



COMPUTER TIP SHEET

General/Natural
Resources Projects

Project Information

4-H Computer Project

4-H Computers is a Computer Science Project for 4-H members interested in gaining experience in computer building, repairing and networking. Our goal is to engage, young people and their project helpers in computer science activities and community service. A web site provides links and resources to a variety of extended learning opportunities in topics such as open source software development and learning programming language and programming skill development such as fundamental concepts like sequencing, iteration, conditionals, variables and modulation.

Discovering Computer Science and Programming Through Scratch

This curriculum introduces young people to five fundamental principles of computer programming, providing a foundation for exploring and creating. Scratch is a project of the Lifelong Kindergarten Group at the MIT Media Lab. Each youth in a group should have his/her own guidebook. In Discovering Computer Science & Programming through Scratch, youth interact with a series of tutorials and challenges within the Scratch environment. Youth can work on the activities individually, with partners, or in a guided instructional setting. Designed for grades 6-8.

Computers in the 21st Century

Youth will learn and demonstrate the use of specific computing skills related to 21st century emerging technologies. This unit is for Intermediates and Seniors. Youth in this unit can gain knowledge on a variety of topics including but not limited to: application design, operation and development, development and personalization of operating systems (such as Linux), advanced programming language use and writing code to perform tasks, utilization or research of SMART systems (such as SMART homes, et al), development and proper utilization of social networking with considerations of professionalism, researching careers that utilize computer skills (such as online marketing, computer programming, web development, app creation and design, et al), advanced web design and development, working with SMART devices and maximizing their potential, game development and use of crowd sourcing. Completed projects in this unit could include building your own microcontroller projects (like with Arduino, Raspberry Pi, Spark-Fun Inventor's Kit, et al), code an App for a mobile device, complete a program/game using code, design and build a network to connect multiple devices, design and create your own website, use Makey Makey to solve a problem or create a tool and much more.



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Literature Needed:

Leader Literature

MC0206A Discovering Computer Science Facilitator Guide

Computers in the 21st Century will use the Discovering Computer Science materials

Member Literature

Computers in the 21st Century Int/Sr. --youth will use the Discovering Computer Science Youth Guide

MC0205A Discovering Computer Science Youth Guide

Exhibit Requirements can be found at:

http://www.colorado4h.org/projects_resources/StateFairExhibitReq.pdf

Score Sheets can be found at:

http://www.colorado4h.org/evenopportunities/state_fair/score_sheets/index.php

e-Record can be found at:

http://www.colorado4h.org/projects_resources/erecords/index.php

Resources

<http://4-h.org/parents/curriculum/computer>

Scratch: <https://scratch.mit.edu/>

CSUnplugged: <http://csunplugged.org/>

Technovation for Girls: <http://www.technovationchallenge.org/>

Sploder: Where Games Come True: <http://www.sploder.com/>

Invent with Python: <http://inventwithpython.com/>

RoboMind: <http://www.robomind.net/en/>

CodeBender: <https://codebender.cc/>

Discover 4-H Coding Clubs: <http://utah4h.org/discover/>



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New Exhibit Requirements

All exhibits will consist of the following:

A. One sturdy binder/notebook containing completed e-Record.

B. A completed exhibit consists of ONE of the following:

1. A display board illustrating a topic learned as a part of the 4-H project. The standardized display board size of 4 ft. x 3 ft. is to be used with 4-H projects. No additional items may be included in front of display board. All items must be attached to display boards.
2. A stand-alone exhibit demonstrating a skill learned or an item developed. For example, a Makey Makey keyboard or a micro controller project. All stand-alone projects are subject to risks of display at county and state fair if eligible.
3. A CD or DVD with the program or a video of the project. This CD or DVD must be playable on a PC.

C. Project will be evaluated on the quality of the information completed in the e-record (25 percent) and quality of the exhibit (75 percent).

Note: For more information on displays and projects go to http://www.colorado4h.org/project_resources/StateFairExhibitReq.pdf and look under Display Hints and Tips and Project Tip

Project Tips

- Members may stay in an unit for more than one year. The exhibit must be different each year.
- Display items must be self-contained and capable of being judge "as is". Example: Sample printouts of code developed, multimedia projects created or Web pages/sites developed.
- No three-dimensional displays will be accepted.
- Enter your project in the county fair.
- Share information learned in talks and displays.

Judging Criteria:

- Completeness of project and e-record.
- E-record includes demonstrations, talks, story, and pictures, with at least one action shot of the member doing something with their project.
- Neatness and legibility
- How you completed your activities and quality of exhibit.