

2008 DODGE COUNTY FAIR

SCIENCE & TECHNOLOGY

CHECK IN:

Tuesday, July 29, 2008 from 6:00 – 8:00 p.m.
& Wednesday, July 30, 2008 from 7:00 – 9:00 a.m.

JUDGING TIME:

Wednesday, July 30, 2008, 9:30 a.m. (closed to public)

PREMIUMS:

Purple \$2.00; Blue \$1.50; Red \$1.00; White \$0.50

ENTOMOLOGY

ENTOMOLOGY GUIDELINES

- Awards will be determined on the basis of variety of insects in the collection, correctness of identification and overall neatness.
- Specimens need to be mounted properly and labeled with the date and location of collection, name of collector, and order name. Follow mounting and labeling instructions in the Nebraska 4-H Entomology Club Manual.
- Purchased insects and other insects not collected by the participant can be included, but must have accurate labels and will not be counted in meeting minimum requirements for the exhibit. Boxes to be not more than 12" high x 18" wide by 3" deep.

DEPT. H / DIV. 800

ENTOMOLOGY

- Class 1 Entomology Display / First Year Project : collection to consist of 25 or more different kinds (species) of insects representing at least 6 orders. Limit of one box.
- Class 2 Entomology Display / Second Year Project: collection to consist of a minimum of 50 kinds (species) of insects representing at least 8 orders. Replace damaged or poorly mounted specimens. About 25 species should be from after July 1 of previous year. Limit 2 boxes.
- Class 3 Entomology Display / Third or More Year Project: collection to consist of minimum of 75 kinds (species) of insects representing at least 10 orders. Replace damaged or poorly mounted specimens. About 25 species should be from after July 1 of previous year. Limit 3 boxes.
- Class 4 Special Interest Display: Educational display developed according to individual interests and abilities. Examples include a collection from a specific insect group (e.g. butterflies, grasshoppers) or by subject (e.g. insect pests of corn, aquatic insects, insect mimicry, etc.) a research project, special report, poster display, insect scrapbook, artwork, etc. Poster displays should be no larger than 22"x28". Other displays are restricted to a base area no larger than 22"x28". Nor should height be over 24". Research projects should include a report about methods and results, as well as a brief discussion about what was learned. Artwork should include brief information about the work. Each display should be self-explanatory so that the audience can understand it without help.

VETERINARY SCIENCE

VETERINARY GUIDELINES

- The purpose of the Veterinary Science display is to inform the public regarding a common health problem of animals or a veterinary principle.. Do not confuse veterinary science exhibit topics with animal husbandry or production topics.
- A Veterinary Science exhibit may consist of a poster or a display. The exhibit may represent material from any of the Veterinary Science projects including entry level exhibits from Unit I.
- If photographs are to be part of the exhibit, remember that they will be viewed by the public. Make sure that the photographs are in good taste and will not be offensive to anyone. Graphic photographs of excessive bleeding, trauma or painful procedures are not appropriate. For exhibits related to veterinary surgical procedures, aseptic techniques need to be shown, for example, use of drapes, use of sterile procedures, wearing of gloves, and other appropriate veterinary medical practices.
- First-Aid Kits: Because of public safety concerns and risk of theft of first-aid kits contents (veterinary drugs/equipment) with perceived potential for drug abuse, NO ANIMAL FIRST AID KITS WILL BE PERMITTED. Animal first aid kits submitted will be immediately disqualified and not shown.
- Veterinary Science Posters: This exhibit presents the viewer with a design that is simple and direct, unlike a display that usually presents more information. A poster should not exceed 22" x 28" and may be either vertical or horizontal.
- Veterinary Science Displays: A display may include but is not limited to: a 3-dimensional exhibit, a scale model, the actual product (for example: skeleton; teeth; samples of leather, fur, or dried skin damaged by disease or parasites) or a notebook. A display is not a poster. A display may be mounted on poster board not to exceed 22" x 28" or on 1/4" plywood or equivalent that does not exceed 24" high or 32" wide.
- Appropriate Veterinary Science Topics:
 - Maintaining health
 - Specific disease information
 - Photographic display of normal and abnormal characteristics of animals
 - Animal health or safety
 - Public health or safety
 - Proper animal management to ensure food safety & quality
 - Efficient and safe livestock working facilities
 - Or a topic of the exhibitors choosing

