

Classes:

G095001 - Ferret

G095002 - Chinchilla

G095003 - Guinea Pig

G095004 - Gerbil

G095005 - Hamster

G095006 - Miscellaneous Other Pet

G095007 - Poster - can include entries covering any companion animal (including reptiles, companion birds, or others). Exhibitors should make a poster with information on the proper care of a companion animal that they are showing in another class of the Companion Animal Show. Poster should be the size of one full standard poster (should not exceed 22"x28") board. Posters will be entered between 8-10 a.m. on Tuesday, July 5.

SCIENCE ENGINEERING & TECHNOLOGY

DEPARTMENT ENTOMOLOGY

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

► GENERAL INFORMATION

- Specimens should be mounted properly and labeled with location and date of collection, name of collector, and order name. Follow mounting and labeling instructions in the old edition of the Nebraska 4-H Entomology Manual online as a PDF file. (<http://4h.unl.edu/web/4hcurriculum/entomology>)
- 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 are preferred to be not more than 12" high x 18" wide, so they fit in display racks. Boxes can be purchased. They can be found at: www.BioQuip.com.

All static exhibits must have received a purple ribbon at the county fair to advance to the State Fair.

Premier 4-H Science Award is available in this area. Please see General Rules for more details.

DIVISION 800 - ENTOMOLOGY

Classes:

H800001 - *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.

H800002 - *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 present from after July 1 of the previous year. Limit 2 boxes.

H800003 - *Entomology Display, Third-Year or More Project - Collection to consist of a minimum of 75 kinds (species) of insects representing at least 10 orders. Replace damaged or poorly mounted specimens. About 25 species should be present from after July 1 of the previous year. Limit of 3 boxes.

H800004 - *Special Interest Display - Educational display developed according to individual interests and abilities. Each display should be self-explanatory so that the audience can understand it without help. Examples include a collection from a specific insect group (e.g. butterflies, grasshoppers, dragonflies, scarab beetles, etc.) or by subject (e.g. insect pests of corn, aquatic insects, insect mimicry). Other displays include a research project with a report, a journal of an entomological activity, a poster display, an insect scrapbook, or artwork. Research project reports should discuss methods, results, and what was learned. Poster displays should be no larger than 22" x 28". Three-dimensional displays such as artwork, models and dioramas are restricted to a base area no larger than 22" x 28" and a height of no more than 24". Artwork should include brief information about the work.

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H800005 - *Insect Habitats - Habitats consist of any hand-crafted objects, made of natural or artificial materials, placed outdoors, which promote or conserve insects in the environment. Insects may include bee pollinators, butterflies, beneficial insects, etc. A one-page report must accompany the exhibit.

H800006 - *Macrophotography - Subjects should be insects, spiders or other arthropods, or any nests, webs or constructions they make. All exhibit prints should be 8 1/2" x 11" and mounted on rigid, black 11" x 14" poster or matt board. Either orientation is acceptable. No frames please. A short caption explaining the subject, printed on white paper, should be glued below the print.

DEPARTMENT VETERINARY SCIENCE

PREMIUMS: Purple-\$3.00, Blue-\$2.00, Red-\$1.50, White-\$1.00

- All static exhibits must have received a purple ribbon at the county fair to advance to the State Fair.
- Premier 4-H Science Award is available in this area. Please see General Rules for more details.
- The purpose of the Veterinary Science display is to inform the public about a common health problem of animals or a veterinary principle. Do not confuse veterinary science exhibit topics with animal husbandry, history or production topics.
- **A Veterinary Science exhibit may consist of a poster, notebook or a display.** The exhibit may represent material from exhibitors enrolled in Animal Disease or Animal Health.
- 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 kit 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 or in a three ring binder or another bound notebook format.

● **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 related to veterinary medicine or veterinary science

● **Remember, since these are science displays, all references and information needs to be properly cited.**

Proper sources include but are not limited to: Professional journals and publications, professional AVMA accredited websites, interviews with Veterinarians and excerpts from Veterinary Educational Literature.

