4-H COMPUTER 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*	Learning More *Intermediate*	Exploring Depth *Advanced*
- 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	- 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	- 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 what it is that 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 de-manding 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 reach-ing 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.

Light Your Spark   Flex Your Brain   Reach Your Goals   Light Your Spark   Flex Your Brain   Reach Your Goals

Expand Your Experiences!

Science, Engineering, and Technology

- 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/
- 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
- Society of Women Engineers
  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
Presentation Days – Share what you've learned with others through a robotics-related presentation. **Field Days** – At these events, 4-H members may participate in a variety of contests related to their project area. Contact your county 4-H office to determine additional opportunities available, such as a field day.	• **Junk Drawer Robotics, Level 3: Mechatronics** 4-h.org/robotics/ • **Computer Science Unplugged** http://csunplugged.org/ • **Computer Power Unlimited** www.4-h.org/resource-library/curriculum/4-h-computer/	4-H Record Books give members an opportunity to record events and reflect on their experiences. For each project, members document their personal experiences, learning and development. 4-H Record Books also teach members record management skills and encourage them to set goals and develop a plan to meet those goals. To access the 4-H Record Book online, visit www.ca4h.org/4hbook.

University *of* **California** Agriculture and Natural Resources

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Author: S. Worker