DEPT. H / DIV. 840

VETERINARY SCIENCE

Class 1 4-H Veterinary Science Large Animal Poster or Display

Class 2 4-H Veterinary Science Small Animal/Pet Poster or Display

ENGINEERING

ENGINEERING GUIDELINES

- A. The name and county of each exhibitor should appear separately on the back of each board, article and set of plans so the owner of exhibit may be identified if the entry tag is separated from the exhibit.
- B. Each individual is limited to ONE exhibit per class.
- C. Several classes require a display board with a height of 24 inches and not to exceed 1/4" in thickness. A height of 23 7/8 inches is acceptable to allow for the saw kerf if two - 24 inch boards are cut from one end of a 4 x 8 sheet of plywood. Nothing should be mounted within 3/4 inch of the top or bottom of the board.
- D. Fabricated board such as plywood, composition board, or particle-type lumber may be used for demonstration displays.
- E. Demonstration boards could be sanded and finished to improve their appearance. The finish on a demonstration board is not to be judged as critically as a woodworking exhibit.
- F. Demonstration boards should include an overall title for the display, plus other necessary labeling.
- G. All reports should be clearly written or typed and enclosed in a clear plastic cover. The reports should be attached securely to the display.

MODEL ROCKETRY

MODEL ROCKETRY GUIDELINES

- Rockets should be supported substantially to protect it from breakage. Rockets should be mounted on a base that has dimensions equal or less than 12" x 12" and the base should be 3/4" thick. No metal bases. If the rocket fins extend beyond the edges of the required base (12"x12"), then construct a base that is large enough to protect the fins. The base size is dictated by the size of the rocket fins.
- Rocket height will no longer be given consideration when determining class entries. Class entries will be based on the skill level (2,3 and 4) of the rocket.
- 4-H Contestant will be able to enter an 'actual rocket' into the following classes: Dept H – Division –850 Classes 1, 5 and 10.
- The classes are based on the skill level of the rocket kit that is purchased by the contestant. The skill levels are inclusive with respect to multiple and single stage rockets. In the following example please consider two model rockets that are produced by Estes. The first is the Phoenix a single stage rocket and the second is the Comanche-3 a multiple stage rockets. Both rockets are skill level 3 and would be entered in Dept. H, Div. 850 class 5. (again, the example deals with stages and not number of entries per class, a 4-H'er is allowed only one entry per class).
- Classes 2, 6 and 11 deal with the content material that the 4-H'er would read in the Aerospace series Units 2-4. These books do not specifically address model rocketry.
- The rockets should be mounted vertically. Please do not attach sideboards or backdrops to the displays. In addition a used engine or length of dowel pin is to be glued and/or screwed into the board and extended up into the rockets engine mount to give added stability.

- Rockets must be equipped as prepared for launching, with wadding and parachute or other recover system.
- Rockets entered with live engines, wrong base size or sideboards will be disqualified. A report, protected in clear plastic cover, should include:
 1. rocket specification,
 2. a flight record for each launching (weather, distance, flight height)
 3. number of launchings and
 4. flight pictures
- The flight record should describe engine used, what the rocket did in flight and recovery success. Points will not be deducted for launching, flight or recovery failures described. This includes any damage that may show on the rocket. Complete factory assembled rockets (i.e. plastic fins) will not be accepted. Judging is based upon display appearance, rocket appearance, workmanship, design or capabilities for flight, and number of times launched. Three launches are required to earn the 25 launch points given on the score sheets. For scoring for the State Fair, only actual launches count, misfires will not count towards one of the required three launches.
 - √ For self- designed rockets only, please include a VHS tape or digital recorded copy of one flight. In the documentation please include a description of stability testing before the rocket was flown.

INTERVIEW JUDGING / PROJECTS INCLUDE: Model Rocketry Projects (Dept H/Div. 850)

4-H members are encouraged to participate in interview judging. Interview judging allows 4-H members to discuss their 4-H exhibits directly with the judge. This will give 4-H members the opportunity to discuss the process they took preparing their project. In addition, interview judging will give judges the opportunity to provide positive input and helpful suggestions to the 4-H member.

REQUEST FOR INTERVIEW JUDGING:

- Department Superintendents are to be notified when a 4-H project is entered by a 4-H member intending to Interview Judge.
 - Entry cards of 4-H exhibits must designate Interview Judging Request by checking the "INTERVIEW" box at the upper right corner (above "Dodge County Fair") of the entry card.
 - **Exhibitors are limited to ONE interview entry per division (project area).**
- TIME: (Optional) Interview Judging / Wednesday, July 30 by appointment / 4-H Exhibit Hall
- Exhibitors will make appointments (9:30 am-5:00 pm) with superintendent at time of check in.

