

DEPARTMENT – BUILDING EXHIBITS

SECTION – COMPUTER SCIENCE

(Must be enrolled in Computer Science)

SECTION - 4-H COMPUTER SCIENCE

The 4-H computer science project teaches concepts related to computers, hardware knowledge, software programming and applications, internet safety, the building, maintenance and repair of computers and future career opportunities. Please note that the actual construction of computer hardware (i.e., building a computer, electronic devices with a mother-board based manipulation) will remain in the Energy Management division.

1. Read General Read ALL General. Violation of any of the following rules may result in disqualification. All decisions will be made by a county agent and their decision is final.
 2. Each exhibitor is limited to 1 entry per class. Exhibits must be the result of the current year's project work by 4-H member.
 3. Exhibitors name, county, age, and year's in project must be tagged or labeled in a prominent location on all pieces of exhibit including educational display, poster and/or notebook.
 4. Team exhibits are defined as developed by two or more 4-H members.
 5. The 4-H members must be currently enrolled in the 4-H Computer Science project to exhibit in this division.
 6. See the last section for full details about exhibiting posters, display boards and notebooks.
 7. If a safety violation is noted by the judges, superintendent, or other staff, the exhibit will receive a participation ribbon (at the judge's discretion).
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1. The actual construction of computer hardware (For example, building a computer, which would include computer components plugged into a motherboard, discrete circuitry soldered on a printed circuit board, or wire-wrapped circuitry) will be entered in the Electronics Division., except for exhibits entered in Class 5594. 2.
 2. If a safety violation is noted by the judge, superintendent, or other staff, the exhibitor's exhibit, at the judge's discretion, will be disqualified. A safety violation could include Malware, a virus, or any similar program that potentially is harmful. Exhibit Requirements
 - a. All exhibits in the Computer Science division must be entered on a USB drive containing all supporting documents as listed below for each class.
 - i. The USB drive should be included in a manilla folder with the Computer Exhibit Form (found at <http://computers.engtech4ks.com/> or your local extension office) attached to the front. b. The USB drive should be labeled with the 4-H member's name and county.
 3. Source code must be included on the USB drive for all computer programming projects coded by the 4-H member. This could include a .txt file, python file, Scratch URL, etc. Failure to include the source code will result in one ribbon deduction.
 4. Each exhibit must include written operating instructions including how to locate, run, and use the project. Operating instructions should be printed and placed in the manilla envelope and included digitally on the USB drive.
 5. Each exhibit must be accompanied by a typed requirements document included on the USB drive. See [link] for a template that can be used for documenting requirements.
 - a. The requirements document should be started at the beginning of the project. It will include a list of goals and requirements that the 4-H member wants to include or achieve in their final project.
 - b. The project requirements section is formatted as a checklist, with the 4-Her checking off what they accomplished and making adjustments throughout their work on the project as needed.
 - c. Flow charts, designs, or other diagrams may be included for computer programs to show the logical flow of the program as needed.

6. For coded computer programs, screenshots of the program will be displayed digitally at the state fair. Screenshots must be included electronically on the USB drive. For county fairs, it is recommended to print screenshots for display at fairs that don't have electronic displays available.
7. All electric components of micro controlled devices must be adequately covered or concealed with a protective enclosure. Paper is NOT considered an adequate enclosure or covering for electrical components.

Judging

1. Kansas State Fair Judge(s) in the computer system division will have a physical computer with the following minimum configuration to test exhibits with and view files:
 - a. Microsoft Windows® 10 or Windows® 11
 - b. Microsoft Office® 365 (Excel, Power Point, & Word)
 - c. Microsoft Visual Studio®
 - d. Microsoft Edge Browser®
 - e. Mozilla Firefox® Browser
 - f. Google Chrome® Browser
 - g. Adobe Acrobat Reader®
 - h. Apache Open Office®
 - i. Scratch Desktop editor (offline version)
2. Judging of microcontrolled devices is based on the code, not the hardware.
3. Judging will be based on a score sheet that can be found at <http://computers.engtech4ks.com/>. There are three (3) areas each exhibit will be judged on. They are:
 - a. Requirements document
 - b. Operating Instructions
 - c. Functionality (how well did the project meet project objectives)

5590 Computer program, application, app, script, or coded system that is new and unique (not merely a file run in a program, such as a 'word document' or a picture drawn in 'Microsoft Paint').

NEW Coded website built entirely by the 4-H Member (not using a pre-made template generator such as Wix or Squarespace). Items in this class could be coded in HTML, CSS, Javascript, Wordpress, or other web-based programming languages or platforms.

5594 Microcontroller or microcomputer application - a small circuit board that is programmed to accomplish a specific task (projects built and programmed using Raspberry Pi, Arduino, etc.)

4-H STEM EDUCATIONAL EXHIBITS – POSTERS, NOTEBOOKS AND DISPLAY BOARDS

For notebooks, display boards, and posters, no additional exhibit information is required; no manila envelope is needed for these exhibits. Exhibits are to have a clear link to the Engineering and Technology areas of Computers.

1. Exhibits in posters, notebooks and display boards must contain substantial supporting educational materials.
2. Educational display boards, posters and notebooks should be creative and showcase details about the knowledge learned in the project during the current 4-H year. Value is placed on youth who can demonstrate how their skills have increased while completing the project. Each exhibit will be judged on uniqueness, creativity, neatness, accuracy of material, knowledge gained, and content. An exhibit judging score sheet will be available at <http://computers.engtech4ks.com/>.

5. Follow copyright laws, citing all sources of information in a standard notation. Sources of information must be cited on the front of your exhibit, including all posters and educational display boards.
6. Educational displays are not to exceed a standard commercial 3'x 4' tri-fold display board. Card tables for display are not required but can be used at the county only level. Care should be taken to use durable materials that will withstand Fair conditions.
7. "Construction Kits" that are part of Educational displays must be contained in cases (tackle boxes, sealable containers, etc.) that may not be larger than 1' X 2' X 2' and must have a latch which securely keeps all components contained in the "Construction Kits". Other components are to adhere to appropriate dimensions as stated elsewhere.
8. Educational Project notebooks must be organized in a 3-ring binder.
9. Any three dimensional display exhibits may not be thicker than 1".
10. Exhibitor's name, county or district, age, and year(s) in project must be tagged or labeled in a prominent location on the notebook and/or "Construction Kit." For educational displays and/or posters, the exhibitor's name, county, age, and year(s) in project must be tagged or labels on the back of the exhibit. Failure to label an exhibit may result in one ribbon placing deduction.
11. Exhibits should possess the following qualities (in no particular order):
 - A Central theme
 - What you want others to learn
 - Be designed and constructed in a manner befitting the exhibit
 - Be something you are interested in
 - Be related to Astronomy, Computer Systems, Robotics, Rocketry, or Unmanned Aerial Systems and those characteristics described above
12. If a safety violation is noted by the judge, superintendent, or other staff, the exhibit will receive a participation ribbon (exhibit at the judge's discretion).

Computers - Novice – Ages 7-8

- 5765 Novice Computers Science Educational Display
- 5769 Novice Computers Science Educational Notebook
- 5770 Novice Computers Science Educational Poster

Computers - Intermediate Division – Ages 9-13

- 5771 Intermediate Computer Science Educational Poster
- 5772 Intermediate Computer Science Display Board
- 5773 Intermediate Computer Science Notebook

Computers - Senior Division – 14 years and older

- 5776 Senior Computer Science Educational Poster
- 5777 Senior Computer Science Display Board
- 5778 Senior Computer Science Notebook