



# 4-H COMPUTER & INTERNET PROJECT



In your car, the cell phone in your pocket, devices in your home and workplace- computers surround us! Knowing how to operate a computer and code is quickly becoming a required 21st century skill. A 4-H computer project will help members learn about software and/or hardware topics.

- Learn about computer hardware, including control, memory, input and output devices
- Explore and learn to navigate an operating system (PC or Mac) and install and use software for specific applications
- Learn to code and test a simple program
- Learn about the use of computers in science, engineering, and technology fields

## Starting Out *Beginner*

- Learn to navigate and use a computer's graphical interface
- Learn about the types of computers (notebooks, tablets, desktops)
- Explore software applications available on your computer
- Install new software
- Learn about hardware, identify the components and how they work
- Install a peripheral device
- Explore the history of computers

## Learning More *Intermediate*

- Learn about Internet safety
- Upgrade or build your own computer
- Learn about system maintenance (defrag, virus scans)
- Experience the troubleshooting process to fix an issue
- Learn basic programming concepts—if, loop, etc.
- Learn a programming language (like C++, Java)
- Explore potential careers in computers

## Exploring Depth *Advanced*

- Install and administer an open-source operating system (e.g., Linux)
- Dig into theories of computation, algorithms and data structures
- Design and build a network to connect multiple devices
- Code an App for a mobile device
- Build your own mini-computer using a microcontroller (like Aurdino or Raspberry Pi)

The activities above are ideas to inspire further project development. This is not a complete list.

## 4-H THRIVE

### Help Youth:

### Light Their Spark

A spark is something youth are passionate about; it really fires them up and gives them joy and energy. Help youth find how this project excites them.

### Flex Their Brain

The brain grows stronger when we try new things and master new skills. Encourage youth effort and persistence to help them reach higher levels of success.

### Reach Their Goals

Help youth use the GPS system to achieve their goals.

**Goal Selection:** Choose one meaningful, realistic and demanding goal.

**Pursue Strategies:** Create a step-by-step plan to make daily choices that support your goal.

**Shift Gears:** Change strategies if you're having difficulties reaching your goal. Seek help from others. What are youth going to do when things get in their way?

### Reflect

Ask project members how they can use their passion for this project to be more confident, competent and caring. Discuss ways they can use their skills to make a contribution in the community, improve their character or establish connections.



# Expand Your Experiences!

## Science, Technology, Engineering, and Mathematics

- Design and code a microcontroller to help in a scientific investigation, for example, to record temperature over a period of time
- Improve your computational thinking skills by formulating a task that uses a computer to solve, such as representing data through abstraction and automating analysis

## Healthy Living

- Design and code a health app to track physical activity on your cell phone
- Research and learn about ways computers (and the Internet) have connected people and strengthened relationships; present your findings at your club meeting
- Find ways to reduce online bullying at your school

## Citizenship

- Lead a beginning computer workshop for people in your community
- Join or start a movement to get more girls interested in computers and engineering
- Host a 4-H booth during National Computer Science Education Week

## Leadership

- Serve as a Junior or Teen Leader for the computer project
- Identify effective ways to facilitate meetings using computers (and the Internet)
- Find an online system to improve communication between your club members and adults

## Resources

- National Center for Women and Information Technology  
<https://www.ncwit.org/>
- Code.org  
<http://code.org/>
- UC Davis C-STEM Center  
<http://c-stem.ucdavis.edu/>
- Technovation: Coding for girls ages 10-23  
[www.technovationchallenge.org/home/](http://www.technovationchallenge.org/home/)
- Computer Science Education Week  
<http://csedweek.org/>
- Techbridge: Inspire a girl to change the world  
<http://www.techbridgegirls.org/>
- Association of Computing Machinery  
<http://www.acm.org/>
- Computational Thinking  
[csta.acm.org/Curriculum/sub/CurrFiles/CompThinkingFlyer.pdf](http://csta.acm.org/Curriculum/sub/CurrFiles/CompThinkingFlyer.pdf)
- Society of Women Engineers  
[swe.org](http://swe.org)

The UC 4-H Youth Development Program does not endorse, warrant, or otherwise take responsibility for the contents of unofficial sites.

Connections & Events	Curriculum	4-H Record Book
<p><b>Presentation Days</b> – Share what you’ve learned with others through a presentation.</p> <p><b>Field Days</b> – At these events, 4-H members may participate in a variety of contests related to their project area.</p> <p>Contact your county 4-H office to determine additional opportunities available, such as a field day.</p>	<ul style="list-style-type: none"> <li>• <b>Junk Drawer Robotics, Level 3: Mechatronics</b> <a href="http://4-h.org/robotics/">4-h.org/robotics/</a></li> <li>• <b>Computer Science Unplugged</b> <a href="http://csunplugged.org/">http://csunplugged.org/</a></li> <li>• <b>Computer Power Unlimited</b> <a href="http://www.4-h.org/resource-library/curriculum/4-h-computer/">www.4-h.org/resource-library/curriculum/4-h-computer/</a></li> </ul>	<p>4-H Record Books give members an opportunity to record events and reflect on their experiences. For each project, members document their experiences, learning and development.</p> <p>4-H Record Books also teach members record management skills and encourage them to set goals and develop a plan to meet those goals.</p> <p>To access the 4-H Record Book online, visit <a href="http://ucanr.edu/orb/">http://ucanr.edu/orb/</a></p>