INTERVIEW JUDGING IS OPTIONAL:

- Projects are not required to be interview judged. Therefore, no projects will be deducted a ribbon placing for not interview judging.

DEPT. H / DIV. 850

MODEL ROCKETRY

Lift Off – Unit 2

- Class 1 Rocket: Any skill level 2 rocket with wooden fins painted by hand or air brush.
- Class 2 Display: Display exemplifying one of the principles learned in the Lift Off project. Examples include:: display of rocket parts and purpose, interview of someone in the aerospace field or kite terminology. Display can be any size up to 28" by 22".
- Class 3 Rocket: Any Skill Level 2 Rocket with wooden fins painted using commercial application example commercial spray paint.

Reaching New Heights – Unit 3

- Class 5 **Rocket:** Any skill level 3 rocket with wooden fins painted by hand or air brush.
- Class 6 **Display:** Display exemplifying one of the principles learned in the Reaching New Heights project. Examples include: airplane instrumentation, kite flying, or radio-controlled planes. Display can be any size up to 28" by 22".
- Class 7 **Rocket:** Any Skill Level 3 Rocket with wooden fins painted using commercial application example commercial spray paint.

Pilot in Command – Unit 4

- Class 10 **Rocket:** Any skill level 4 rocket with wooden fins or any self designed rocket. Designated for single and multiple stage rockets at skill level 4 or any single or multiple stage self design rocket.
- Class 11 **Display:** Display exemplifying one of the principles learned in the Pilot in Command Project. Examples include: flying lessons, or careers in aerospace. Display can be any size up to 28" by 22".

- Class 3 **Teach an Adult** – The 4-H exhibitor writes a report between 1 and 3 pages describing a situation in which he or she has taught an adult(s) a computer skill. The report should include pictures of the 4-H'er working with the adult(s). The report should be in a clear plastic cover.
- Class 4 **Produce an Audio/Video Computer Presentation** – using presentation software a 4-H exhibitor designs a multimedia computer presentation on one topic related to youth. The presentation should contain a minimum of 10 computer screens and no more than 25, appropriate graphics, sound and either a video clip, animation or voice over and/or original video clip. The presentation must be able to be played and viewed on a PC using Windows Media Player, Real Player, iTunes or QuickTime Player.
- Class 5 **Build a Web Site** – Design a simple Web site for providing information about a topic related to youth using multiple computer application software programs such as an HTML editor like Microsoft's FrontPage or Macromedia's Dreamweaver, and image editor like Irfan View or CIMP. All files comprising the Web site should be included on a CD-ROM and able to be viewed using both Internet Explorer and Mozilla. Exhibit CD in a plastic case.
- Class 6 **Build Your own computer** – (one component only) – Exhibit will be a notebook (8.5x11 inches) that includes:
1. cover page
 2. detailed report (2-3pages) describing a specific computer component:
 - a. describe the component's purpose
 - b. how it is used
 - c. the location
 - d. why components were chosen
 - e. cost of component from more than one source
 3. Pictures and supporting materials.

- Class 7 **Mapping a Historical Site Within Nebraska** – Using a global positioning system (GPS) device and a geographic information system (GIS) computer software application program like Arcview create an 8.5x11 inch map and pinpoint of a historical site within Nebraska. Map should include title, base map, neat line, north arrow, and legend. Add 1-3 digital images of the historical site to the map and a brief explanation of the image and surrounding area, brief explanation of how photo was taken, camera, etc. Latitude and Longitude of the site, map datum used, position format used and a brief explanation of why you chose this site. Exhibit will include: 2-4 pg. report on map creation and the map itself enclosed in a clear plastic cover.

- Class 8 **Hurricane Tracking Map** – Exhibit will consist of a poster presentation using approved National Oceanic and Atmospheric Administration (NOAA) hurricane tracking maps. The maps can be of the Atlantic Ocean, the Pacific Ocean of the Gulf of Mexico. The tracking maps must have at least 1-3 hurricanes from the same hurricane. The plotting point must be identified with a shape (dot, square, triangle etc.) and must be connected by a line showing the progression of the storm. The plotting point will be every 12 or 24 hours with the date located to the right of the plot point. Hurricane data can be located at: <http://www.wunderground.com/tropical/>.

