

E.A.R.T.H. — UI Extension in Benewah County teaches middle school elective

AT A GLANCE

University of Idaho Extension in Benewah County taught an elective course at the St. Maries Middle School showcasing STEM, agriculture and natural resources curriculum.

The Situation

Following the conclusion of a one-year donation of space by a local family, the Benewah County STEM Center's equipment required relocation. Additionally, the shop space at the St. Maries Middle School has remained unused for three years due to the lack of a shop teacher. Through collaborative meetings with the school district's superintendent, the middle school principal and the school board, the STEM equipment was successfully relocated to the middle school shop space.

Our Response

Recognizing a critical need for enhanced STEM education, revealed through a community needs assessment, the University of Idaho Extension office developed a hands-on elective course for middle school students. The assessment indicated a strong community desire for STEM activities and a lack of practical science electives. Utilizing existing state of the art STEM equipment, we collaborated with the St. Maries school district and local community partners to deliver a program that introduced students to E.A.R.T.H. (engineering, agriculture, range/forestry, technology and horticulture) fields, provided career pathway exploration and prepares them for future Career and



Students learning about meat science during the agriculture unit with guest speaker UI Extension educator, Jessie Van Buren.

Technical Education at the high school level. This valuable resource is accessible to both public and home-schooled students within the district.

Each section of E.A.R.T.H. was taught in three-week units, with the final three weeks of the semester focusing on career exploration and development. Units featured hands on projects that engaged students and was a change from traditional science-based electives.

Program Outcomes

During the engineering unit, students applied the engineering design process to construct functional suspension bridges, utilizing straws, yarn, tape and cardboard as their primary materials. These projects served as a platform for applying theoretical knowledge to real

world problems and allowed students to diagnose weaknesses within their design and refine their designs to meet load capacity standards.

During the agriculture unit, students gained a better understanding of where their food comes from and best management practices for various species of live-stock. The Food for Thought 4-H STEM kits allowed students to foster an understanding of food security and empowered them to identify ways to support their community.

The range/forestry unit was a seamless transition as we bridged the gap between agriculture and range-lands and forestry management. Students finished this unit by creating a habitat model that illustrated disturbance and restoration across a landscape. This showcased understanding of the importance of restoration practices such as habitat development, seedling planting and natural habitat recovery post disturbance from fire, logging and recreational use.

After spring break, students started the technology unit. This unit showcased up and coming technology and was a favorite. Students learned coding techniques using dash robots and Legos as well as gained experience with popular technology such as a Cricut, GlowForge, Sublimation printers and explored possibilities of what you can do with a 3-D printer.

The horticulture unit provided extensive hands-on experience with plants while exploring various aspects of horticulture. Students planned a community garden and built greenhouses as well as planted vegetables and seedlings. We tracked growth in the classroom under grow lights until the optimal planting season, then after frost students took their plants home to be transplanted into their personal gardens.

Rounding out the semester, students deep dived into career exploration. Students had the opportunity to

talk to career professionals in different fields we covered over the course of the semester. They took a career quiz and then made a poster on their ideal career and the necessary steps needed for them to get there. They learned about the dos and don'ts of resumes and how to successfully interview for a job.

A survey administered at the start and end of the semester indicated an average 31.1% increase in student knowledge across the duration of the semester. This survey covered all aspects of the course, and each unit was represented. At the beginning of the semester we started with 28 students, 26 who took the survey and at the end of the semester we had 22 take the survey. Nearly all students increased their scores between the two surveys, however, statistically there is no significance between the evaluations.

The Future

Going forward the hope is to have a part-time E.A.R.T.H. instructor to teach this valuable course to middle school students in future semesters. This elective was well received by students, parents and administrators and we hope to see it continue.

Surveys and evaluations will occur within each unit, rather than just at the beginning and end of the semester, this will hopefully allow significant data to be collected.

Cooperators and Co-Sponsors

We would like to thank the St. Maries Joint School District 41 and St. Maries school board for allowing us to pilot a non-traditional elective to their students. This opportunity allowed us to make a positive impact on the students futures and we hope to see it continue going forward.

FOR MORE INFORMATION

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