

HOUSTON ARBORETUM & NATURE CENTER

Grant Proposal for
The John O'Quinn Foundation

October 16, 2024

Houston Arboretum & Nature (HANC) respectfully requests a \$25,000 grant from The John O'Quinn Foundation in support of HANC's hands-on science education programs for elementary students (\$25,000) and an additional \$25,000 in support of disaster recovery. A total contribution of \$50,000.

This summer's two federally declared disasters, the May Derecho and July's Hurricane Beryl, were devastating to the Arboretum's ecosystem, and resulted in a loss of income. The major tree loss and massive debris clean up, as well as closure for more than 3 weeks totaled more than \$150,000, most of which was not covered by insurance. Your support in rebuilding our working capital would help keep HANC financially strong.

Organizational Overview

Mission & History

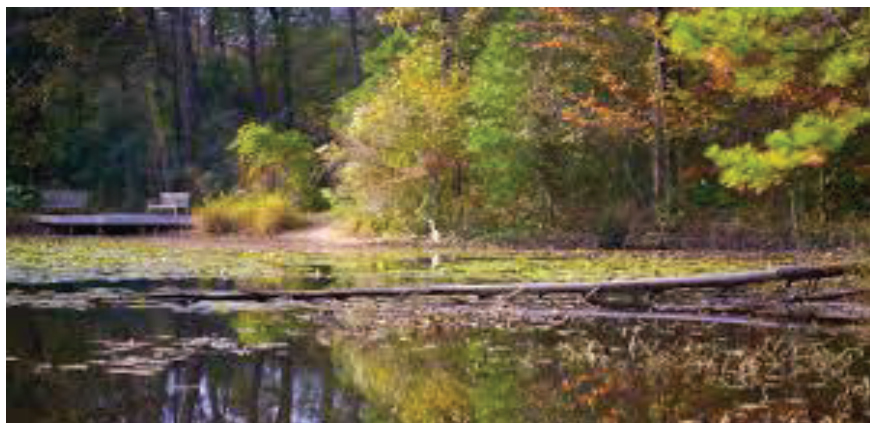
The mission of HANC is to provide education about the natural environment to people of all ages and to protect and enhance the Arboretum as a haven and as a sanctuary for native plants and animals. Established in 1967 by several civic-minded Houstonians, HANC has stayed true to its dual mission of creating and implementing innovative educational programs while preserving and improving the Arboretum's site as a habitat for Gulf Coast wildlife.



The Arboretum's landscape features native plants and opportunities for visitors to engage with natural habitat in the center of the fourth largest city in the county.

The Arboretum's programs introduce children and adults from all backgrounds to the natural world, improving science literacy and environmental awareness and encouraging outdoor exploration and discovery. These educational endeavors take place on the site's 155 acres of native Gulf Coast habitat, a diverse collection of ecosystems including savanna, prairie, wetland, woodland, and bayou. These ecosystems highlight the region's beautiful plants, grasses, and wildflowers and provide much-needed habitat for a wide array of important native wildlife, including more than 200 species of birds. In 2023, the Arboretum was visited by approximately 625,000 people, who were able to connect with nature and explore one of Houston's greatest natural treasures. Admission to the Arboretum remains free of charge every day, and all year round. Doing so, provides access and services to users from all backgrounds, especially those from underserved communities. Many of the Arboretum's visitors are families with young children, who excitedly explore the Discovery Room and Nature Playscape; others come for birdwatching, to exercise their pets, to practice their photography skills, or simply for the peace and beauty of the Arboretum's landscapes.

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Respite in the heart of Houston. The Arboretum welcomes more than half a million visitors each year.

Programs

One of the Arboretum's most important efforts is the provision of environmental / nature education to people of all ages, and the organization boasts a wide variety of programs designed to improve science understanding and connection with the natural world. Children's programs are offered to young ones from ages 18 months to teen and include weekend family discovery

classes, a well-attended home school program, week-long camps throughout the year, robust badge workshops for both Boy and Girl Scouts, and a weekly Tyke Hike for toddlers and their guardians. During the 2023-2024 school year, more than 8,500 students visited the Arboretum for grade-level, hands-on science education that includes experimentation, guided hikes, and outdoor discovery. Roughly 70% of the students taking part in these programs come from low-income Title I schools, and the Arboretum maintains a commitment to deliver unparalleled learning opportunities to underserved students from across the region.

Budget, Staff, and Board

Led by Executive Director, Debbie Markey, HANC employs 31 full-time and one part-time staff while operating within a \$3,680,904 budget (FY25). In September 2023, the Board of Directors completed the Arboretum's first strategic plan in the organization's history. Guided by this plan, HANC will expand the quality, impact and access to conservation and education programming; create opportunities to deepen engagement with Houstonians and invest further organizational capacity, people and systems; all of which will allow the organization to be successful in reaching its goals with efficacy and efficiency.

Our current Board President, Sam Pyne, leads our Board of Directors, which consists of 30 dedicated and passionate members. Please find a complete list of the HANC Board of Directors attached to this proposal.