Poster size will be 14"x22" and will include: an 8.5x11 poster which includes:

1. a title (include year of the hurricane season)
2. the name of the hurricane
3. listed below the name of the hurricane in column format: the dates of the storm in sequential order, the plotted latitude and longitude at 24 hour intervals, the highest hurricane category, and the highest sustained winds.
4. Please include the Title, Base Map, Neat Line, North arrow and Legend.

COMPUTERS

COMPUTER GUIDELINES

All Computer Projects containing E-mail addresses need to black out personal E-mail addresses for the protection of each exhibitor.

DEPT. H / DIV. 860

COMPUTERS

(Classes 901–906 NOT Eligible for State Fair)

- Class 1 **Computer Application Demonstration** – 4-H exhibitor demonstrates how to accomplish a task using a computer application software such as a spreadsheet, database, publishing, graphic design, accounting or precision farming program. This exhibit consists of a notebook (8.5x11 inches) which should include :

1. Cover page
2. A detailed report describing:
 - a. the task to be completed
 - b. the computer application software required to complete the task
 - c. specific features of the computer application software necessary for completing the task and;
 - d. other tasks that can be accomplished using the computer application software.
3. Print out of your project.

Examples: design a logo for your school; enhance a digital image for a newspaper story; manage a checking account; create a poster to publicize an event; or to design scrapbook pages, or other.

- Class 2 **Produce a Computer Slideshow Presentation** – Using presentation software like Microsoft PowerPoint and following the Checklist for Creating Your Next PowerPoint Presentation located at <http://cit.information.unl.edu/info0806.htm> the 4-H exhibitor develops a slideshow about a topic related to youth. The slideshow should include a minimum of 10 slides and no more than 25. Incorporate appropriate slide layouts, graphics and animations. Each slide should include notes for a presenter. The exhibit includes a copy of the presentation saved to a CD-ROM along with a printout of the notes pages in a clear plastic cover. Slide presentation should relate to one topic.

- Class 9 4-H Youth Favorite Places – The 4-H exhibitor visits his or her favorite place in Nebraska. Using a Global Positioning Systems (GPS) receiver he/she records the latitude and longitude of his/her favorite place. The exhibitor also takes a digital picture of the favorite place. The exhibitor then uploads the data and picture to the 4-H Youth Favorite Places Web site at <http://www.youthfavoriteplaces.org/index.php>. Up to three sites can be included in the fair exhibit which is to consist of a folder/notebook explaining the steps involved in entering the data to the 4-H Youth Favorite Places Web site. Fair exhibit will include: A folder/notebook including a report for each site visited and at least one and no more than five digital photos and captions of each site visited. The reports should explain how the 4-H'er participated in the national 4-H Youth Favorite Places project, recording the information and then uploading it to the Web site. Each report should include:
1. the nearest city or town
 2. the county where the site is located
 3. the latitude and longitude of the favorite place
 4. an explanation of why this is their favorite place and why other people should visit the place and;
 5. a list of the steps for entering the data on the Web site for the national project. A printed copy of the Web site posting of each favorite place uploaded should also be included with the report in the folder.
- Class 10 Write a Software Program – This project allows a 4-H'er to demonstrate his or her skills in writing a computer program using a common programming language. The program must demonstrate the use of data files and subroutines. It should demonstrate a high degree of organization and quality suitable for distribution to the general public. This exhibit consists of a notebook (8.5x11) which should include these parts:
1. a cover page
 2. a report including:
 - a) what software can do
 - b) why you wrote the software
 - c) what features are included in the software
 - d) how you will use the program in the future
 3. a flow chart in block diagram form and;
 4. an example of input and output
- Class 11 Hurricane Tracking Poster – Exhibit will consist of a poster presentation using the approved National Oceanic and Atmospheric Administration (NOAA) hurricane tracking maps. Go to the National Hurricane Center to print a hurricane tracking map at <http://2www.nhc.noaa.gov/>. Poster can be of the Eastern Atlantic, the Full Pacific or the Western Atlantic using different colors and different plotting shapes for each hurricane. The plotting point must be identified with a shape (dot, square, triangle, etc) and must be connected by a line showing the progression of the storm. Plot points every 12-24 hours. Hurricane data can be located at: <http://www.wunderground.com/tropical/>. Include title, name of hurricane, date hurricanes begins and end, distance traveled, minimum and maximum wind speeds, types of categories and latitude and longitude, etc.
- Class 12 GIS Thematic "Poster" Map – Using any GIS software, create a thematic map. Thematic maps can utilize any subject of interest to the 4-H'er. Maps could be of Amelia Earhart's journey, Sir Francis Drake's voyage, population density maps, water usage maps, or 4-H projects in Nebraska (examples). Create a GIS Map using data from books and/or internet. Use reliable date, ex. U.S. Center for Disease Control or U.S. Census Bureau. Poster – 14"x22", should include Title, Base Map, Neat Line, North Arrow, and Legend. Identify the source of your information on the back of the poster.
- Class 901 Computer Designed Greeting Card: Exhibit will consist of six greeting cards, each for a different occasion/holiday. Exhibit should be created on 8 ½" x 11" paper using a commercially available graphics program and a color printer/plotter or single color printer/plotter. The cards should vary in folds and design. Prefabricated cards from commercially available card programs will not be accepted. No theme required.