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DIVISION 840 - VETERINARY SCIENCE

Classes:

H840001 - *4-H Veterinary Science Large Animal Poster, Notebook, or Display

H840002 - *4-H Veterinary Science Small Animal/Pet Poster, Notebook or Display

DEPARTMENT AEROSPACE

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

GENERAL INFORMATION

- The name and county of each exhibitor should appear separately on the back of each board, poster or article and on the front cover of the notebooks so owner of exhibit may be identified if the entry tag is separated from the exhibit.
- Each individual is limited to one exhibit per class. All static exhibits must have received a purple ribbon at the county fair to advance to the State Fair.
- Several classes require a display board which should be a height of 24 inches and not to exceed ¼” in thickness. A height of 23-7/8 inches is acceptable to allow for the saw kerf (width) if two 24 inch boards are cut from one end of a 4' x 8' sheet of plywood. Nothing should be mounted within ¾” of the top or bottom of the board. (Example: Woodworking & Electricity.)
- Fabricated board such as plywood, composition board, or particle-type lumber may be used for demonstration displays.
- Demonstration boards should be sanded and finished to improve their appearance. The finish on a demonstration board will be judged as a woodworking exhibit.
- Demonstration boards should include an overall title for the display, plus other necessary labeling.
- Reports should be written using the scientific method whenever possible (Background, the Question or hypothesis, what you planned to do and what you did, Method used and observations, Results: what you learned.) All reports should be computer generated and enclosed in a clear, plastic cover. The reports should be attached securely to the display.
- Premier 4-H Science Award is available in this area. Please see General Rules for more details.

DIVISION 850 - AEROSPACE

●Rockets must be supported substantially to protect from breakage. Rockets are to 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" x 12"), then construct a base that is large enough to protect the fins. The base size is dictated by the size of the rocket fins. The rockets must 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 recovery system. Rockets entered with live engines, wrong base size or sideboards will be disqualified. A report, protected in clear plastic cover, must 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 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 score sheet. In scoring, only actual launches count, misfires will not count towards one of the required three launches.

For self-designed rockets only, please include a digital recorded copy of one flight. In the documentation please include a description of stability testing before the rocket was flown. 4-H Rocket project levels are not intended to correspond to National Association of Rocketry model rocket difficulty ratings or levels.

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LIFT OFF - UNIT 2

Classes:

H850001 - *Rocket - Any Skill Level 2 Rocket with wooden fins painted by hand or air brush.

H850002 - *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" x 22".

H850003 - *Rocket - Any Skill Level 2 Rocket with wooden fins painted using commercial application.

Example: commercial spray paint

H850011 - Rocket - Any skill level rocket with plastic fins.

REACHING NEW HEIGHTS - UNIT 3

Classes:

H850004 - *Rocket - Any Skill Level 3 Rocket with wooden fins painted by hand or air brush.

H850005 - *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" x 22".

H850006 - *Rocket - Any Skill Level 3 Rocket with wooden fins painted using commercial application.

Example: commercial spray paint

H850012 - Rocket - Any skill level rocket with plastic fins. **Not eligible for state fair.**

PILOT IN COMMAND - UNIT 4

Classes:

H850007 - *Rocket - Any Skill Level 4 Rocket with wooden fins or any self-designed rocket.

H850008 - *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" x 22".

H850013 - Rocket - Any skill level rocket with plastic fins. **Not eligible for state fair.**

Careers

H850020 - *Careers Interview - Interview someone who is working in the field of aerospace and research that career. 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 pages, double spaced, 12 point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.

DEPARTMENT COMPUTERS

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

DIVISION 859 - BOOTING UP - UNIT 1

Class:

H859005 - Poster - Create a poster on a lesson learned in unit 1. Examples might include: hardware, software programs, how to take care of a computer and operating systems.

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DIVISION 860 - COMPUTERS

COMPUTER MYSTERIES - UNIT 2

Classes:

H860001 - *Computer Application - 4-H exhibitor should use computer application to create a graphic notebook utilizing computer technology. 4-Her may create any of the following: greeting card (3 different cards should be a birthday, wedding, anniversary, sympathy, get well or other). A business card (2 cards to 2 different individuals or businesses). Menu (minimum of 2 pages including short description of foods and pricing). CD cover (front and back). Book layout (1 book). Promotional flyer (2 flyers promoting 2 different events). Newsletter (minimum 2 pages) Other (examples such as precision farming or family business logo, etc). The exhibit consists of a notebook (8.6x11) which should include a detailed report describing: the task to be completed, the computer application software required to complete the task, specific features other computer application software necessary for completing the task, and the print out of your project. Project may be in color or black and white.

H860002 - *Produce a Computer Slideshow Presentation - Using presentation software, create a slideshow to 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.

