



Buzz Power: Harnessing the Power of the Science Classroom for Outreach Education

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Mission

The mission of the Lee County Mosquito Education program is to enhance the scientific and environmental literacy of the younger citizens of Lee County, to augment their lifetime understanding of the science related to mosquito control.

Goal

The goal of the program is to make sure the public knows who the Lee County Mosquito Control District (LCMCD) is, what it is responsible for and why it is so important.

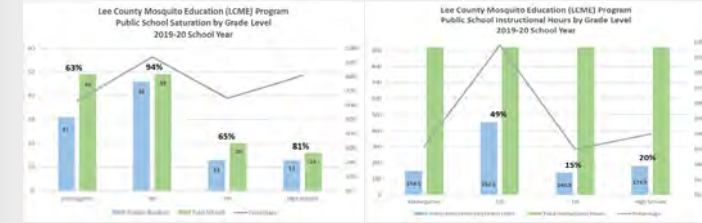
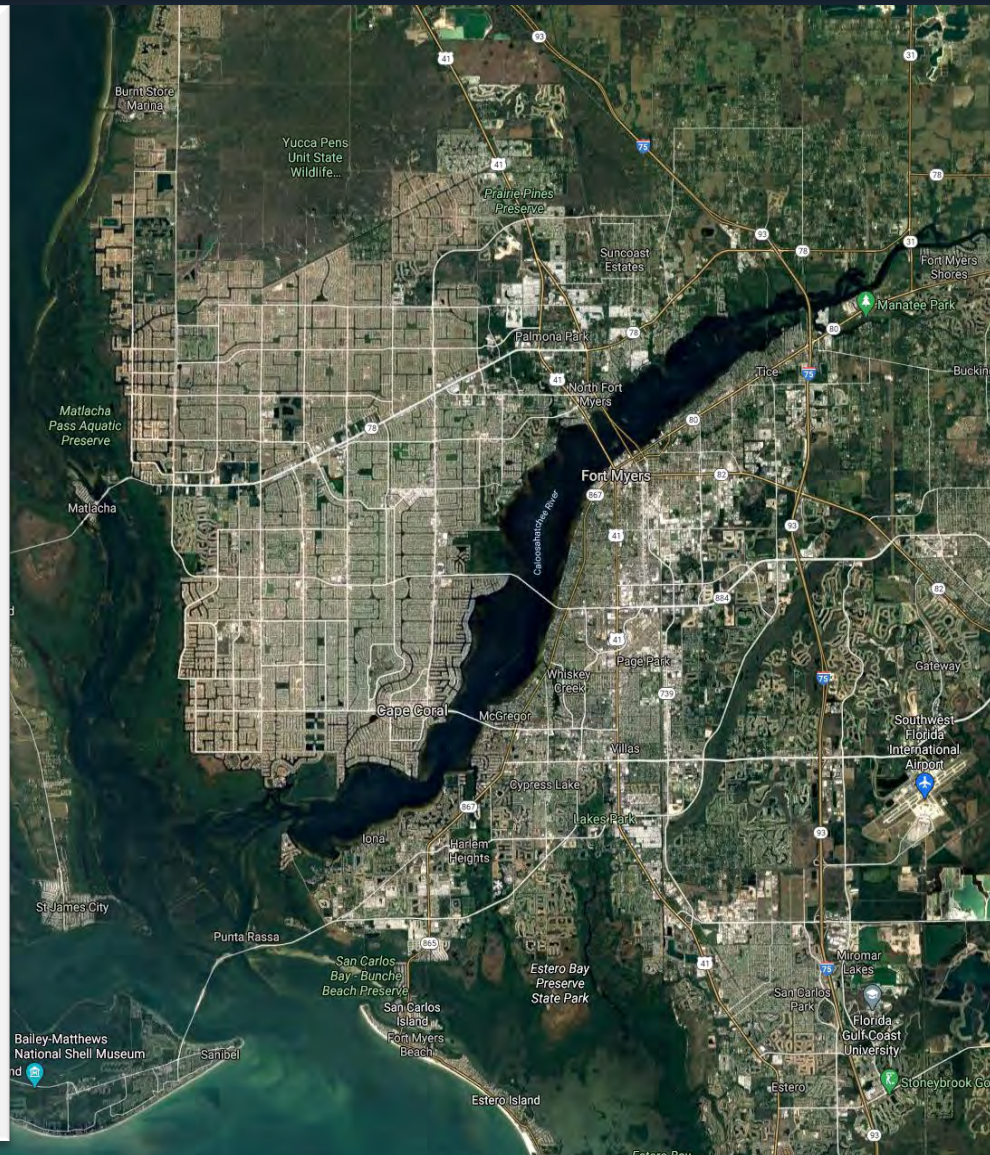
History

The education program was created in 1987. Lee County Mosquito Control District's Executive Director, T. Wayne Miller, determined that public relations with the community could be enhanced through a program integrated into the school system. It started with a vision of educating the younger citizens about the purpose of comprehensive mosquito control for public health and safety. Miller partnered with the Lee County School Superintendent, James Melvin, and together they created the Mosquito Education Program, hiring Neil Wilkinson, a teacher within the school district to head the new program. The program quickly grew requiring the addition of a second full time teacher, Brian Murphy, and later a third, Eric Jackson. Both Wilkinson and Murphy retired in 2018 after serving over thirty years in the Mosquito Education Program. Jackson was appointed to lead the District's public outreach and education initiatives and hired a new team. This new era of highly motivated and experienced educators continues to follow the educational outreach model established by their predecessors.

