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.

### 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 you 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.

<table>
<thead>
<tr>
<th>Starting Out</th>
<th>Learning More</th>
<th>Exploring Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beginner</strong></td>
<td><strong>Intermediate</strong></td>
<td><strong>Advanced</strong></td>
</tr>
<tr>
<td>- Learn to navigate and use a computer’s graphical interface.</td>
<td>- Learn about Internet safety.</td>
<td>- Learn about the social and health impacts of computers and Internet.</td>
</tr>
<tr>
<td>- Learn about the types of computers (notebooks, tablets, desktops).</td>
<td>- Find ways to reduce online bullying.</td>
<td>- Install and administer an open-source operating system (e.g., Linux).</td>
</tr>
<tr>
<td>- Explore software applications available on your computer.</td>
<td>- Upgrade or build your own computer.</td>
<td>- Dig into theories of computation, algorithms and data structures.</td>
</tr>
<tr>
<td>- Install new software.</td>
<td>- Learn about system maintenance (defrag, virus scans).</td>
<td>- Design and build a network to connect multiple devices.</td>
</tr>
<tr>
<td>- Learn about hardware; identify the components and how they work.</td>
<td>- Experience the troubleshooting process to fix an issue.</td>
<td>- Build your own mini-computer using a microcontroller (like Arduino or Raspberry Pi).</td>
</tr>
<tr>
<td>- Install a peripheral device</td>
<td>- Learn a programming language (like C++, Java).</td>
<td></td>
</tr>
<tr>
<td>- Explore the history of computers.</td>
<td>- Learn basic programming concepts—if, loop, etc.</td>
<td></td>
</tr>
</tbody>
</table>

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

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/CurFiles/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.

University of California Agriculture and Natural Resources

Author of 4-H Computers and Internet Project Sheet: Steven Worker
UC ANR 4-H Youth Development Program • http://4h.ucanr.edu
FOR FURTHER 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.

University policy is intended to be consistent with the provisions of applicable State and Federal laws.

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 IACCOPOCCI, 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.