COMPUTER MYSTERIES - UNIT 3

Classes:

H860004 - *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 be at least 2 minutes in length and no more than 5 minutes in length, 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.

H860005 - *Know How Know Now Computer Presentation - Youth design a fully automated 2 to 5 minutes 4-H "how to" video. Submissions should incorporate a picture or video of the 4-Her, as well as their name (first name only), age (before January 1 of the current year), years in 4-H, and their personal interests or hobbies. Videos should be designed for web viewing. Any of the following formats will be accepted: .mpeg, .rm, .wmv, .mp4, .ov, .ppt, or .avi. Submissions in this category will be put on the web so must include a permission form which can be downloaded at <http://www.pawnee.unl.edu/knowhowknownow>.

H860006 - *Create a Web Site/Blog or App - Design a simple Web site/blog or app for providing information about a topic related to youth using either software programs such as an HTML editor like Microsoft's FrontPage or Macromedia's Dreamweaver, and image editor like IrfanView or GIMP OR online using a WIKI such as Google Sites. If the Web site, blog or app isn't live include all files comprising the Web site, blog or app on a CD-ROM in a plastic case along with the explanation of why the site was created. If developed using a WIKI or other online tool include a link to the website in the explanation of why the site was created.

H860007 - *3-D Printing - 3-D printing uses plastic or other materials to build a 3 dimensional object from a digital design. Youth may use original designs or someone else's they have re-designed in a unique way. Exhibits will be judged based on the complexity of the design and shape. 3-D printing will include a notebook with the following: A. Software used to create 3D design. B. Design or, if using a re-design, the original design and the youth's design with changes. C. Orientation on how the object was printed. Suggested ideas: 1) 3D prototypes: 3D objects printed as part of the design process for robot or other engineering project or cookie cutter, be creative. Must include statement of what design question of prototype was supposed to answer and what was learned from the prototype. 2) 3D Unique object: 3d objects printed for their own sake. May be an art design, tool, or other object.

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Careers

H860010 - *Careers Interview - Interview someone who is working in the field of computers and research that career. 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 pages, double spaced, 12 point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.

COMPUTER EXHIBITS - COUNTY FAIR ONLY

Classes:

H860020 - Computer Designed Greeting Cards - Exhibit will consist of six greeting cards, each for a different occasion/holiday. Exhibit should be created on 8-1/2" 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. Put cards in some type of protective cover.

H860021 - 4-H Promotional Flyer - Exhibit should be created on 8 1/2" x 11" page using a commercially available graphics software package. Flyer can be color or black and white. Flyers can be a whole page or a folded flyer. Put exhibit in protective cover.

DEPARTMENT ROBOTICS

DIVISION 861 - ROBOTICS

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

Youth enrolled in Virtual Robotics, Junk Drawer Robotics (Levels 1, 2, or 3), Robotics Platforms or GEAR TECH 21 may exhibit in any class within this division.

Team Entries: To qualify for entry at the Nebraska State Fair, team materials entered in robotics classes that are clearly the work of a team instead of an individual must have at least 50% of all team members enrolled in 4-H. Additionally, all enrolled 4-H members on the team should complete and attach an entry tag to the materials. A supplemental page documenting the individual contributions to the project should be included. The entry will be judged as a team, with all team members receiving the same ribbon placing. Creating a video of your robot in action would be helpful for the judges but is not mandatory. Present as a CD rom with your robot entry.

Classes:

H861001 - *Robotics Poster - Create a poster (14" x 22") communicating a robotics theme such as "Robot or Not", "Pseudocode", "Real World Robots", "Careers in Robots" or "Autonomous Robotics", "Precision Agriculture" or a robotic topic of interest to the 4-H'er.

H861002 - *Robotics Notebook - Explore a robotics topic in-depth and present your findings in a notebook. Documentation should include any designs, research, notes, pseudo code, data tables or other evidence of the 4-H'ers learning experience. The notebook should contain at least three pages. Topics could include a programming challenge, a programming skill, calibration, sensor exploration, or any of the topics suggested in Class 1.

H861003 - *Robotics 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 pseudo code and screenshots of the actual code with a written description of the icon/command functions.

H861004 - *Robotics Careers Interview - Interview someone who is working in the field of robotics and research the career in 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 pages, double spaced, 12 point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.

