

Entomological Foundation 2018 Micro Grant Report

Grant Awarded: 4-H Cockroach Program (\$465)

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Organization: Breckinridge County 4-H Council, 1377 S Hwy 261 Hardinsburg, KY 40143

Project Report

During the 2018-2019 school year, the 4-H Cockroach program included monthly hands-on science labs for the 618 youth (6th-8th grade) at the Breckinridge County Middle School in collaboration with the local 4-H Youth Development program. In addition, each science classroom hosted a hissing cockroach colony. The teachers and youth cared for their colony and used their cockroaches during each month's lab. Lab topics ranged from anatomy/physiology, to Evolution and Ecology. Thanks to the generous funding from the Entomological Foundation micro grant, all the science classrooms were able to continue hosting and maintaining hissing cockroach colonies in 2019, with much needed supplies (e.g. bags of loose fiber bedding, logs, and heat lamps) and expanding colonies. The funding also provided a brand NEW science lab experience for the 192 8th grade youth. The NEW Neuroscience lab allowed students to learn about the insect nervous system and measured the action potentials of hissing cockroaches using the Spiker Box Bundle Kits and real cockroach legs. It was an exciting way to teach youth about neurons and signaling in the insect nervous system, while exploring how real-life scientists use this information for Entomological research and human research. We explored topics ranging from insecticide resistance to human medical implications. The program incorporated STEM related careers and real life problem solving. Our goals included the development of STEM knowledge and skills among Middle School youth, increased interest in Entomological related professions, and increased confidence of Middle School youth in pursuing higher education and STEM careers. Additionally, we aimed to instill a passion for learning and Entomology while increasing youth's confidence interacting with live insects. Following the NEW Neuroscience Lab, youth completed a Kentucky 4-H Standard post-survey. The evaluation indicated that 92% of the students gained a better understanding of neuroscience. The confidence of students were also enhanced with 85% of participants confident in their ability to plan and carry out a neuroscience experiment, 81% of youth were more comfortable handling and interacting with insects, and 67% of both male and female participants were confident in their ability to pursue a STEM related career in the future including Entomology. Behavioral changes have been observed with 75% of students participating in STEM activities outside of school and 92% making scientific observations in their daily life. This program has successfully introduced youth to Entomology and neuroscience, providing an impactful and memorable experience for the youth. We aim to incorporate the Neuroscience Lab every year into the 4-H Cockroach Program. This program would not have been possible without the generous micro grant from the Entomological Foundation.

Photos (See Following Pages)



