



COLORADO STATE UNIVERSITY
EXTENSION

Computer Science

Level 1: Fundamentals is designed for members 8-18 years old.

Discovering Computer Science & Programming Through Scratch Level 1

Inspiring youth to:

- Interact with a series of tutorials and challenges within the Scratch environment
- Introduce the five fundamental principles of computer science concepts: sequence, iteration, conditionals, variables, and modularization
- Learn beginner programming skills using Scratch
- If you exhibit a program, include 8 different commands including looping and getting input from the keyboard and mouse.

Level 2: Explorations & Level 3 is designed for members 11-18 years old.

Inspiring youth to:

- Gain knowledge on application design, operation, development, writing code and much more



Discovering Computer Science Level 2

Inspiring youth to:

- Learn more about generalizations and modularity
- Introduce clones and lists in Scratch
- Exhibit a modified program using Scratch by comparing the programs or creating an animated storybook or a video game

Discovering Computer Science Level 3

Inspiring youth to:

- Learn about recursive programming
- use recursion to help solve problems
- Learn how to draw intricate fractals through recursive programming
- Exhibit an original program using a higher level programming language such as Python, Javascript, C++, etc.

Computer Science & Coding is designed for members 11-18 years old.

Inspiring youth to:

- Build upon coding skills learned in earlier units through using Scratch or Python
- Advance web development skills
- Explore careers in Computer Science

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Tips:

- Members may stay in a unit for more than one year. The exhibit must be different each year.
- Youth are allowed to enter a display board, program, or stand-alone exhibit, but not all.
- Display items must be self-contained and capable of being judged “as is”. Example: sample printouts of code developed, or multimedia projects created or Web pages/sites developed.
- 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 you doing something with your project
- Neatness and legibility
- How you completed your activities and quality of exhibit



Resources:

- Exhibit & Judging Requirements
- Record Books
- Manual Information

Located at: Colorado4h.org
Note: Manuals are available from Purdue University.



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Computer Careers



Information System Manager/Director
Oversee the information technology department of organizations



Research
Conduct tests or experiments to see how to improve existing technologies as well as opportunities for new software to be created



Software Development
Develop software for a wide variety of industries



Data Analysis
Translate large amounts of data into usable reports for the organization to make management type decisions



Degrees/Certifications:
Computer Information Systems
Computer Science
Network Administration
Database Management
Software Development/Engineering
Computer Language Coding/Programing
Business or Marketing
Math or Science
Electrical Engineering



Information Security
Plan and carryout security measures to protect an organization's data



Computer Programming/Coding
Write code for different programs that allows software to function properly



Web Developer
Create content for websites as well as create websites to fit the different needs of clients



Network Administrator
Daily maintenance of the network and ensuring proper communication with the database