SCIENCE, ENGINEERING AND TECHNOLOGY

All exhibits must be labeled. Label each item with the exhibitor name, project division, exhibit class number and years in the project before entering at county fair. 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 1/4" in thickness. A height of 23 7/8" 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 3/4" 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 plan 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.

4-H'ers can exhibit in only one level, and once they have progressed to a higher level they cannot exhibit or enroll in a lower project level. This does not apply to Aerospace Model Rockets Levels 3 and 4 and Woodworking Levels 3 and 4.

DIVISION — 860
COMPUTERS
*Denotes State Fair Entry
Purple, $3; Blue, $2; Red, $1.50; White, $1

The name and county of each exhibitor should appear on the back of each board or article so the exhibit may be identified if the entry tag is separated from the exhibit. Each exhibitor is limited to one exhibit per class. Several classes require a display board which should be a height of 24 inches and not to exceed ¼ inches 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-foot by 8-foot sheet of plywood. Nothing should be mounted within ¾ inch of the top or bottom of the board. 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. Demonstration boards should include an overall title for the display, plus other necessary labeling. All reports should be clearly written or typed and enclosed in a clear, plastic cover. The reports should be attached securely to the display.

COMPUTER MYSTERIES — UNIT 1

H860015   Beginning Flyer/Brochure Computer Exhibit — 4-H'ers demonstrate their beginning skills in producing a flyer or brochure on a topic relating to 4-H. This project is for those in their first and/or second year of the computer project only. Using existing software is acceptable.

H860016   Computer Exhibit — 4-H'ers demonstrate their skills in producing a Word document on a topic relating to 4-H. This project is for those in their beginning year of the computer project only. Using existing software is acceptable.

COMPUTER MYSTERIES — UNIT 2

*H860001   Computer Application — 4-H exhibitor should use computer application to create a graphic notebook utilizing computer technology. 4-H'er may create any of the following: greeting card (3 different cards should as a birthday, wedding, anniversary, sympathy get well or other); a business card (2 cards for 2 different individuals and businesses); menu (minimum of 2 pages including short description of foods and pricing); cd cover (front and back); book layout (I-book); promotional flyer (2 flyers promoting 2 different events); newsletter (minimum 2 pages); or other: examples such as precision farming or family business logo etc. This exhibit consists of a notebook (8.5x11 inches) which should include a (1) 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 (2) print out of your project. Project may be in color or black and white.

*H860002   Produce a Computer Slideshow Presentation — Using presentation software. All county fair projects with a printout should be saved on a CD Rom to be submitted for county fair. 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.

COMPUTER MYSTERIES — UNIT 3

*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, and should include 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 minute 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 (as of 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.

*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 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   3D PRINTING: 3D 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.

3D 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 the 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.

H860008   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 (8½ inches by 11 inches) which should include these parts: 1. A cover page; 2. A report including: (a) what the 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.

Purple, $2; Blue, $1.50; Red, $1; White, $0.50

H860009   Poster — the poster should exemplify one of the lessons learned in the Computer Mysteries project. Posters can be any size up to 28 inches by 22 inches.

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.

DIVISION — 861
ROBOTICS

Youth enrolled in Robotics Explorer, Robotics Probe, Junk Drawer Robotics or GEAR TECH 21 may exhibit in any class within this division.

*Denotes State Fair Entry

Purple, $3; Blue, $2; Red, $1.50; White, $1

*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, pseudocode, 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/Career Interview — Interview someone who is working in the field of robotics and research that 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-inch margins. Multimedia reports should be between 3 and 5 minutes in length.

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

    *H861006   Build a Robot (may use kit) — Include a robot and notebook including the pseudocodes for at least one program you have written for the robot, , the robots 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.