheet from 4-H Project Description sheets posted at [http://oregon.4h.oregonstate.edu/node/1858](http://oregon.4h.oregonstate.edu/node/1858) to know what is required in the Build Report and the Launch and Flight Reports in the Journal.
851 100 020 Educational Poster- Aerospace
An educational poster on any aerospace or aeronautics topic youth learned about in Aerospace Adventures, stage 2, except rockets. Display should demonstrate knowledge gained in one of these topics: space, kites, hot air balloons, weather or aerospace careers.
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”x28”. 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/1853

Stage 3, Reaching New Heights
851 101 010 Rocketry
Description: An exhibit of two parts: (1) a rocket made by the member from the Aerospace Adventures Stage 3 project kits, and (2) a Rocketry Engineering Journal. In Stage 3 the Rocketry Engineering Journal must include a rocket launch and flight report. Rockets displayed in this class may only be made from the Estes Monarch™, Alpha™, or Alpha III™ rocket kits. Rockets included in a static display MUST be shown without engines or igniters. All the parts of the rocket and their function should be identified. Rocket components which must be included and labeled are body tube, nose cone, engine hook, fins, recovery system (parachute), launch lug, engine mount, and shock cord. On the display, list any items required to launch the rocket and their function such as the launch system, igniters and recovery wadding. List the appropriate engine size(s) for your rocket and your level of experience. The exhibit will be judged on neatness of labels and workmanship.
A Rocketry Engineering Journal is required. Include the date of each meeting, names of the persons present and a record of what was done. Include photos or illustrations. The information will be used to fill out the Aerospace-Rocketry Project Description sheet for fair. It is important that the member downloads the Aerospace-Rocketry 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 Build Report and the Launch and Flight Reports in the Journal. See additional exhibit requirements for classes under Aerospace above. Evaluation: Use Aerospace Rocketry Evaluation available at: http://oregon.4h.oregonstate.edu/node/1858

851 101 020 Educational poster- Aerospace
An educational poster on any aerospace or aeronautics topic youth learned about in Aerospace Adventures, stage 3, except rockets. Display should demonstrate knowledge gained in one of these topics: rocket stabilization methods, airplanes, helicopters, gliders, pilot training, kites, or aerospace careers.
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”x28”. 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/1853

Stage 4, Pilot in Command
851 102 010 Rocketry
Description: An exhibit of two parts: (1) a rocket made by the member from the Aerospace Adventures Stage 4 project kits, and (2) a Rocketry Engineering Journal. In Stage 4 the Rocketry Engineering Journal must include a rocket launch and flight report. Rockets displayed in this class may be made from the Estes Viking™ rocket kit, or other skill level 1 rocket kit where the member designs, constructs and tests the fin configuration. Rockets included in a static display MUST be shown without engines or igniters. All the parts of the rocket and their function should be identified. Rocket components which must be included and labeled are body tube, nose cone, engine hook, fins, recovery system (parachute), launch lug, engine mount, and shock cord. On the display, list any items required to launch the rocket and their function such as the launch system, igniters and recovery wadding. List the appropriate engine size(s) for your rocket and your level of experience. The exhibit will be judged on neatness of labels and workmanship.
A Rocketry Engineering Journal is required. Include the date of each meeting, names of the persons present and a record of what was done. Include photos or illustrations. The information will be used to fill out the Aerospace-Rocketry Project Description sheet for fair. It is important that the member downloads the Aerospace-Rocketry 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 Build Report and the Launch and Flight Reports in the Journal. See additional exhibit requirements for classes under Aerospace above. Evaluation: Use Aerospace-Rocketry Evaluation available at: http://oregon.4h.oregonstate.edu/node/1858
851 102 020 Education poster- Aerospace
An educational poster on any aerospace or aeronautics topic youth learned about in Aerospace Adventures, stage 4, except rockets. Display should demonstrate knowledge gained in one of these topics: construction and use of altitude tracker, pilot training requirements, aerospace science and technology, astronaut training, box kites, helicopters, or aerospace careers. 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/1853

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<th>Geospatial Science Project</th>
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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/special-events/state-fair/cm-set. 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/special-events/state-fair/cm-set. These provide valuable information to youth on creating their project displays. Also see rules listed under Science, Engineering, & Technology.

