

4-H TECHQUEST: AN AGRICULTURE & STEM CAREER PATHWAYS PROJECT

4-H is the flagship youth development program for the College of ACES and the University of Illinois Extension. For over 100 years, 4-H has served as a critical pipeline for preparing youth ages 8-18 for agriculture and STEM (Science, Technology, Engineering, and Mathematics) careers. As new technologies continue to evolve, the gap is broadening between the demand for workers in agriculture-related fields and the pipeline of qualified candidates to fill those positions. The Illinois 4-H Youth Development Program has a unique opportunity to engage the bright minds of youth from across rural and urban communities in Illinois. The 4-H TechQuest will bring together junior and high school youth, with higher education and corporate mentors, to investigate and solve today's challenges in food production, sustainable energy, water conservation, and quality of human life. This real world learning opportunity will help youth build skills and knowledge critically needed in a rapidly changing workplace.

OPPORTUNITY:

4-H plays an essential role in filling out-of-school time with goal-focused learning opportunities that engage youth in mentoring relationships, project-based learning, and opportunities to apply what they are learning within meaningful, community-centered activities. TechQuest is part of the University of Illinois Extension 4-H Agriculture & STEM Career Pathways Initiative, which endeavors to spark and make use of STEM interest in youth at all grade levels to inspire innovative ideas and enthusiasm for addressing real world challenges related to agriculture. As teens, youth begin to identify career interests and make plans for life after high school. We have an opportunity to engage them, at this age, more deeply and broaden their awareness of career fields that support and are supported by agriculture. The 4-H TechQuest is a design challenge experience aimed at creating exciting spaces filled with friendly competition and collaborative activities. Anchored in real-world problems, it helps youth build 21st century skills in high demand among employers, and to keep the field of agriculture on the cutting edge.



The 4-H TechQuest design challenge targets youth ages 13-18 from rural and urban communities who may have little-to-no exposure to agricultural fields across Illinois and includes the following components:

- An online learning community that hosts interactive and multimedia content channels curated by industry experts, styled for consumption by youth audiences covering contemporary issues in agriculture and their intersection with the latest technological innovations.
- Small teams of youth working with industry and knowledge experts to design, prototype, and present responses to agriculture-related issues involving water conservation, food production, sustainable energy, and the quality of human life.
- Well equipped, state-of-the-art mobile “maker” workshops placed strategically around the state with partnership groups (e.g. schools, libraries, YMCAs) to provide youth equitable access to innovative technologies for invention, prototyping, and experimentation.
- Multiple competitive showcase events that provide an opportunity for teams to share their innovations and receive feedback from a diverse swath of industry professionals and stakeholders in a setting that emphasizes creativity, cooperation, diversity, and excitement.

University of Illinois Extension
College of Agricultural, Consumer
and Environmental Sciences



4-H TECHQUEST: AN AGRICULTURE & STEM CAREER PATHWAYS PROJECT

- A culminating showcase, 4-H Agriculture & Engineering Challenge, hosted by the College of ACES at the University of Illinois, Urbana-Champaign campus. This showcase may occur in conjunction with the existing Illini Summer Academy program, in which teens (13-18) explore future fields of study during an on-campus experience.
- A credentialing system that allows youth to track their activities and to have them validated by experts, creating an online portfolio for use in future college and career applications.
- A sustained digital engagement platform and ecosystem that utilizes curated online content, social learning, experience point accumulation, and credentials recognizable to future employers and higher educational programs.

RESOURCES REQUIRED:

University of Illinois Extension 4-H has an existing network of over 140 staff and over 20,000 volunteers. 4-H is in every county in Illinois and is represented in both rural and urban communities. The recruitment and support of this project will be supported by this rich network of youth professionals. The additional program elements needed to fully implement the project will require funding to be allocated toward the following:

1. Digital engagement & media content development
 - a. media production equipment and services to produce new content
 - b. hire staff with appropriate skillsets to support content development
 - c. purchase appropriate licenses to build and host online platforms
2. TechQuest design challenge development
 - a. Purchase equipment and services to support multiple regional competitive events and one annual statewide event
 - i. 5 mobile workshops - container & maker tools
 - ii. design & development of event logo and signage
 - iii. live event media coverage & streaming
 - b. support recognition and awards for participating and winning teams; examples include:
 - i. smart home starter kits (google home & phillips hue)
 - ii. wearable technology (e.g. smart watch)
 - iii. iVirtual Reality (VR) or Augmented Reality(AR) headsets
 - iv. consumer 3D printer
 - v. scholarships



University of Illinois Extension provides equal opportunities in programs and employment.

University of Illinois - U.S. Department of Agriculture - Local Extension Councils Cooperating