Creating a Partnership

The Lee County Mosquito Education Program is a collaborative partnership between the Environmental Education Program of the School District of Lee County School and the Lee County Mosquito Control District. Since its inception over thirty years ago, this collaboration has strengthened and expanded to now reach over 20,000 students annually. While funds for the Mosquito Education Program are provided by the Lee County Mosquito Control District, the program is operated out of the Environmental Education Department at the school district's main headquarters. This unique partnership supports and strengthens the mission and goals of both the School District of Lee County and the Lee County Mosquito Control District, providing a win-win for both districts.

Three certified educators regularly collaborate with classroom teachers to bring an interactive, hands-on, mosquito science experience to students. In an effort to provide this opportunity to as many students as possible, the program reaches students in kindergarten, fifth grade, seventh grade, high school biology, and high school chemistry. This multifaceted approach focuses on teaching science through the act of inquiry and investigation. Students make relevant connections to their environment when learning about mosquito biology and their habitats. State standards are reinforced to students by providing real-world, hands-on experiences that make learning relevant and fun.



What Can Your Organization Do?

COMMUNICATION: Schools are continuously looking for ways to enhance their students learning experiences. Communication with your local school district is crucial to the success of a mosquito education program. Discuss how your organization can create a learning experience that focuses on engaging students in exploring the natural world while also encouraging a connection that instills a sense of curiosity across all academic disciplines. Building a partnership with your school district will cultivate environmentally informed citizens of the future.

KNOW THE STANDARDS: Schools adhere to state adopted benchmarks and standards in each subject and grade level. A mosquito education program should reinforce the state standards while supporting public health and mosquito control best practices. A clear understanding of your organization's mission and goals, while supporting grade-level standards, will create a meaningful and strong partnership benefiting both parties.

IN-CLASS FIELD TRIPS: The most effective teaching approach for real-world scientific application is through hands-on, interactive inquiries. By bringing these experiences into the classroom, students can combine their academic learning with real-life practical application. In-class field trips help students make relevant connections to their environment that will impact future generations.

PROVIDE A GRANT: Grants provide opportunities to meet the interests and needs of our diverse learners. A grant is a tool to rally the necessary resources to help organizations fulfill their missions and goals. Resources gained from the grant can be used to address important needs and issues within the learning community. Funding from a grant allows experiences for students to engage in exploring the natural world. These opportunities may inspire future scientists to solve problems and look for solutions to keep our environment and the people who live in it healthy.





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Mosquito Education Programs

Kindergarten

Kindergarten Mosquito Program

The Kindergarten Mosquito Program is designed to introduce our youngest learners to life science. This science-readiness lesson uses the characteristics of a mosquito to teach students about basic attributes of insects, including an insect's life cycle. Students create a model of a mosquito to take home that highlights its two wings, six legs, two antennae, and three main body segments. The classroom is also provided with a sample of living mosquito larvae in an enclosed container, allowing students to see what the little wigglers look like first hand. This program is also conducted by interns from local universities under the direction of our instructors.

Characteristics of an Insect



Grade 5

Ponds, Puddles, and People

Students participate in activities that help them learn about the relationship between weather and mosquitoes, the life cycle of the mosquito, diseases transmitted by mosquitoes and mosquito control methods. Students examine the difference between facts and opinions, are introduced to the science of taxonomy, and observe live "skeeter eaters" during the unit. They also learn about mosquito control methodologies and how those methods have changed in response to greater environmental awareness.



Kindergarten students observing larvae

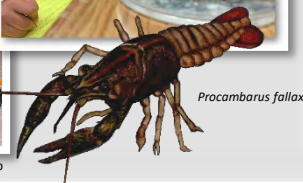


Kindergarten students participating in the Mosquito Education Program

5th Grade students participating in the Mosquito Education Program Skeeter Eaters



Check Out Those Dead Skeeters Lab



Procambarus fallax

Grade 7

Mosquitoes and Other Insects

This presentation emphasizes both the importance of insects to natural systems and the health and economic problems posed by insects. Many examples of exotic and local insects are presented and the students learn about entomology as they examine different species. Students participate in a "MicroMosquito" lab, viewing the mosquito life cycle and a comparison of male and female mosquitoes under the microscope. The program wraps up with a look at mosquito vectored diseases and a look at mosquito control methodologies.



High School Biology

Bacillus sphaericus Bioassay

This unit focuses on the development, implementation, and analysis of a *Bacillus sphaericus* bioassay (*B. sphaericus* is a naturally occurring bacteria used to control certain species of mosquito larvae). During this lab, students realize that biological agents of control can be alternatives to chemical pesticides for pest control. The students make inferences and conclusions based on the results of this authentic science lab experience.



High School Chemistry

Pesticide Resistance Lab

The problem of insect resistance to pesticides is explored and the biological and economic consequences of resistance are discussed. During the lab experience students conduct a susceptibility test with *Culex* mosquito larvae. The results of the test are analyzed, evaluated and used in the discussions.