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”.

**CLASSES**

NOTE: Fill in the blank in the 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

860 100 0__ GPS/GIS Exploring Spaces, Going Places  
Open ONLY to Juniors, Intermediates, or Seniors who are in their first year in this project area.
Description: Using the Level 1 “Take Me on a Tour” activity, create a map showing four to six tour sites, geo-tools used to create the map, positional data for the sites, and information about the selected site.

860 100 1__ Geospatial Science Project
Description: GPS or GIS Projects. Exhibit may be an exhibit, binder or presentation on a disk, CD or thumb/travel drive. Computer presentations should follow requirements for similar exhibits found in the Computer Project exhibit classes. Examples of displays include creating a Community Atlas, geography project, or project reports presented to a community meeting. A project entry should contain two or more maps. Maps may be either be informational or directional. Maps that are not created by the member(s) may be included but the source of the map must be clearly shown. The exhibit should describe how the member’s project addresses an issue or solves a problem.

860 101 1__ GPS/GIS, Map
Description: Exhibit will be one map. A map is a single product of data gathering, manipulation and presentation skills. Maps may be either be informational or directional. Maps can be computer generated or hand drawn. Multiple maps should be entered as a Geospatial Science Project exhibit.

See additional exhibit requirements, above, for Geospatial classes. Evaluation: Use Map Evaluation available at: http://oregon.4h.oregonstate.edu/special-events/state-fair/cm-set
Computer Project

RULES

1. These classes are open to all 4-H members without being enrolled in computer project. See rules listed under Science, Engineering, & Technology.

2. A print version of the program must be submitted unless otherwise noted in the class description below. Youth are responsible for submitting clear directions on how judges can access the files, read code and start programs. You may include a disk, CD or thumb/travel drive as part of your exhibit. If you do, all files must be compatible with use on a PC.

3. Value is placed on youth that can model the learning process, or show how their skills have increased while completing the project.

4. The youth exhibitor should identify a problem to solve or create a work application involving technology. Possible ideas might include: applying existing software programs to a 4-H project area, composing music, developing a game, drawing landscape scenes, designing buildings, publishing club newsletters, creating a website, editing a video, working with photographs, etc.

5. Online projects using Google applications or other Web 2.0 software are acceptable. Youth must make sure clear directions are given in the project explanation so the judges can find and access the project online. Website exhibits must be viewable online or on a disk, CD or thumb/travel drive.

6. Exhibits entered in the “Programming” class must be a program written, translated, or substantially (at least 30%) altered by the 4-H member. Programming projects please submit a hard copy or thumb/travel drive for programs with excessive pages such as GameMaker software and working files so the judge can see the code. Submit a URL that points to the development software so it can be downloaded.

CLASSES

NOTE: Fill in the blank in the 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

861 100 1__ Computer Software Application, Word Processing
Description: Projects created by youth that show learning in the area of word processing. Project should be an original creation by the participant that shows their word processing skills.

861 101 1__ Computer Software Application, Excel/Spreadsheet
Description: Projects created by youth that show learning in the area of spreadsheet design and usage. Project should be an original creation by the participant that shows their spreadsheet skills. Intermediate and Senior members are expected to have some formula usage in their project.

861 102 1__ Computer Software Application, Presentation Software
Description: Projects should be created by youth to show learning in the area of presentation design skills. Software can be any current presentation software including online versions like Google applications or voicethread.com. Project should be created by the participant to show their presentation design skills. Youth can also submit video clips of how the presentation was used. (For example: A video clip of the youth using the presentation in a group activity.)

