



4-H CITIZEN SCIENCE PROJECT



Citizen Science is public participation in scientific research in collaboration with scientists in community-driven research or global investigations. Citizen Science provides a platform for UC 4-H youth to be engaged in their community and participate in scientific research. As a citizen scientist, youth actively participate at the local level in global scientific research. Citizen Science includes

- asking questions
- formulating a hypothesis
- collecting and reporting data
- interpreting the results and asking more questions
- reporting the results to the community

Starting Out *Beginner*

- Identify an area of interest. Find an existing citizen science project that matches this interest.
- Participate in a citizen science event or project.
- Share what you have learned with community.
- Some ideas for citizen science projects:
- The Great Sunflower Project (greatsunflower.org).
- The Great Bird Count (gbbc.birdcount.org).
- Ant Picnic (studentsdiscover.org).

Learning More *Intermediate*

- Identify needs, and choose or design questions for the study. Find an existing project that matches these questions.
- Learn about the data collection process, management of sampling, and communication with other participants.
- Communicate results with a (4-H) presentation. Increase community awareness of the project.

Exploring Depth *Advanced*

- Identify an issue of concern that has not been addressed, and work with scientist to develop a study.
- Identify needs, and gather information and resources.
- Develop explanations and possible alternatives.
- Design data collection methods, and collect and analyze data/samples, draw conclusions, and ask new questions.
- Communicate results with different audiences.

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!

Civic Engagement

- Make owl or bat boxes to donate to local farmers to help encourage nesting in the area.
- Use data from your citizen science project to present to local lawmakers to improve living conditions for your community.

Healthy Living

- Participate in health-related citizen science projects like measuring the vitamin C in food or monitoring the health of local streams, oceans, and lakes.
- Walk and collect air quality data.

Science, Technology, Engineering, and Mathematics

- NASA: Planet Hunters search for planets and look at changes in star brightness using data collected by NASA's Kepler spacecraft, <https://www.nasa.gov/kepler/education/citizen>.
- Participate in the Lost Lady Bug Project, Cornell University, <http://www.lostladybug.org/>.

Leadership

- Research different citizen science programs and activities, and select one that can be done by your club. Organize and lead this project.
- Organize a citizen science day event for your club or county.

College and Career Readiness

- Collaborate with a local university to create a citizen science project.
- Intern with a beekeeper to learn about pollinators and the role they play in food production.
- Join a citizen science project working with a biotech laboratory.

Resources

- SciStarter <https://scistarter.com/>
- Scientific American www.scientificamerican.com/citizen-science/
- Center for Community and Citizen Science—UC Davis School of Education <https://education.ucdavis.edu/community-and-citizen-science>
- Honey Bee Challenge Kit <https://shop4-h.org/products/honey-bee-challenge-kit>
- Top 10 Citizen Science Projects of 2016 <http://blogs.plos.org/citizensci/2017/01/06/top-10-citizen-science-projects-of-2016-from-microbes-to-meteors/>

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

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 office to determine additional opportunities available, such as a field day.

Curriculum

- California Academy of Sciences (2015). Citizen Science Toolkit www.calacademy.org/educators/citizen-science-toolkit
- Cornell University. Citizen Science Central Toolkit <http://www.birds.cornell.edu/citscitoolkit/toolkit/manual>

4-H Record Book

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

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