- Class 902 Promotional Flyer: Exhibit should be created on 8 ½" x 11" page using a commercially available graphics software package. Flier can be color or black and white. Fliers can be a whole page or a folded brochure.
- Class 903 Digital Camera Display: Exhibit will consist of a series of pictures showing how you used computer software to enhance or change a single digital camera picture. Exhibit should explain what hardware and software was used and how software was used to change each picture.
- Class 904 Memory Card/CD Display: Exhibit will consist of one or more pictures transferred to your computer and printed on your printer. Exhibit should explain what hardware and software was used to create it.

ELECTRICITY

ELECTRICITY GUIDELINES

- As an incentive to promote more interest in the 4-H Electrical Project Program, the Omaha Public Power District will award \$50.00 to the TOP Electrical Exhibitor.
- NOTE: You must be in your third year of an electricity project to exhibit in electricity classes at the State Fair.

DEPT. H / DIV. 870

ELECTRICITY

POSTERS: The following 4-H electricity related posters (classes 901 and 902) exhibiting and judging should refer to Department B, Division 152, Posters, for general requirements.

Class 901 Electricity Safety Poster: Must deal with a specific topic. EXAMPLE: "Overhead Power Line Safety," "Safety In The Home", "On Farm Safety." Exhibits in this class are NOT eligible to go on to State Fair.

Class 902 Electric Energy Conservation: Must show useful methods of efficient use of electrical energy and conservation. Exhibits in this class are NOT eligible to go on to State Fair.

ELECTRICITY CLASSES: The following 4-H Electricity Exhibits should refer to the 4-H Electricity Manuals for general guidelines.

MAGIC OF ELECTRICITY – UNIT 1

Exhibits from these classes are NOT eligible to go on to State Fair

- Class 903 Bright Lights: Create your own flashlight using items found around your house. Flashlights should be made out of items that could be recycled or reused. No kits please.
- Class 904 Control the Flow: Make a switch. Use the following items: D cell battery, battery holder, insulated wire, 2 or 2.5 volt light bulb, bulb holder, paper clip, cardboard, and two brass paper fasteners to create a circuit that you can open and close.
- Class 905 Conducting things: Make a circuit with a switch and a light bulb that can be used to test different household items for their ability to act as an insulator or conductor. You must find five items that are conductors and five items that are insulators. Create a table that illustrates your results.
- Class 906 Is There a Fork in the Road: Use the following items to construct one parallel and one series circuit. Items: D cell battery, battery holder, insulated wire, bulb holder and a 2 or 2.5 volt light bulb.

INVESTIGATING ELECTRICITY – UNIT 2

Exhibits from these classes are NOT eligible to go on to State Fair

- Class 907 **Case of the Switching Circuit:** Use the following items: two D cell batteries, two battery holders, light bulb, bulb holder, a 3 inch by 6 inch piece of cardboard, six brass paper fasteners and approx. two feet of 24 gauge insulated wire to build a three way switch. Write a short essay or create a poster that illustrates how three way switches function.
- Class 908 **Rocket Launcher:** Construct a rocket launcher out of the following materials: a plastic pencil box that is at least 4 inches by 8 inches, single pole switch, single throw switch, normally-open push button switch, 40 feet of 18 or 22 gauge stranded wire, 4 alligator clips, 2- by 6- board 6 inches long, 1/8 inch diameter metal rod, rosin core solder, soldering iron or gun, wire stripper, small crescent wrench, pliers, small Phillips and straight blade screwdrivers, drill, 1/8 inch and 1/4 inch drill bits, rocket engine igniters, additional drill bits matched to holes for two switches. You must successfully build a rocket launcher and light two rocket igniters with your launcher. You DO NOT have to actually fire a rocket off of the launcher. Create a poster using photographs to show the “step by step process” you used to build your launcher.
- Class 909 **Stop the Crime:** Build an ALARM using the following materials: On-off push button switch, mercury switch, buzzer-vibrating or piezoelectric, 9-volt battery, 9-volt battery holder, 4 inch by 4 inch by 1/8 inch Plexiglass board to mount circuit on; rosin core solder, soldering gun/iron, two feet of 22 gauge wire, wire strippers, hot glue gun sticks, hot glue gun and a plastic box with a lid to mount your alarm circuit on. Create a poster using photographs to show the “step by step process” you used to build your alarm.