H861005 - *Robotic Sensor Notebook - Write pseudo code which includes at least one sensor activity. Include the code written and explain the code function.

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- H861006 - *Build a Robot (may use kit)** - Include a robot and notebook including the pseudo codes for at least one program you have written for the robot, the robot's purpose, and any challenges or changes you would make in the robot design or programming.
- H861007 - *Kit Labeled Robot (cannot be programmed.)** - This class is intended for explorations of robotic components such as arms or vehicles OR educational kits marketed as robots that do not have the ability to be programmed to "sense, plan and act." The exhibit should include a project the youth has constructed, a description of what it does and an explanation of how it is similar to and different from a robot.
- H861008 - 3D/Non-Mobile Robot** - Construct out of items found around the home. Provide a short description of your robot, including steps you took to construct the robot and items used.
- H861009 - Robot/STEM Art** - The purpose of this class is to allow artistic exhibits that contain educational information about science and technology. Examples might include paintings, drawings, photographs, or songs or poems written by the exhibitor. Entries must be appropriate for fair display and no larger than 24" x 24". For example: paintings or photographs should be displayed in notebook format or mounted on a sturdy display panel. All entries must include a title and brief explanation of the purpose or message (what is the exhibit meant to show).
- H861010 - Lego Initial** - Construct the first letter of your first or last name out of Legos. Entries must not reach over 12" in height and 18" in width. Can be two or three dimensional. If two dimensional, make sure the letter is securely fastened to a poster or wood board. If 3D, please place initial on a sturdy surface and make sure it is able to stand on its own. Include a brief explanation of the exhibit.

DEPARTMENT ELECTRICITY

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

DIVISION 871 - MAGIC OF ELECTRICITY, UNIT 1

Classes:

- H871001 - Bright Lights** - Create your own flash light using items found around your house. Flash lights should be made out of items that could be recycled or reused. No kits.
- H871002 - 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.
- H871003 - 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.
- H871004 - 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.

DIVISION 872 - INVESTIGATING ELECTRICITY, UNIT 2

Classes:

- H872001 - Case of the Switching Circuit** - Use the following items: two D cell batteries, two battery holders, light bulb, bulb holder, a 3" x 6" piece of cardboard, six brass paper fasteners and approximately 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.

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H872002 - Rocket Launcher - Construct a rocket launcher out of the following materials: a plastic pencil box that is at least 4" x 8", 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" 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 3 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.

H872003 - 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" x 4" x 1/8" Plexiglas board to mount circuit on; rosin core solder, soldering gun/iron, two feet of 22 gauge wire, wire strippers, hot glue 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.

DIVISION 870 - ELECTRICITY 3 & 4

ELECTRICITY WIRED FOR POWER - UNIT 3

Classes:

H870001 - *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 old items.

H870002 - *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.

H870003 - *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.

H870004 - *Poster - Poster should exemplify one of the lessons learned in the Wired for Power Project. Posters can be any size up to 28" x 22".

ELECTRONICS - UNIT 4

Classes:

H870005 - *Electrical/Electronic Part Identification - Display different parts used for electrical/electronics work. Exhibit should show the part (either picture or actual items) and give a brief description, including symbol of each part and its function. Display should include a minimum of 10 different parts.

H870006 - *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).

H870007 - *Electronic Project - Exhibit an electronic item designed by the 4-H'er or for a manufactured kit that shows the electronic expertise of the 4-H'er. Examples include: a radio, a computer, or a volt meter.

H870008 - *Poster - should exemplify one of the lessons learned in the Entering Electronics Project. Poster can be any size up to 28" x 22".

Careers

H870010 - *Careers Interview - Interview someone who is working in the field of electricity and research that career. 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 pages, double spaced, 12 point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.

DIVISION 880 - GEOSPATIAL

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

Youth enrolled in Geospatial or GEAR TECH 21 may exhibit in any class within this division.

Classes:

H880001 - *Poster - Create a poster (not to exceed 14" x 22") communicating a GPS theme such as How GPS or GIS works, Careers that use GPS or GIS. How to use GPS. What is GIS, GPS or GIS in Agriculture, Precision Agriculture, or a geospatial topic of interest.

H880002 - *4-H Favorite Places or Historical Site Poster - The 4-H exhibitor identifies a favorite place or historical site (including grave sites) in Nebraska. Exhibit should include latitude and longitude, digital picture, and local area map. Poster size should not exceed 14" x 22".

