

impact

University of Idaho Extension programs that are making a difference in Idaho.

Spark Your Imagination with Edison

AT A GLANCE

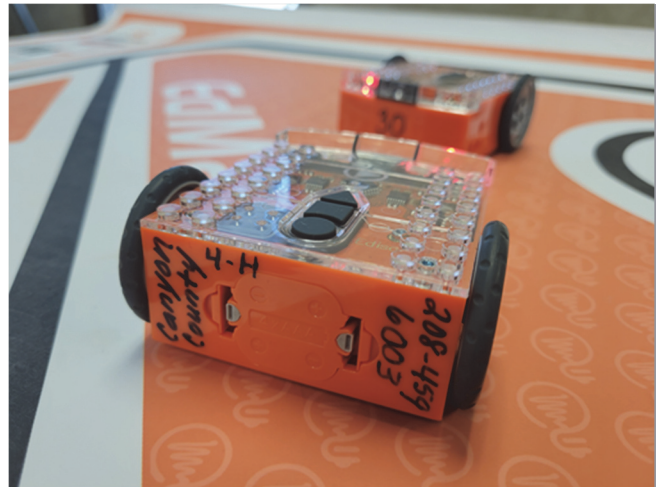
University of Idaho Extension in Canyon County teaches youth new hands-on robotics activity and shows positive learning outcomes and attitudes toward STEM.

The Situation

Canyon County youth benefit with more exposure to STEM out-of-school programs. Many schools and organizations around the valley reach out to our University of Idaho Extension, Canyon County 4-H team to request visits to classrooms or after-school programs where youth engage in enrichment activities. These activities help youth meet state and local student core subjects while engaging in exciting hands-on activities. A cornerstone of UI Extension 4-H Youth Development is STEM programming that includes programs in agriculture, natural and biological sciences, technology and engineering. Canyon County was advised by the 4-H Expansion and Review Committee to focus on STEM and underserved audiences. There was a need for a STEM program that could provide each youth with their own equipment to accommodate for COVID-19 safety protocols during the pandemic.

Our Response

UI Extension faculty in Canyon County applied for an Idaho STEM Action Center Camp & Out-of-School Program Grant and were awarded \$6,000 to purchase Edison Robotics equipment and Chromebooks. Funds were used to start a new program in the county, Spark Your Imagination with Edison, to expose youth to



Two Edison robots purchased from grant demonstrate one of the more popular activities from the project: Sumo Wrestling.

STEM enrichment activities. Canyon County youth participated in six one-hour sessions where they learned to scan unique barcodes which activated preset commands and to code the robot using Edison's Ed-Blocks program. Each youth was able to program and work with their own robot and Chromebook.

The Spark Your Imagination with Edison program allowed Extension 4-H faculty, AmeriCorps and community partners to take age-appropriate robotics equipment and lessons to each location and engage youth in robotics. Parma Learning Center, Caldwell Housing Authority, Caldwell 21st Century Afterschool Programs, St. Paul's Catholic School, Nampa Housing Authority, NeighborWorks-Gateway and Canyon Migrant Summer School programs were identified as

potential partners to pilot Spark Your Imagination with Edison. These sites target underserved groups including ethnic/racial minorities, rural, isolated youth and non-traditional 4-H participants.

Program Outcomes

During the spring and summer of 2021, Extension faculty and 4-H AmeriCorps members reached 171 youth in Canyon County with Edison Robotics during after-school, in school and day camp programming. Youth participants were 53% male and 46% female. The majority of participants were Hispanic (80%). Participants resided throughout the county with 55% residing in a central city (population of 50,000+), 26% in rural (population under 10,000) and 19% in a suburb (population between 10,000-50,000). Grades ranged from kindergarten to ninth grade with the majority in Grades 1-4 (Figure 1).

Youth participated in a pre-post quality assurance survey in either English or Spanish. Survey questions were taken from the 4-H Common Measures 2.0 Science Block. Our learning objectives for the youth participating in the program were: 1) Increase the number of youth reporting interest in STEM careers; 2) Youth will increase knowledge and understanding of opportunities to engage in STEM; 3) Youth will increase knowledge (math, science and engineering), skills (problem solving, critical thinking, design, communication) and abilities (collaboration); and 4) Youth will gain experience in one or more coding programs.

While youth in this program did not show an increased interest in STEM jobs when directly asked, 72.5% of youth in the post survey did indicate that they strongly agree or agree with the statement “I would like to study STEM after high school.” When asked if they are “interested in robotics,” 93% of youth indicated a positive yes or usually.

Youth participants did report an increase in knowledge, skills and abilities.

FOR MORE INFORMATION

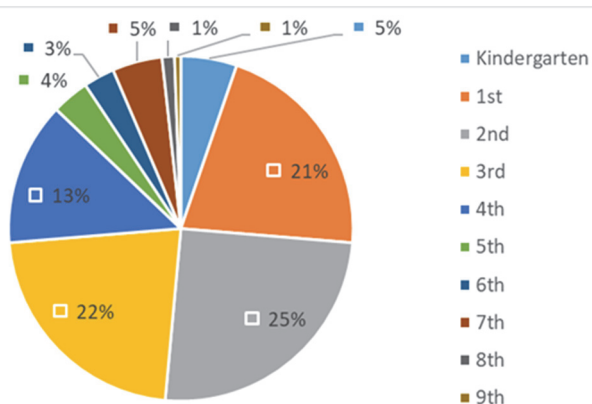
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27-21-cclarich-edison • 10/21

- 60.5% indicated that they learned new things about STEM (an increase of 37% from the pre-survey)
- 37% indicated they talked about how science can be used to help solve everyday problems (an increase of 24% from the pre-survey)
- 48.7% indicated that they know how to communicate a design solution to others (an increase of 26% from the pre-survey)

All youth working through the program were able to code using the Edison Robotics “EdBlocks” program. This block-based program is a basic program used to teach beginner level programming.



The Future

Spark Your Imagination with Edison will continue to be a vital addition in STEM programming in Canyon County where we hope to continue bringing these learning opportunities to youth and hope robotics will inspire kids to pursue additional STEM opportunities in their schools, other local organizations and 4-H.

Cooperators and Co-Sponsors

Idaho STEM Action Center — Camp & Out-of-School Program Grant 2020-2021

4-H AmeriCorps members: Ilene Holguin, Sofia Dueñas, Yasmin Estrella and Diana Magdalena.