WIRED FOR POWER – UNIT 3

- Class 1 **Electrical Tool/Supply Kit:** Create an electrical supply kit to be used for basic electrical repair around the house. Include a brief description of each item and its use. Container should be appropriate to hold items.
- Class 2 **Lighting Comparison:** Display studying the efficiency of various lighting (incandescent, fluorescent, halogen, Light Emitting Diodes, etc.). Exhibit could be a poster display, or an actual item.
- Class 3 **Electrical Display/Item:** Show an application of one of the concepts learned in the Wired for Power project. Examples include: re-wiring or building a lamp, re-wiring or making a heavy duty extension cord or developing an electrical diagram of a house. Exhibit could be a poster display, or an actual item.
- Class 4 **Poster** should exemplify one of the lessons learned in the Wired for Power Project. Posters can be any size up to 28” by 22”.

ELECTRONICS – UNIT 4

- Class 5 **Electrical/Electronic Part Identification:** Display different parts used for electrical/electronics work. Exhibit should show the part (either picture or actual item) and give a brief description, including symbol of each part and its function. Display should include a minimum of 10 different parts.
- Class 6 **Electronic Display:** Show an application of one of the concepts learned in the Electronics project. Examples include: components of an electronic device (refer to p. 35 of the Electronic manual).
- Class 7 **Electronic Project:** Exhibit an electronic item designed by the 4-H'er or from a manufactured kit that shows the electronic expertise of the 4-H'er. Examples include: a radio, a computer, or a volt meter.
- Class 8 **Poster** should exemplify one of the lessons learned in the Entering Electronics project. Posters can be any size up to 28” by 22”.

SMALL ENGINES

DEPT. H / DIV. 890

SMALL ENGINES

*NOTE: You must be in your third year of a small engines project to exhibit in electricity classes at the State Fair.

CRANK IT UP – UNIT 1

Exhibits from these classes are NOT eligible to go on to State Fair

- Class 901 **Small Engine Display/Item:** Show an application of one of the concepts learned in the Crank it Up project. Examples include: identify external parts of a small engine, identify tools used with small engines, classify sources of power, spark plug maintenance, safety related to engines. Exhibit could be poster display or an actual item.

WARM IT UP – UNIT 2

- Class 1 **Small Engine Display/Item:** Show an application of one of the concepts learned in the Warm It Up Project. Examples include: comparison of engine oil types, transmissions, or safety related to engines. Exhibit could be a poster display, or an actual item.

TUNE IT UP – UNIT 3

- Class 2 **Engine Display/Item:** Display/Item should exemplify one of the lessons learned in the Tune IT UP Project. Examples include: diagnostic tools, fuel systems, ignition systems. If a complete engine is exhibited it will not be started. However, display needs to report process of building/rebuilding engine and how/where engine will be utilized (i.e. lawn mower, weed eater, snow blower, etc.).

RESTORED VEHICLE

RESTORED VEHICLE GUIDELINES

An entry must be approved by the superintendent at least five days before entry day to reserve a space for the exhibit. A report must be included, covered by clear plastic cover, describing source, cost, repair parts list and what was done. A “before and after” photo story should be included. It will be the exhibitor’s responsibility to protect the display from the general public.

DEPT. H / DIV. 891

RESTORED VEHICLE

- Class 1 **This is a class for the exhibitors of automobiles, motorcycles, tractors or multi-cylinder engines that have been restored and/or overhauled in a 4-H petroleum power project to original specifications.**
- Class 2 **This is a class for the exhibitors (same as in Class #1) that have customized the vehicle from original specifications.**

(In lieu of bringing a tractor, etc. to the State Fair, the 4-H'er can submit a detailed report explaining the process used to restore or overhaul. Also include a VHS tape or digital recorded copy of the item and the process used.)

