Science, Engineering & Technology - Department H
Division 860 – Computers

This category gives 4-H'ers a chance to display their knowledge of computers. Through participation in this category 4-H'ers will develop presentations that show judges their knowledge in the different aspects of computer science. Involvement in SET Computers gives participants a first-hand experience in modern technology. For help getting started with this project contact your county 4-H extension office.

Rules

1. 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 the exhibit may be identified if the entry tag is separated from the exhibit.
2. Demonstration boards should include an overall title for the display, plus other necessary labeling.
3. 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. 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.
5. Please refer to the General Rules for the policy regarding firearms, items with a blade, and other related items.
6. **Team Entries:** To qualify for entry at the Nebraska State Fair team materials entered in H860008 - Digital Fabrication must clearly be the work of a team instead of an individual, and 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.

COMPUTERS - UNIT 1

*** Following 900# classes are not eligible for State Fair consideration***

CLASS 901 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 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 from, and (4) an example of input and output

CLASS 902 COMMERCIAL SOFTWARE UTILIZATION

Exhibit will be notebook of the documentation and print-outs using each section of the commercial program (i.e. Microsoft Works; Word processor, Database, Spreadsheet). The notebook will consist of the following areas: 1) cover page, 2) print-outs of each of the sections offered by the software and 3) a paragraph explaining how each section can be used.

CLASS 903 COMPUTER POSTER

Create a poster. Examples might include: hardware, software programs, how to take care of a computer and operating systems.

CLASS 904 COMPUTER GRAPHIC ART POSTER (BLACK & WHITE)

Exhibit should be created on at least an 8 ½" x 11" page using a commercially available graphics software package and a single color printer/plotter. Posters shall be mounted on a 14" x 22" poster either in vertical or horizontal arrangement. No theme required.

CLASS 905 COMPUTER GRAPHIC ART POSTER (COLOR)

Exhibit should be created on at least an 8 ½" x 11" page using a commercially available graphics software package and color printer/plotter. Posters shall be mounted on a 14" x 22" poster either in vertical or horizontal arrangement. No theme required.

CLASS 906 COMPUTER DESIGNED GREETING CARD

Exhibit will consist of six (6) greeting cards, each for a different occasion/holiday. Cards should be created on an 8 ½ x 11" page using commercially available graphics program and either single color or color printer/plotter. The cards should vary in folds and design. Tell which software program was used. Prefabricated cards from commercially available card programs will NOT be accepted. No theme required. Put cards in some type of protective cover.

COMPUTER MYSTERIES – UNIT 2

CLASS 1 Computer Application Poster (SF277)

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 (5 different cards such as a birthday, wedding, anniversary, sympathy get well or other); a business card (3 cards for 3 different individuals and businesses); menu (minimum of 2 pages including short description of foods and pricing); book layout (I-book); promotional flyer (3 flyers promoting 3 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.

CLASS 2 **Produce a Computer Slideshow Presentation (SF276)**

Using presentation software. All slide shows **for state fair** should be emailed to Amy Timmerman atimmerman2@unl.edu before August 15. Files must be saved in a PC compatible format with county name and last name of participant before emailing. A notebook with a printout of all the slides should be submitted. Slideshow should include a minimum of 10 slides and no more than 25. Incorporate appropriate slide layouts, graphics, animations and audio (music or voice and transition sounds do not count). Each slide should include notes for a presenter. All slideshows must be up loaded.

COMPUTER MYSTERIES – UNIT 3

CLASS 3 **Produce an Audio/Video Computer Presentation (SF276)**

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.

CLASS 4 **How to STEM (Science, Technology, Engineering and Math) Presentation (SF276)**

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.

CLASS 5 **Create a Web Site/Blog or App (SF275)**

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 should be submitted 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.

CLASS 6 3D PRINTING Unique Items (SF1050)

3D printing uses plastic or other materials to build a three-dimensional (3D) object for 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 motivation and/or problem identified. For example, 3D objects printed as part of the design process for robot or other engineering project or cookie cutter. Must include design notebook with motivation or problem statement the prototype was 3D printing will include a notebook with the following:

1. Define motivation/problem solved
2. Software used
3. Document purpose of material and print settings
4. Material choice (PLA, PVA, ABS, etc.)
5. In-fill density
6. Moving parts

CLASS 7 3D Pen Creation (SF1050)

3D pens rapidly melt and cool plastic filament allowing the 4-H member to draw in 3D. Youth may use original designs or use a template to create their 3D item. Exhibits will be judged based on the complexity of the design and shape. 3D pen creation will include a notebook with the following:

1. Copy of the template if used and description of any changes the youth created.
2. If no template used - an explanation of how the creation was built.
3. Must include paragraph of what the youth learned while creating their project (i.e. way to improve their next creation)
4. Paragraph on how 3D pens impact science, engineering, and technology.

CLASS 8 Maker Space/Digital Fabrication (SF1050)

This project is a computer generated projected created using a laser cutter, vinyl cutter, heat press or CNC router. Vector or 3D based software such as Corel Draw or Fusion 360 would be an example of an appropriate software used to create your finished project. Project should include a notebook with the following:

1. What motivated you to create this project
2. Software and equipment used
3. Directions on how to create the project
4. Prototype of plans
5. Cost of creating project
6. Iterations or modifications made to original plans
7. Changes you would make if you remade the project

Resources

Computer Mysteries 1

Learn about hardware and software; Discuss Internet safety; Create and save data.
URL: https://4hcurriculum.unl.edu/index.php/main/program_project/123

Computer Mysteries 2

Use Internet search engines; Take apart a computer; Participate in a chat room; Create a newspaper or magazine.
URL: https://4hcurriculum.unl.edu/index.php/main/program_project/124

Computer Mysteries 3

Build your own computer system; Design a Web site; Develop a multimedia presentation; Use spreadsheets.
URL: https://4hcurriculum.unl.edu/index.php/main/program_project/125