861 103 1__ Computer Software Application, Graphic Design/Digital Imaging
Description: Projects created by youth that show learning in the area of graphic design or digital imaging. Software can be any current presentation software including online versions. Project should be created by the participant to show their graphic design or digital imaging skills.

861 104 1__ Computer Software Application, Database Management
Description: Projects created by youth that show learning in the area of database management. Project should be an original creation by the participant that shows their spreadsheet skills. Intermediate and Senior members are expected to have applied their projects to real world scenarios. Youth are responsible for submitting clear directions on how judges can access the files.
861 105 1_ _ Computer Software Application, Multimedia Projects
Description: Projects created by youth that show learning in the area of Multimedia Projects. Software can be any current software including online versions. Project should be created by the participant to show their multimedia skills. In general, multimedia includes a combination of text, audio, still images, animation, video, or animation. Multimedia combines multiple content forms. Youth are responsible for submitting clear directions on how judges can access the files.

861 100 2_ _ Computer Programming
Description: Projects created by youth that show learning in the area of programming. Project should be created by the participant to show their programming skills. Hard copy or travel/thumb drive (for programs with excessive pages, such as GameMaker software) of the program must be submitted. It is up to the youth to ensure the program will function or display at Fair. Youth are responsible for submitting clear directions on how judges can access the files. Submit information that allows a judge to look at the programming code in order to evaluate your work on the Computer Programming Project Description Form. If only an executable (compiled) product is submitted the project cannot be judged in the computer programming class.

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 applied their projects to real world scenarios. Youth are responsible for submitting clear directions on how judges can access the files.

861 100 4_ _ Computer 3D Printer Application Description
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 Software Application Evaluation available at: http://oregon.4h.oregonstate.edu/node/1858

| Robotics Project |

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. Also see rules listed under Science, Engineering, & Technology.

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/special-events/state-fair/cm-set. 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/special-events/state-fair/cm-set. 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”. 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/special-events/state-fair/cm-communication

CLASSES
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
863 102 1 _ _ Education poster- Junk Drawer Robotics Level 1
An educational poster 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.

863 102 2 _ _ Education poster- Junk Drawer 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.

863 102 3 _ _ Education poster- Junk Drawer 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.

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 the robot function. Robot and a full description of what it is meant to accomplish must be submitted.
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 information will be used by the member to fill out the Robotics Project Description sheet for 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](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 do it 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](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 Notebook.

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 Notebook.

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 Notebook.
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 at: [http://oregon.4h.oregonstate.edu/node/1858](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. Also see rules listed under Science, Engineering, & Technology.

**CLASSES**

862 100 001  Electricity, Junior  
862 100 002  Electricity, Intermediate  
862 100 003  Electricity, Senior

Mechanical Science

You may enter ATV, automotive, bicycles, handyman, small engines, snowmobile, etc., projects in the *Educational Display classes* found in the [Communications](#) section of the fair book.

Wood Working

In each class, the exhibit shall be one article or pair of articles made of wood by the 4-H member. Completed “Woodworking Explanation Card” 871-02 is required to qualify the exhibit for judging. Judging criteria are outlined on 4-H Woodworking Exhibit Score Card (871-01), available at the county Extension office or on the State 4-H website at: [http://oregon.4h.oregonstate.edu/node/1858](http://oregon.4h.oregonstate.edu/node/1858)

**CLASSES**

871 100 001  Woodworking, Junior  
871 100 002  Woodworking, Intermediate  
871 100 003  Woodworking, Senior

Tractor Project

In each class the exhibit shall be an educational exhibit which will show or illustrate what the member has learned. Include an explanation telling: (a) how the exhibit was made or what was done in the project; (b) operating instructions (if appropriate); and (c) what the member learned by the doing the project. *Explanations are required* to qualify the exhibit for judging.

**CLASSES**

881 100 001  Junior  
881 100 002  Intermediate  
881 100 003  Senior