H880003 - *GPS Notebook - Keep a log of at least 5 places visited using a GPS enabled device. For each site, record the latitude, longitude and elevation. Also include a description of the site, a paragraph explaining what was interesting about the site or finding it. Photos of each site and/or cache are optional but encouraged.

H880004 - *Geocache - Assemble a themed geocache. Each geocache should be a water-tight container. It should include a log book and pencil for finders to log their visits and may include small trinket, geocoins etc. for the finders to trade. Documentation should include a title, teaser description and the geographic coordinates of intended placement. **Register the site at geocaching.com, include a print-out of its registry.** The entry may include a photograph of the cache in its intended hiding place.

H880005 - *GIS Map - Create a GIS map with at least three data layers. The GIS should include both vector and raster data. Data may be obtained by using a GPS-enabled device, downloading data from a reputable web site or digitizing. The GIS should have a theme/purpose and include a title, north arrow, legend, labels, scale bar and source. Maps may be of any subject of interest to the 4-H'ers. Include a 1-3 page report on why you chose the subject and map(s), how you created the map(s) and the source of your data (use reliable sources such as the US Center for Disease Control or the US Census Bureau). This project could include Hurricane Tracking maps. [Create a GIS map for Hurricane Tracking with a geographic information system (GIS) computer software applications of the Atlantic Ocean, Pacific Ocean, or the Gulf of Mexico. The map should appear similar to the National Oceanic and Atmospheric Administration (NOAA) (<http://www.nhc.noaa.gov/>)] Poster size should not exceed 22" x 30". Place report in plastic cover or notebook attached to the poster.

H880006 - *GIS Thematic 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 data, ex. U.S. Center for Disease Control or U.S. Census Bureau. Map any size up to 36" x 24", should include Title, Base map, Neat Line, North Arrow, and Legend. Identify the source of your information on the back of the map.

H880007 - 4-H History Map - Include in a notebook: State Name (Please identify the State for this historical point or person.) County where this historical point or person is located. City or town associated with the historical point or person. Provide the street number and street name for the historical point or person. Include the name of the historically significant place or person in your county/state. Write a brief description of historical significance of 4-H place or person. (a minimum of one paragraph) Date of significance: This date could be a founding date or event date for a significant site or a range of dates or event date for a significant person: Name of founder: for the historically significant 4-H site, please name the individual credited with founding the site. Resources: Photos or video for the site or person of significance, include where you got the information. Please provide any other relevant information you would like to add. Report must include Latitude in decimal degrees and longitude in decimal degrees. Please submit your 4-H Historical Map information on line and include a copy of the submission in your notebook.

<https://docs.google.com/forms/d/1zIeHQbRqPGNcBPq5EEqPAx6zqVaknDhagxt0BsipvA/viewform>

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Careers

H880010 - *Careers Interview - Interview someone who is working in a geo-spatial field and research that career. 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 pages, double spaced, 12 point font, and 1” margins. Multimedia reports should be between 3 to 5 minutes in length.

DEPARTMENT SMALL ENGINES

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

DIVISION 889 - CRANK IT UP - UNIT 1

Class:

H889001 - Small Engine Display/Item - Show an application of one of the concepts learned in the Unit 1 project. Examples include: identify the parts of a small engine, safety rules for starting a small engine, small engine repair tool identification.

DIVISION 890 - SMALL ENGINES 2 & 3

Class:

H890001 - 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.

H890002 - 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.)

DIVISION 900 - POWER OF WIND

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

Classes:

H900001 - *Engineering Notebook - Your engineering notebook may include sketches of designs, notes of engineering questions you have, or answers to questions posed within the project manual, pictures as you complete exercises within this project, or big ideas you have while participating in this project. The notebook submitted in this class should be a working engineering notebook, **not a scrapbook**. Please include your name, county, and age on the front cover.

H900002 - *Wind Poster - Poster should exemplify one of the lessons learned in the Power of Wind project. Posters can be any size up to 14” by 22”.

H900003 - *Mini Turbine Blade Energy Display - Develop a pinwheel display that demonstrates the working power of wind. Follow guidelines on page 18 and 19 of your manual. Display should include a notebook description of the effectiveness of at least three different designs or materials. Please do not include pennies with your display.

H900004 - *Wind Art or Literature Written Piece - Item should illustrate or represent wind turbines, wind power, or something from the power of wind curriculum, for example a pinwheel or item may be original story or poem written by the exhibitor about wind.

