

IMPACT

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Ada County 4-H robotics program gives kids love for science

AT A GLANCE

Ada County 4-H Robotics programs offer youth opportunities to learn hands-on STEM skills in multiple settings.

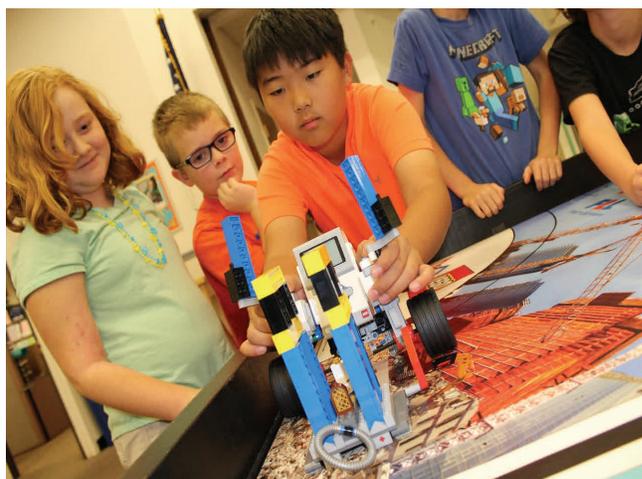
The Situation

Educational programs that give youth exposure to science, technology, engineering, and math (STEM) skills are in high demand. STEM skills are becoming more and more in demand as more jobs and careers require those skills. Youth only spend 21% of their waking hours in school, so out-of-school programs like 4-H have an opportunity to provide much needed STEM education activities in non-formal settings.

Our Response

Since 2007, UI Extension 4-H Youth Development in Ada County has been delivering high-quality robotics education activities. We use three main delivery modes to provide a minimum of six hours of instructional time to youth: day camps, school enrichment and FIRST (For Inspiration of Science and Technology) programs. Increasing from a total of 71 youth reached in 2010, we now reach over 500 youth in Ada County with educational robotics activities. Thousands more youth are reached each year through promotional activities at community events.

Using the Lego WeDo, NXT, and EV3 robotics systems, we deliver activities to youth at community centers, libraries, other community youth programs and schools. We have developed a reputation with the Idaho Afterschool Network as a strong community partner and are always looking for new partners that can help us reach even more youth.



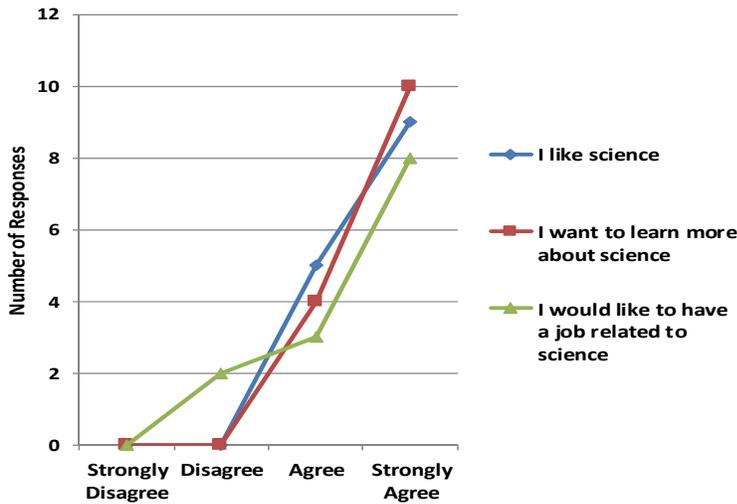
Ada County 4-H robotics youth working with their robots for the upcoming FIRST Lego League competition.

A statewide partnership with FIRST has resulted in an opportunity for Ada County 4-H to organize FIRST Lego League (FLL) competitions in the Treasure Valley. We have sponsored and organized teams for youth ages 9-14 since 2008 and have hosted a qualifying tournament since 2011. At first, our teams were coached by 4-H program staff, and as parents became familiar with the program, we recruited them to coach teams. Currently, most Ada County 4-H affiliated teams are coached by volunteers.

All of our programming efforts teach kids STEM-specific skills like product design, reverse engineering, coding, teamwork and presenting results.

Program Outcomes

Previous surveys of robotics program participants showed increase in science and life skills like problem solving, critical thinking and teamwork. In an effort to determine more specific knowledge gain, we



This chart shows the overwhelming positive response by 4-H robotics members to questions about their love for science.

piloted a survey with members of our FLL teams in 2014 using the 4-H Common Measures evaluation. The survey asked youth about their attitudes toward science. Fourteen youth took our initial survey at the end of their FLL season in 2014. Their responses about their attitudes toward science are shown in the chart above. On a scale of 1 (lowest) to 4 (highest), 4-H robotics youth rated the statement “I like science” an average of 3.64, indicating a strong short-term impact of the FLL program. They rated “I want to learn more about science” an average of 3.71, indicating a high likelihood that they will continue in the program (medium-term impact). Finally, they rated “I would like to have a job related to science” an average of 3.46, indicating that many of them intend on pursuing science education opportunities into adulthood (long-term impact). These results provide evidence that Ada County 4-H robotics programs are having the desired effect on youth who participate in our programs.

The Future

These positive results encourage us to expand our survey population to back up our initial findings. We plan to give the survey to many more youth in 2015.

We look forward to expanding our robotics offerings to additional community partners, and to develop grant funding to help us reach more youth with STEM education programs in our community. Opportunities in this area abound, and we are proud to be a part of the movement to provide out-of-school STEM education programs to youth in Ada County.

FOR MORE INFORMATION

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