Statement of Need

Experts agree that curiosity is a main driving force in a human's learning process.¹ As children explore the natural world, the learning process becomes play and spurs scientific questions about the environment.

A 2021 Stanford University/ North American Association for Environmental Education study incorporating 119 peer-reviewed studies from over a 20-year period supports what is seen in children engaged in HANC's nature programs. Environmental education not only helps students gain knowledge about the environment but triggers a child's natural curiosity about the world around them.

¹ Kidd C, Hayden BY. The Psychology and Neuroscience of Curiosity. Neuron. 2015 Nov 4;88(3):449-60. doi: 10.1016/j.neuron.2015.09.010. PMID: 26539887; PMCID: PMC4635443.

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According to the study, the list of positive impacts from environmental education programs is extensive.

- Knowledge gains across multiple disciplines, including environmental issues, science, mathematics, and more
- Emotional and social skills, such as self-esteem, character development, teamwork, and leadership skills
- Environmentally friendly behavior, such as reducing water use, increasing recycling, and participating in community cleanups
- Academic skills, such as critical thinking, oral communication, analytical skills, problem solving, and higher-order thinking
- Motivation to learn, including enthusiasm for and interest in school
- Civic interest and engagement, including feelings of civic responsibility, feelings of empowerment, and ability to take action²



The need for HANC's environmental education is vital to our community. "The U.S. is falling behind in STEM proficiency compared to other leading countries."³ However, future careers in STEM occupations, including life and physical sciences, are projected to grow 10.8 % by 2032 – four times faster than non-STEM occupations.

HANC's hands-on, immersive outdoor science education improves the understanding of scientific concepts, which serve as stepping stones for further achievement. Additionally, participating students from economically disadvantaged backgrounds who live in urban settings may not have an opportunity to experience a guided exploration of nature due to economic and transportation barriers. This lack of exposure to nature places these students at a disadvantage compared to students with more opportunities.

The Guided Field Experience Program

HANC's Guided Field Experience program uses real-life examples, hands-on experiments, and outdoor exploration to teach grade-level science concepts to elementary school students in grades preK-5 in an accessible and effective way. By encouraging scientific learning and engaging students in the scientific method, it enhances problem-solving, critical thinking skills and sparks a lasting interest in scientific disciplines that lead to future attainment in important STEM fields.

² Stanford University and North American Association for Environmental Education. Stanford analysis reveals wide array of benefits from environmental education. 2021. https://naaee.org/sites/default/files/inline-files/k-12_student_key_findings.pdf

³ Singh, Kerry Ebersole. Preparing Kids For The Jobs Of Tomorrow: Investing In STEAM Education. Forbes. 2024 Feb 4. <https://www.forbes.com/sites/kerryebersolesingh/2024/02/04/preparing-kids-for-the-jobs-of-tomorrow-investing-in-steam-education>

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In a typical school year, approximately 8,000 – 10,000 school children participate in the Arboretum's Guided Field Experience program. While the format of the program varies to align with grade-level concepts, it always includes a guided outdoor walk, experiments, and exploration of the Arboretum's forests, ponds, and meadows.



Log-rolling is a favorite activity that allows students to learn about decomposition.

Program Activities

The Arboretum's field trip programs are almost a full day (9:30 am to 1:00 pm) of instruction and outdoor engagement. After a classroom introduction, naturalists begin with a brief review of the structure of the day and an outline of the ecological concepts they will be exploring. Each student rotates through experiment stations, outdoor hikes, and the Arboretum's Discovery Room, which includes microscopes and other scientific tools, live animals in aquariums and tanks, and biofacts like pelts, skulls, and scat.

Outside, they dip for organisms in an Arboretum pond, net for insects in the meadow, dissect owl pellets, analyze water quality, or examine the underside of rotting logs to learn about decomposition. Special programs focusing on specific topics like air quality, environmental systems, and earth science are also available.

Striving for continual improvement, HANC conducts yearly surveys and requests feedback from docents.

Student Population

Through the Acorn Academy program, we have worked to partner with schools from underserved communities throughout the city, including schools with high populations of students with limited English proficiency (LEP), for whom science concepts can be especially difficult to understand. Each school sends each grade, K-5, to the Arboretum twice during the school year for formal outdoor science education. For the coming school year, the partner schools are:

- DRAW Academy; student population is 100% economically disadvantaged, 100% students of color
- Elrod Elementary; student population is 93% economically disadvantaged, 99% students of color. 14% of the students at Elrod are recent immigrants. The Arboretum is also working with Elrod to provide outreach programming to its need-based preschool students and will be helping them build a garden on campus.
- Buffalo Creek Elementary in Spring Branch ISD; 93% economically disadvantaged, 95% students of color

Request

Houston Arboretum & Nature Center (HANC) respectfully requests a \$25,000 contribution in support of interactive science/environmental education for elementary school students through our Guided Field Experience program, and a \$25,000 disaster relief contribution. A total contribution of \$50,000.