H900005 - *Wind as Energy Display - Item should be the original design of the 4-Her. Include the item, or a picture if item is in excess of 6’ tall or 2’ x 2’. Include a notebook of why the item was designed and how it harnesses the power of wind.

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H900010 - *Careers Interview - Interview someone who is working in the field of wind and research the career in wind. 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 pages, double spaced, 12 point font, and 1” margins. Multimedia reports should be between 3 to 5 minutes in length.

DEPARTMENT WOODWORKING

●**NOTE:** Exhibitors may enter one item per entry number. **Wood items made at school, Scouts, or other organizations are not eligible for this department. These items will be entered under Department Miscellaneous, & Camp or County Workshop Exhibits, Division 158.**

● **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. Part of the score depends on how well the project matches the plans. If the plans are modified, the changes from the original need to be noted on the plans. **All plans used for making the article must be securely attached and protected by a clear plastic cover.** 4-H’ers must be in Unit 3 or Unit 4 for the exhibit to be considered for State Fair.

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

DIVISION 910 - WOODWORKING LEVEL 1 & 2

MEASURING IT UP - Unit 1

Classes:

H910001 - Woodworking Article #1 - Item made using skills learned in the Measuring It Up Project Manual. Examples include: recipe holder, stilts or other skill level appropriate item. Items should be entered with construction plans.

H910002 - Woodworking Article #2 - Item made using skills learned in the Measuring It Up Project Manual. Items should be entered with construction plans.

MAKING THE CUT - Unit 2

Classes:

H910003 - Woodworking Article #1 - Item made using skills learned in the Making The Cut Project Manual. Examples include: whistle, sawhorse, birdhouse, tool box, stool or other skill level appropriate item. Items should be entered with construction plans.

H910004 - Woodworking Article #2 - Items made using skills learned in the Making The Cut Project Manual. Items should be entered with construction plans.

DIVISION 911 - WOODWORKING LEVEL 3 & 4

●Exhibitors may enter one item per entry number in woodworking. **Wood items made at school, Scouts, or other organizations are not eligible for fair. Wood items made at school, Scouts, or other organizations are not eligible for this department.**

●**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. 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 securely attached and protected by a clear plastic cover. 4-H’ers must be in Unit 3 or Unit 4 for the exhibit to be considered for State Fair.

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NAILING IT TOGETHER – UNIT 3

Classes:

H911001 - *Woodworking Article #1 - Item made using skills learned in the Nailing It Together Manual.

Examples include: bookcase, coffee table or end table. Enter with construction plans.

H911011 - Woodworking Article #2 - Item made using skills learned in the Nailing It Together Manual.

Examples include: bookcase, coffee table or end table. Enter with construction plans.

H911002 - *Woodworking Display #1 - Display exemplifying one of the principles learned in the Nailing It

Together Project. Examples include: measuring angles, wood lamination and joint types. Enter with construction plans.

H911012 - Woodworking Display #2 - Display exemplifying one of the principles learned in the Nailing It

Together Project. Examples include: measuring angles, wood lamination and joint types. Enter with construction plans.

H911005 - * Recycled Woodworking Display - Article made from recycled, reclaimed or composite wood.

Article must be sanded and sealed and utilize one or more woodworking techniques from page 2 of the Unit 3 manual. Exhibit must include the woodworking plan and a minimum one page report of how the engineering design process was used to develop the woodworking plan.

Engineering Design Process

- 1) State the problem (Why did you need this item?)
- 2) Generate possible solutions (How have others solved the problem? What other alternative or designs were considered?)
- 3) Select a solution (How does your solution compare on the basis of cost, availability, and functionality?)
- 4) Build the item (What was your woodworking plan, and what processes did you use to build your item?)
- 5) Evaluate (How does your item solve the original need?)
- 6) Present results (How would you do this better next time?)

FINISHING UP – UNIT 4

Classes:

H911003 - *Woodworking Article #1 - Item made using skills learned in the Finishing It Up Project.

Examples include: dovetailing, making a pen using lathe, overlays, using a router, etc. Items should be entered with construction plans.

H911013 - Woodworking Article #2 - Item made using skills learned in the Finishing It Up Project.

Examples include: dovetailing, making a pen using lathe, overlays, using a router, etc. Items should be entered with construction plans.

