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.
- Find ways to reduce online bullying.
- Upgrade or build your own computer.
- Learn about system maintenance (defrag, virus scans).
- Experience the troubleshooting process to fix an issue.
- Learn a programming language (like C++, Java).
- Learn basic programming concepts—if, loop, etc.

### Exploring Depth (Advanced)
- Learn about the social and health impacts of computers and Internet.
- 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.
- Build your own mini-computer using a microcontroller (like Arduino 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.

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.

Connections & Events

Presentation Days – Share what you’ve learned with others through a presentation.

Field Days – At these events, 4-H members may participate in a variety of contests related to their project area.

Contact your UC Cooperative Extension to determine additional opportunities available, such as a field day.

Curriculum

- Junk Drawer Robotics, Level 3: Mechatronics 4-h.org/robotics/
- Computer Science Unplugged http://csumplugged.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 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 http://ucanr.edu/orb/

University of California Agriculture and Natural Resources

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.
FOR FUTHER INFORMATION

To order or obtain ANR publications and other products, visit the ANR Communication Services online catalog at http://anrcatalog.ucanr.edu/ or phone 1-800-994-8849. You can also place orders by mail or request a printed catalog of our products from:

University of California
Agriculture and Natural Resources
Communication Services
2801 Second Street
Davis, CA 95618
Telephone 1-800-994-8849
E-mail: anrcatalog@ucanr.edu

©2018 The Regents of the University of California. This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-nd/4.0/ or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

Publication 8604

The University of California, Division of Agriculture and Natural Resources (UC ANR) prohibits discrimination against or harassment of any person in any of its programs or activities on the basis of race, color, national origin, religion, sex, gender, gender expression, gender identity, pregnancy (which includes pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, status as a protected veteran or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994 [USERRA]), as well as state military and naval service.

UC ANR policy prohibits retaliation against any employee or person in any of its programs or activities for bringing a complaint of discrimination or harassment. UC ANR policy also prohibits retaliation against a person who assists someone with a complaint of discrimination or harassment, or participates in any manner in an investigation or resolution of a complaint of discrimination or harassment. Retaliation includes threats, intimidation, reprisals, and/or adverse actions related to any of its programs or activities.

UC ANR is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment and/or participation in any of its programs or activities without regard to race, color, religion, sex, national origin, disability, age or protected veteran status.

Inquiries regarding the University’s equal employment opportunity policies may be directed to: John Sims, Affirmative Action Contact and Title IX Officer, University of California, Agriculture and Natural Resources, 2801 Second Street, Davis, CA 95618, (530) 750-1397. Email: jsims@ucanr.edu. Website: http://ucanr.edu/sites/anrstaff/Diversity/Affirmative_Action/.

To simplify information, trade names of products have been used. No endorsement of named or illustrated products is intended, nor is criticism implied of similar products that are not mentioned or illustrated.

An electronic copy of this publication can be found at the ANR Communication Services catalog website, http://anrcatalog.ucanr.edu/.

This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by ANR Associate Editor for Human and Community—Youth Development Lynn Schmitt-McQuitty.

California 4-H Project Sheet Series Authors
JOHN BORBA, 4-H Youth Development Advisor, UC Cooperative Extension, Kern County; CLAUDIA DIAZ, 4-H Youth Development Advisor, UC Cooperative Extension, Riverside and San Bernardino counties; MARCEL HOROWITZ, Healthy Youth, Families, and Communities Advisor, UC Cooperative Extension, Yolo County; ANNE IACCO PUCCI, 4-H Healthy Living Coordinator, California State 4-H Office; SHANNON KLISCH, UC CalFresh Community Education Supervisor, UC Cooperative Extension, San Luis Obispo County; KENDRA LEWIS, 4-H Evaluation Coordinator, California State 4-H Office; KATHERINE SOULE, Youth, Families, and Communities Advisor and Director of UC Cooperative Extension, San Luis Obispo and Santa Barbara Counties; and STEVEN WORKER, 4-H Youth Development Advisor, UC Cooperative Extension, Marin, Napa, and Sonoma counties.