WOODWORKING

WOODWORKING GUIDELINES

The ability to build objects as designed by another person is an important life skill. Professional woodworkers often are hired to build objects to exacting specifications as laid out in a written plan.

Requirements: All articles exhibited must include a plan stating dimensions and other critical instructions a builder would need to know to build the project. Plans may include narrative instructions in addition to the dimension drawings. A part of the score depends on how well the project matches the plans. If plans are modified, the changes from the original need to be noted on the plans. All plans used for making the article must be attached and protected by a clear plastic cover and include the exhibitors name and county.

***4-Hers may enter 2 items per class number for woodworking projects ONLY!**

*NOTE: You must be in your third year of a woodworking project to exhibit in woodworking classes at the State Fair.

DEPT. H / DIV. 911

WOODWORKING

MEASURING UP – UNIT 1

Exhibits from these classes are NOT eligible to go on to State Fair

Class 904 Woodworking Article: Item made using skills learned in the Measuring Up manual. Examples include: flower box, napkin holder or letter holder, or picture frame.

Class 905 Woodworking Display: Display exemplifying one of the principles learning in the Measuring Up project. Examples include: name the tools, safety settings, identifying woods, measuring, butt joint, sanding.

MAKING THE CUT – UNIT 2

Exhibits from these classes are NOT eligible to go on to State Fair

Class 906 Woodworking Article: Item made using skills learned in the Making the Cut manual. Examples include: tool box, birdhouse, sawhorse, whistle, or foot stool.

Class 907 Woodworking Display: Display exemplifying one of the principles learned in the Making the Cut project. Examples include: safety techniques, interview a carpenter, selecting wood, cutting on an angle, chiseling, scrolling, power sanding.

NAILING IT TOGETHER – UNIT 3

Class 1 Woodworking Article: Item made using skills learned in the Nailing it Together manual. Examples include: bookcase, coffee table or end table.

Class 2 Woodworking Display: Display exemplifying one of the principles learned in the Nailing it Together Project. Examples include: measuring angles, wood lamination and joint types.

FINISHING UP – UNIT 4

Class 3 Woodworking Article: Item made using skills learned in the Finishing it Up project. Examples include: dovetailing, making a pen using lathe, overlays, using a router, etc.

Class 4 Woodworking Display: Display exemplifying one of the principles learned in the Finishing It Up project. Examples include: career opportunities, types of finishes, or dovetailing.

WELDING

WELDING GUIDELINES

All welds exhibited in Class 1 or 2 must be mounted on a 12" high x 15" long display board of thickness not to exceed 3/8". Attach each weld on a wire loop hinge or equivalent so the judge can look at the bottom side of weld when necessary. Each weld should be labeled with information stating:

- 1) type of welding process (stick, MIG, TIG, Oxy-Acetylene, etc.)
- 2) kind of weld
- 3) welder setting
- 4) electrode/wire/rod size
- 5) electrode/wire/rod ID numbers.

Attach a wire to display board so it can be hung like a picture frame.

*NOTE: You must be in your third year of a welding project to exhibit in electricity classes at the State Fair.

DEPT. H / DIV. 920

WELDING

Class 1 Welding Joints: A display of one butt, one lap and one fillet weld.

- 1) All welds should be made with the same electrode/wire/rod size and number.
- 2) Welds should be made only on one side of metal so penetration can be judged.
- 3) Welds should be cleaned with chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off Excess oil.
- 4) It is suggested that all welds be on the same size and thickness of metal. These pieces, referred to as coupons, should be 1.5 to 2 inches wide and 3.5 to 4 inches long. A good way to get this size is to buy new cold rolled strap iron and cut to length.

The extra width is needed to provide enough metal to absorb the heat from the welding process and prevent the coupons from becoming too hot before the bead is completed.

Narrower coupons will become very hot, making an average welder setting too cold at the bead start, just about right in the middle, and too hot at the end. The correct way to weld narrow strips is to make short beads and allow time to cool, however this project requires a full length bead.

Stick welding

Suggested coupon thickness – ¼" if using 1/8" rod

Suggest road –AC and DC straight or reverse polarity – first E-7014, second E-6013

MIG welding

Suggested coupon thickness—1/4" is using .035 wire and " if using .023 wire

Oxy – Acetylene

Suggested coupon thickness—1/8"

Suggested rod – 1/8" mild steel rod

Class 2 Position Welds: A display showing 3 beads welded in the vertical down, horizontal and overhead positions.