H911004 - *Woodworking Display #1 - Display exemplifying one of the principles learned in the Finishing It

Up Project. Examples include: career opportunities, types of finishes, or dovetailing. Items should be entered with construction plans.

H911014 - Woodworking Display #2 - Display exemplifying one of the principles learned in the Finishing It

Up Project. Examples include: career opportunities, types of finishes, or dovetailing. Items should be entered with construction plans.

H911006 - Recycled Woodworking Display - Article made from recycled, reclaimed or composite wood.

Article must be sanded and sealed and utilize one or more woodworking techniques from page 2 of the Unit 3 manual. Exhibit must include the woodworking plan and a minimum one page report of how the engineering design process was used to develop the woodworking plan.

Engineering Design Process

- 1) State the problem (Why did you need this item?)
- 2) Generate possible solutions (How have others solved the problem? What other alternative or designs were considered?)
- 3) Select a solution (How does your solution compare on the basis of cost, availability, and functionality?)
- 4) Build the item (What was your woodworking plan, and what processes did you use to build your item?)
- 5) Evaluate (How does your item solve the original need?)
- 6) Present results (How would you do this better next time?)

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Careers

H911010 - *Careers Interview - Interview someone who is working in the field of woodworking and research that career. 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 pages, double spaced, 12 point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.

DEPARTMENT WELDING

PREMIUMS: Purple-\$4.50, Blue-\$4.00, Red-\$3.50, White-\$2.50

(All metal welding processes accepted.)

● 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 the weld when necessary. Each weld should be labeled with information stated 1) type of welding process (stick, MIG, TIG, OTY-Acetylene, etc.) 2) kind of weld, 3) welder setting, 4) electrode/wire/rod size, and 5) electrode/wire/rod ID numbers. Attach a wire to display board so it can be hung like a picture frame.

●4-H Welding Project Tips and Suggestions

Class 1

◆ All welds should be made with the same electrode/wire/rod size and number

◆ Welds should be made on one side of metal so penetration can be judged.

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.

◆ 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 - 1/4" if using 1/8" rod

- Suggested rod-AC and DC straight or reverse polarity-first E-7014, second E-6013

● MIG welding

- Suggested coupon thickness - 1/4" if using .035 wire and 1/8" if using .023 wire

● Oxy-Acetylene

- Suggested coupon thickness - 1/8"

- Suggested rod-1/8" mild steel rod

Class 2

◆ 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" and 1/4" 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.

◆ 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. (CONTINUED →)

Class 3

◆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.

DIVISION 920 - ARCS AND SPARKS

Classes:

H920001 - *Welding Joints - a display of one butt, one lap and one fillet weld.

H920002 - *Position Welds - a display showing three beads welded in the vertical down, horizontal and overhead positions.

H920003 - *Welding Article - any shop article or piece of furniture where welding is used in the construction. All plans and bill of materials must be attached to the article. Protect plans with a cover.

Careers

H92004 - *Careers Interview - Interview someone who is working in the field of welding and research that career. 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 pages, double spaced, 12 point font, and 1" margins. Multimedia reports should be between 3 to 5 minutes in length.

CLOVER KIDS

DEPARTMENT CLOVER KIDS

●Participation ribbons **ONLY** will be awarded.

DIVISION 100 - FAMILY CELEBRATIONS AROUND THE WORLD

Classes:

I100001 - Collage - 14" x 22" - Make a collage with pictures of families, including activities children and families do together. Include picture of families from different cultures and races.

I100002 - Poster - 14" x 22" - Illustrate a family celebration that a country, other than the U.S. celebrates.

I100003 - Indian Rakhi Bracelet

I100004 - Mexican Pinata

I100005 - A snack - from "Around the World" manual. Include the recipe.

DIVISION 153 - THEATRE ARTS 1 - PLAY THE ROLE

Classes:

I153001 - Create a simple puppet - write down a short story for your puppet to act out.

I153002 - Create a picture story - Illustrate a problem and how the characters solve the problem.

I153003 - Poster - Acting Out My Feelings (14" x 22")

DIVISION 157 - MISCELLANEOUS - 2016 THEME

●Exhibitors may use whatever means is most effective in using the 2016 "4-H Grows Here" Theme to construct an exhibit for the following classes. The exhibit should include sufficient explanation so that viewers understand what was done. All exhibits that are hangable must have a secure wire hanger.

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