



Services to Youth: STEM for Life

Mission

To identify and meet the needs of children and adults in the Chicago Southland communities through programming that provides education, opportunities and enrichment in the areas of STEM, the arts, health and wellness, cultural diversity and social-emotional learning.

Vision

To have a transformative impact on the youth and adults in the communities that we serve, uplifting and empowering them to create positive, productive and healthy lives and futures. To be recognized, by the community in which we serve as leaders in addressing the needs of the community, as visionaries and a beacon of hope and support for the future of those less fortunate.

Goals/Objectives

The South Suburban Chicago (IL) Chapter of the Links, Inc. will provide the following to the fourth-grade students at King Elementary School in Dixmoor/Harvey, IL:

1. Reinforce STEM concepts through substantive and sustainable systems of support that align with and utilize arts activities. (2019-2020)

(2019-2021)

2. Expand and deepen the interest and enthusiasm of students regarding concepts, events and careers related to science, technology, engineering and mathematics, increasing their exposure to expertise and experiences beyond the classroom.
3. Gain opportunities for hands-on and real-life science experiences for students through labs and field trips.
4. Develop sustainability of a high-quality STEM program by continuing practical and maintainable provisions that will reinforce STEM concepts through the alignment with state and national science (Next Generation Science Standards) and math standards.

Problem to Be Addressed

West Harvey/Dixmoor School District 147 is located in the southern suburbs of Chicago, Illinois. The school consists largely of two communities, African American (60%) and Hispanic (38%). Close to one fourth of the population have a median age of 28 and have not completed high school. Less than 10% have college degrees. The median household income in Harvey is approximately \$22,000 with 22% unemployment rate. Also, 25% earn less than \$10,000. For Dixmoor it is higher at \$41,000 where about 79% have completed high school, but there is still a poverty rate of 33%.

At 99 % low income, all students in the district qualify for free and reduced lunch. Though the class size in the intermediate grades is average (less than twenty-five), individual needs are high, which burdens classroom group instruction. Risk factors include mean household income, educational levels, test scores, 26% mobility (twice the state average), graduation rates and access to cultural facilities and programs and a high jobless rate. The school district has had to close one elementary building due to loss of enrollment and shrinking revenue. Our focus has been at King Elementary School with over 200 students.

School districts in this area have become increasingly focused on reading and math due to testing priorities. Science is less of a priority. Also, the school lacks the budget for field trips, science equipment, outside resources and materials to accompany the science textbooks. Many students have had little exposure to the world outside their immediate community, which has high crime rates and gang activity. Current and future career opportunities are increasing in STEM areas, with 19/25 of the high paying jobs being STEM related. Additionally, Illinois 5th graders must take an online science exam based on the Next Generation Science Standards. Thus, it is critical that we provide alternatives through STEM experiences.

Program Description

Utilizing the school science curriculum, Next Generation instructional principals and expertise of external partners and an art instructor, we have engaged 4th grade students in a comprehensive and challenging program designed to increase their interests, knowledge and achievement in the arts, science, math and technology and exposure to STEM-related careers. In 2019, Field trips, hands-on experimentation and interactions with artists, science and engineering professionals were major components of the program. The students became known as scientists and have been encouraged to think like scientists in all activities. In Fall 2020, we began an on-line STEM program via ZOOM due to the Covid-19 Pandemic. Students are engaged through videos, conversation, photos and worksheets.

List of Activities

The fourth-grade students of King Elementary School:

- Received instruction on The Scientific Method and it is used and referred to in all subsequent lessons.
- Participated in environmental education (activities/programs) and learned about seeds, biodiversity, the water cycle, animals and ecosystems at Irons Oaks Environmental Educational Center and Kickapoo Woods.
- Learned about the water cycle and its importance to survival by making classroom and individual terrariums.
- Explored circuits and built their own robots (doodle-bots) which were also used for an art project.
- Combined STEM and art to create seed trees, doodle art projects, leaf projects, and other activities.
- Analyzed information in hands-on labs (Crime Lab, Moving with Newton, Testing the Waters) and Live Science Experiences (Storms and Mirror Maze) at the Museum of Science and Industry.
- Explored the importance of the brain, thinking and asking questions.
- Gained exposure to numerous STEM careers, including aviation, through an annual Career Day and a career day visit to O'Hare Airport in 2019.
- Engaged in classroom workshops provided by retired professional educators before each field trip experience in 2019.
- Learned about Arbor Day and Earth Week by receiving instruction on the topics and a "Planting a Better Tomorrow" coloring book from Trees Forever, which gives information and instruction about trees and tree products on each page. Students also planted 3 trees at Kickapoo Woods.
- Learned, through an after-school arts program with 25 students, and participated in the Links Arts Poster contest, as well, as a theater program by Urban Gateways which culminated in a play presented to staff and parents. In 2019, the Urban Gateways program was provided during the day with individual classrooms participating and exploring their creative attributes.
- Accessed instruction, in 2020, on-line via ZOOM due to Covid-19. Topics are coordinated with students' current curriculum and have included: Newtons Laws of Motion, Energy, Renewable, Nonrenewable Sources of Energy and Solar Energy, Ecology/Ecosystems, The Food Web and How Seeds Travel.
- Explored Weather, Clouds and Storms in January 2021.
- Will receive individual hands-on "science kits" that will enhance our continued remote instruction, to include Engineering: creating Paper Plate Mazes, Roller Coasters and Crime Lab: Chromatography, etc., when they begin hybrid learning.