- 1) It is suggested that all welds be on same size and thickness of metal. These pieces are referred to as coupons. The welds can be on one coupon that is about 4" x 4" or on individual coupons that are about 2" x 4" inch and ¼" thick. Suggested rods for this class of position welds for AC and DC straight or reverse polarity is, first E-6013, second E-7014 and E-6010 for DC reverse polarity only.
- 2) Welds should be cleaned with a chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off excess oil.

- Class 3 Welding Article: Any shop article where welding is used in the construction. All plans and bills must be attached to the article. Protect plans with a cover.
- 1) All welds should be cleaned and protected from rust with paint or light oil. Plans are to be complete enough that if they were given to a welding shop, the item could be made without further instructions. Bill of materials should include a cost for all items used including steel, electrodes, paint, wheels, etc.
 - 2)

- Class 4 Robotics Explorer Interview – Interview someone who is working in the field of robotics. Interviews can either be written or in a multimedia format (CD/DVD). Written interviews should be in a notebook. Written reports should be 3 to 5 minutes in length.
- Class 5 Careers in Robotics – Research a career in robotics. Your report can be either written or in a multimedia CD/DVD format. Written reports should be in a notebook. Written reports should be 3 to 5 pages, double spaced, 12 point font, and 1” margins. Multimedia reports should be between 3 to 5 minutes in length.

ROBOTICS

ROBOTICS GUIDELINES

- A. Division I is based on the Robotics Explorer curriculum guide. Participant must have completed 11 of 14 activities from the guide. Each completed activity must be dated and initialed by the Helper.
- B. Division II is based on the Robotics Probe curriculum guide. Participant must have completed 11 of 14 activities from the guide. Each completed activity must be dated and initialed by the Helper.
- C. The name of the participant is must appear on the back of each poster or display board. For notebook projects, the name of the participant must appear on the cover page.
- D. Each participant is limited to one project per class.
- E. Posters: 3 to 4 ply poster board, 22” x 28”, white or colored, vertical or horizontal*.
- F. Display Boards: Pre-scored fold-out display board, foam or cardboard, 36” x 48”, white or colored*.
- G. Notebooks: 8 ½” x 11”, 3 ring 1” view binders, cover page in top loading clear plastic sleeve protectors and a cover page inside the notebook. Notebooks may be in any color**.

*Poster and Display Requirements: Use no less than ½” margins all the way around. Use appropriate sizing for headings, subheadings, and other necessary labeling. Use appropriate sizing for all graphics. Remember: POSTERS and DISPLAY BOARDS must be easily seen from a distance of 4 feet! Display board header cards (10” x 36”) are allowed of same or contrasting color of primary display board.

**Notebook Requirements: Use no less than 1” margins all the way around. Headings must be in 20 point bold. Subheadings must be 14-point bold type. Text must be in 12-point Ariel. Use appropriate sizing for other necessary labeling. Use appropriate sizing for all graphics.

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ROBOTICS

ROBOTICS EXPLORER - UNIT I

- Class 1 Robot or Not Poster: Create a poster (14”x22”) demonstrating how to determine whether an object is a machine, a computer or a robot. Poster should include at least 2-4 objects.
- Class 2 Pseudocode Display Poster – Poster (14”x22”) should display the pseudocode written for the robot to perform at least four functions and utilize at least two modifiers. Include the pseudocode, and a written description of the icon functions.
- Class 3 Robotics Explorer Video – This class should be displayed in a notebook. The notebook should include a video clip on a CD/DVD that demonstrates the robot performing the programmed function. Include your pseudocode and a written description of the icon functions.

ROBOTICS PROBE- UNIT 2

- Class 6 Rotation Sensor Notebook – Write pseudocode which includes at least one rotational sensor activity. Include the code written and explain what the code function is and how you would change it to improve either the function or the code.
- Class 7 Robotics Probe Notebook – Youth should follow one of the following activities in the project manual: Go the Distance, Tighten Your Belts, or Do the Time. Based upon the activity you select, replicate and complete the chart. Your notebook should include the chart and the answer to the following questions: 1. What did you learn about gears and gear ratios? 2. What are the benefits of using belts and pulleys? 3. What is the relationship between gear ratio and speed?
- Class 8 Build a Robot (may use kit) – Include a robot and a notebook which includes any code/pseudocode that you have written for the robot, the robots purpose, and any challenges or changes you would make in the robot design or programming.
- Class 9 Life Skills Notebook – Using the Life Skills Model (available through your local extension office), develop a notebook that explains which life skills you developed while enrolled in the robotics project and how they will influence you in the future.